

1. Which of the following is caused by congenital 17 hydroxylase deficiency:

a) Hyperkalemia

b) Hermaphroditism

c) Hypertension

d) Virilism

Correct Answer - C

Hypertension

17 -hydroxylase (17 -OH) deficiency syndrome is a rare genetic disorder of steroid biosynthesis causing decreased production of glucocorticoids and sex steroids and increased synthesis of mineralocorticoid precursors. Reduced or absent levels of both gonadal and adrenal sex hormones result in sexual infantilism in 46, XX females and ambiguous genitalia in 46, XV males. Excessive mineralocorticoid activity produces varying degrees of hypertension Q and hypokalemia Q. Patients usually are diagnosed with this condition during an evaluation of delayed puberty. absent secondary sexual characteristics or primary amenorrhea.Q

2. True about lumbricals is

- a) Flex IP joints and extends MCP joint
- b) 1st and 2nd supplied by radial nerve
- c) 3 and 4 supplied by superficial branch of ulnar
- d) Origin from tendons of flexor digitorum profundus

Correct Answer - D

Answer. D

Origin from tendons of flexor digitorum profundus*

The four **lumbrical** muscles arise from the tendons of flexor digitorum profundus. They have different origins:

Each passes distally to the radial side of its nearest metacarpophalangeal joint of the fingers to be inserted into the dorsal extensor expansion of digits two to five.

Their actions on these digits are to:

- * Extend the interphalangeal joints
- * Flex the metacarpophalangeal joints

The innervation of the lumbricals is dual:

- * The radial first and second lumbricals are supplied by the median nerve (C8, T1)
- * The ulnar third and fourth lumbricals are supplied by the deep branch of the ulnar nerve (C8, T1)
- * Occasionally, the third lumbrical can receive its innervation from the median nerve.

3. In patients with hypertrophic cardiomyopathy maximum mutations are found in which gene:

a) . β - myosin heavy chain

b) Elastin

c) . α - tropomyosin

d) Troponin T

Correct Answer - A

β - **Myosin heavy chain**

Mutations in gene for β - Myosin heavy chain are associated with 40% of the families with hypertrophic cardiomyopathy.

Troponin T mutations - 15% of the families α - tropomyosin mutations ~5% of the families

4. What is the venous hematocrit level at which you will diagnose polycythemia in a newborn?

a) 55%

b) 60%

c) 65%

d) 70%

Correct Answer - C

Definition of polycythemia:

- a. Venous haematocrit of over 65%.
- b. Venous haematocrit of over 64% at 2 hours age.
- c. An umbilical venous or arterial haematocrit over 63% or more.

The mean venous haematocrit of term infants is 53 in cord blood, 60 at 2 hours of age, 57 at 6 hours of age and 52 at 12-18 hours of age. As the haematocrit increases, there is increased viscosity and decreased blood flow. When haematocrit increases to more than 60% there is a fall in O₂ transport.

Definition of hyperviscosity: Viscosity greater than 14.6 centipoise at a shear rate of 11.55 as measured by a viscometer. (normal is 1.4-1.8 centipoise).

5. The significance of difference between proportions can also be tested by-

a) .t' test

b) Chi square test

c) ANOVA

d) Correlation and regression

Correct Answer - B

Ans. B. Chi square test

Chi-Square test offers a method of testing the significance of difference between the proportions.

Its advantage lies in the fact that it can also be used when more than two groups are to be compared.

By using this test, we can find out if the difference between two proportions or ratios has occurred by chance. The steps involved are-

1. Testing the null hypothesis.
2. Applying chi-square test.
3. Calculating the degree of freedom.
4. Comparing with probability tables.

6. Peripheral and central chemoreceptors may both contribute to the increased ventilation that occurs as a result of which of the following?

- a) A decrease in arterial oxygen content
- b) A decrease in arterial blood pressure
- c) An increase in arterial carbon dioxide tension
- d) A decrease in arterial oxygen tension

Correct Answer - C

The central chemoreceptors located on or near the ventral surface of the medulla cause an increase in ventilation in response to an increase in P_{aCO_2} and to a lesser extent to a decrease in arterial pH because the blood brain barrier is relatively impermeable to hydrogen ions.

The peripheral chemoreceptors in the carotid bodies cause an increase in ventilation in response to an increase in P_{aCO_2} a decrease in arterial pH, and a decrease in P_{aO_2} . Neither the central chemoreceptors nor the carotid bodies are stimulated by a decrease in arterial blood pressure or O_2 content.

7. Wireless capsule endoscopy is done to visualize which of the following condition?

a) Esophageal varices

b) Gastric carcinoma

c) Crohn's disease

d) Ulcerative colitis

Correct Answer - C

Crohn's disease

Wireless capsule endoscopy (WCE) allows direct visualization of the entire small-bowel mucosa. The diagnostic yield of detecting lesions suggestive of active CD is higher with WCE than CT enterography or small-bowel series. WCE cannot be used in the setting of a small-bowel stricture. Capsule retention occurs in <1 % of patients with suspected CD, but retention rates of 4-6% are seen in patients with established CD.

8. Thomas test is used for testing?

- a) Hip flexion
- b) Knee flexion
- c) Hip abduction
- d) Hip rotation

Correct Answer - A

A

Hip flexion REF: Lange Instant Access: Orthopedics and Sports Medicine, by Anil Patel, page 106

Thomas Test: With the patient lying supine, maximally flex both hips. Allow the femur on the ipsilateral side to fall into as much extension as possible, while holding the other hip up. The angle between the femur and examining table is the residual flexion and represents the flexion contracture.

9. Indication for surgical compartment release in compartment Syndrome in any compartment is absolute pressure greater than?

- a) 15 mm Hg
- b) 20 mm Hg
- c) 30 mm Hg
- d) Varies from compartment to compartment

Correct Answer - C

30 mm Hg REF: With text

"Setting the threshold for fasciotomy at a perfusion pressure of 30 mmHg can be considered safe, but still may lead to overtreatment if used routinely" REF: Evidence-based Orthopedics - Mohit Bhandari Page 634

Different authors consider surgical intervention if: (REF: Tiwari A, Haq A I, Myint F, Hamilton G. Acute compartment syndromes. *Br J Surg* 2002; 89: 397-412.)

- 1. Absolute ICP greater than 30 mmHg
- 2. Difference between diastolic pressure and ICP greater than 30 mmHg
- 3. Difference between mean arterial pressure and ICP greater than 40 mmHg

"Intracompartmental pressure may be measured by the wick catheter in patients suspected to have compartment syndrome. By such method a pressure of 30 mm Hg or more sustained for 6-8 hours or more is a likely indication for decompressive fasciotomy" REF: Skeletal injury in the child by John Anthony Ogden Page 317

Intracompartmental Comments

pressure

<15 mm Hg	Normal compartment pressure of lower limbs
>25 mm Hg	Venous drainage from closed myofascial spaces is impaired.
>30 mm Hg	Complete venous collapse
>60 mm Hg	Neuromuscular ischemia

REF: Mastery of vascular and endovascular surgery - Gerald B. Zelenock, Thomas S. Huber, Louis M. Messina Page 507

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10. Which is not true of Tabes dorsalis?

- a) Seen in neuro syphilis
- b) Paresthesia is seen
- c) Deep tendon reflexes are retained
- d) Abdominal pain and visceral symptoms occur

Correct Answer - C

Deep tendon reflexes are retained REF: Harrison's Principles of Internal Medicine 17th ed chapter 372

TABES DORSALIS:

- The classic syndromes of tabes dorsalis and meningovascular syphilis of the spinal cord are now less frequent than in the past but must be considered in the differential diagnosis of spinal cord disorders.
- The characteristic symptoms of tabes are fleeting and repetitive lancinating pains, primarily in the legs or less often in the back, thorax, abdomen, arms, and face. Ataxia of the legs and gait due to loss of position sense occurs in half of patients.
- Paresthesias, bladder disturbances, and acute abdominal pain with vomiting (visceral crisis) occur in 15-30% of patients.
- The cardinal signs of tabes are loss of reflexes in the legs; impaired position and vibratory sense; Romberg's sign; and, in almost all cases, bilateral Argyll Robertson pupils, which fail to constrict to light but accommodate. Diabetic polyradiculopathy may simulate tabes.

11. Vitamin not deficient in celiac disease is?

a) Vitamin D

b) Vitamin B 12

c) Folic acid

d) Vitamin A

Correct Answer - C

Folk acid REF: Sheila Crowe - 2010 page 384, Harrison 17th ed
chapter 288

Vitamins deficient in celiac disease are:

- 1. Vitamin A
- 2. Vitamin D
- 3. Vitamin K
- 4. Vitamin B12

12. A Bone marrow transplant recipient patient developed chest infection. On HRCT 'Tree in bud appearance' is seen. Most likely causative agent is:

a) Klebsiella

b) Pneumocystis

c) TB

d) RSV

Correct Answer - B

Pneumocystis [Ref: Harrison 17/e p843; Article 'Tree in bud sign' in Journal 'Radiology' and 'Radiographics']

- Tree-in-bud is a sign seen in HRCT, most commonly seen with *endobronchial spread of Tuberculosis*, but can be seen with a wide variety of conditions, most commonly infections. (Described ahead in detail).
- Theoretically all the options can cause 'Tree-in-bud' sign (although Klebsiella has not been mentioned in the list).
- So the next clue is Bone marrow transplant.
Bone marrow transplant causes a transient state of immunological deficiency leading to a wide variety of opportunistic infections. Among the given options, according to the table and text of Harrison (17/e chapter 'Infections in Transplant Recipients') Pneumocystis and RSV can cause pneumonia after transplant: but Pneumocystis is a much more common than RSV.

Common Sources of Infections after Hematopoietic Stem Cell Transplantation

Period after Transplantation

<i>Infection Site</i>	<i>Early (<1 Month)</i>	<i>Middle (1-4 months)</i>	<i>Late (>6 Months)</i>
<i>Disseminated</i>	<i>Aerobic gram-negative, grain-positive bacteria</i>	<i>Nocardia, Candida, Aspergillus</i>	<i>Encapsulated bacteria (Streptococcus pneumoniae, Haemophilus influenzae, Neisseria meningitidis)</i>
<i>Skin and mucous membranes</i>	<i>HSV-</i>	<i>HHV-6</i>	<i>VZV</i>
<i>Lungs</i>	<i>Candida, Aspergillus HSV</i>	<i>CMV, seasonal respiratory viruses, Pneumocystis Toxoplasma</i>	<i>Pneumocystis</i>
<i>Gastrointestinal tract</i>		<i>CMV</i>	
<i>Kidney</i>		<i>BK virus, adenovirus</i>	<i>BK virus</i>
<i>Brain</i>	<i>HHV-6</i>	<i>Toxoplasma</i>	<i>Toxoplasma, JC virus</i>
<i>Bone marrow</i>	<i>HHV-6</i>		
<p><i>Tree-in-bud sign</i></p> <ul style="list-style-type: none"> • The tree-in-bud sign is a finding seen on thin-section computed tomographic images of the lung (HRCT). (Not seen on X-rays) <i>Peripheral, small, centrilobular nodules are connected to linear, branching opacities that have more than one contiguous branching site, thus resembling a budding or, fruiting tree: this is known as tree-in-bud-pattern.</i> • It represents dilated and impacted (mucus or pus-filled) centrilobular bronchioles. The presence of tree-in-bud is indicative of small airway disease. 			

- It is most commonly associated with endobronchial spread of *Mycobacterium tuberculosis*. But it can also be seen in a large number of conditions.
- Pulmonary infectious disorders involving the small airways are the most common causes of the tree-in-bud sign. Any infectious organism, including bacterial, mycobacterial, viral, parasitic, and fungal agents, can involve the small airways and cause a tree-in-bud pattern.

Causes of *Tree-in-bud* appearance

	Congenital disorders	
Peripheral airway disease	Cystic fibrosis	
Infection	Kartagener syndrome	Connective tissue disorders
Bacterial	Idiopathic disorders	Rheumatoid arthritis
<i>Mycobacterium tuberculosis</i>	Obliterative bronchiolitis	Sjögren syndrome
<i>M. avium-intracellulare</i> complex	Diffuse panbronchiolitis	Peripheral pulmonary vascular disease
<i>Staphylococcus aureus</i>	A	Neoplasms
<i>Haemophilus influenzae</i>	spiration	Primary pulmonary lymphoma
Fungal	Inhalation	Neoplastic pulmonary emboli
<i>Aspergillus</i>	Toxic fumes and gases	Gastric cancer
<i>Pneumocystis carinii</i> , (renamed <i>Pneumocystis jiroveci</i>)	Immunologic disorders	Breast cancer
Viral	Allergic bronchopulmonary aspergillosis	Ewing sarcoma
Cytomegalovirus		Renal cancer
Respiratory syncytial virus		

13. Cause of vasodilatation in spider nevi -

a) Estrogen

b) Testosterone

c) Hepatot oxins

d) FSH

Correct Answer - A

Estrogen [Ref: Harrison 17th/e p. 1920; Robbin's 7th/e p. 882]

- Spider nevi refer to dilated, visible small blood vessels in the skin. - It is called spider nevi because it consists of central "feeding" blood vessel with numerous fine radiating legs emanating from the central body.
- Spider nevi are caused due to vasodilatation of vessels and are usually associated with cirrhosis.
- Cirrhosis is associated with vasodilatation and hyperdynamic circulation.
- "The cause of vasodilatation in chrrhosis is uncertain but it is believed to be related to the increased level of estrogen in the both. Estrogen is a female sex hormone which is metabolized by liver. Thus in liver diseases its level tends to increase which is believe to cause vasodilatation, resulting in spider naevi."

14. Strawberry gingivitis seen in

- a) Myelocytic infiltration
- b) Phenytoin toxicity
- c) Wegner granulomatosis
- d) Klipel renaunay syndrome

Correct Answer - C

Wegener's granulomatosis [Ref: IADVL Textbook of Dermatology 3rd ed p. 695]

- Wegener's granulomatosis is known to cause oral mucosal lesions. "Strawberry gingivitis is characteristic oral lesion associated with Wegener's granulomatosis".
- Strawberry gingivitis clinically presents with: ?
'Swollen erythematous gums clinically resembling overripe strawberries'
Histologically strawberry gingivitis is characterized by

15. Which of the following is true of Wilson's disease all except -

- a) Autosomal recessive
- b) Serum ceruloplasmin level < 20 mg/dl
- c) Urinary copper excretion < 100 microgram/c11
- d) Zinc acetate is used as maintenance therapy

Correct Answer - C

Urinary copper excretion <100 microgram/di [Ref: Harrison 17th/e p. 2450, 2449]

- Symptomatic pts. of Wilson disease invariably have urine copper levels > 100 pg per day.
- Wilson disease is an autosomal recessive disorder caused by mutation in the ATP 7B gene (a copper transporting ATPase)
- Diagnosis - The gold standard for diagnosis is Liver biopsy with quantitative copper assay.
- Other diagnostic tests used are ?
 - Serum ceruloplasmin level
 - KF rings
 - Urine copper excretion
 - DNA Helpful analysis
- Serum copper values have no diagnostic value, since they may be low, normal or elevated depending upon the stage of evolution of disease.

Table : Useful Diagnostic Tests for Wilson Disease

Test	Normal Value	Wilson Disease
	180-350	

Serum	mg/L	
ceruloplasmin	(18-35 mg/dl)	<ul style="list-style-type: none"> • Low in 85% • Present in 99% - If neurologic or psychiatric symptoms present.
KF rings	Absent	<ul style="list-style-type: none"> • Present in 30-50% - in hepatic presentation and presymptomatic state • Urinary copper excretion is increased
24-h urine Cu	0.3-0.8 mmol	<ul style="list-style-type: none"> - >1.6 mmol (>100mg) in symptomatic patients • 0.9 to > mmol (60 to > 100 mg) - in presymptomatic patients
Liver Cu	0.3 — 0.8 mmol/g	<ul style="list-style-type: none"> • Liver copper is increased • > 3.1 mmol (200 tissue mg)
Haplotype analysis	0 Matches	2 Matches
<u>Treatment</u>		
<ul style="list-style-type: none"> • <u>Zinc is the treatment of choice for Wilson disease.</u> • It produces a negative copper balance <ul style="list-style-type: none"> - By blocking intestinal absorption of copper - By inducing hepatic metallothionein synthesis which sequesters additional toxic copper. 		
Table : Recommended Anticopper Treatments for Wilson Disease		
Disease Status	First Choice	Second Choice

Initial hepatic manifestations		
• Hepatitis or cirrhosis without decompensation		Trientine
• Hepatitis or Cirrhosis with decompensation	Zinc	Penicillamine and zinc
- Mild	Trientine and zinc	Hepatic transplantation
- Moderate	Hepatic transplantation	Trientine and zinc
- Severe	Tetraioinolybdate and zinc	Trientine and zinc
Initial neurologic/psychiatric		Trientine
Maintenance therapy	Zinc	Trientine
Presymptomatic therapy	Zinc	Trientine
Pediatric	Zinc	Trientine
Pregnant	Zinc	Trientine

16. All are true about thrombotic thrombocytopenic purpura except?

- a) Micro angiopathic hemolytic anemia
- b) Thrombocytopenia
- c) Normal complement level
- d) Grossly abnormal coagulation tests

Correct Answer - D

Ans: D. Grossly abnormal coagulation test [Ref: Robbin's 7m/e p. 1010]

* Thrombotic thrombocytopenic purpura (TTP) is characterized by the presence of widespread thrombosis throughout the microcirculation.

* The unique characteristic of these thrombi is that they are primarily composed of platelets^o with very little fibrin in it.

* The consumption of platelet leads to thrombocytopenia and the presence of intravascular thrombi causes microangiopathic hemolytic anemia^o and widespread organ dysfunction.

* You must have noticed that TTP and DIC share so many similar features such as microvascular occlusion and microangiopathic hemolytic anemia,

But they are pathologically distinct. In TTP

* Activation of coagulation cascade is not of primary importance. The thrombi present are essentially platelet thrombi, hence results of laboratory tests of coagulation such as PT and PTT are usually normal.

In D.I.C.

* The main defect is activation of coagulation system therefore PT

and PTT are abnormal.

- * Patients with TTP are deficient in an enzyme called ADAMTSB. This enzyme is also known as vWf in etalloprotease.
- * This enzyme normally degrades very high molecular weight multimers of von-Willebrand factor. In the absence of this enzyme, these multimers of vWF accumulate in plasma and under some circumstances promote platelet macroaggregate formation throughout the microcirculation leading to symptoms of TTP.
- * Thrombotic thrombocytopenic purpura is a thrombotic microangiopathy.
- * The other disorders which is included in this group include H. U.S.
- * The diseases are characterized by widespread thrombosis in microcirculation.
- * The vessels which are involved are terminal arterioles^Q and capillaries.
- * These vessels have thrombi.
- * The characteristic of this thrombus is that it is primarily a platelet thrombus^Q i.e. the thrombi is composed mainly of platelets and von Wilebrand factor with very little fibrin in it.

Pathogenesis

- * Patients with TTP are deficient in an enzyme called ADAMTSB^Q. (This enzyme is also known as vWf nielalloproteaSe.)
- * This enzyme normally degrades very high molecular weight multimers of von-Willebrand factor. In the absence of this enzyme, these multimers of vWF accumulate in plasma and under some circumstances promote platelet macroaggregate formation throughout the microcirculation leading to symptoms of TTP.
- * Platelet associated immunoglobulin (IgG) and complement levels are normal in T.T.P.

17. Most common organism associated with reactive arthritis is:

a) Staphylococcus

b) Shigella

c) Chlamydia

d) Yersinia

Correct Answer - C

Chlamydia [Ref: Harrison 17/e p2113;

<http://www.emedicine.com/derm/TOPIC207.HTM>;

<http://www.entedicine.com/med/TOPIC1998.11TM>]

- Reactive arthritis is a systemic disorder of unknown etiology that is defined by the development of conjunctivitis, urethritis, arthritis, and mucocutaneous lesions following an episode of infection elsewhere in the body.
- In 1916, Hans Reiter described the triad of nongonococcal urethritis, conjunctivitis, and arthritis in a young German officer with bloody dysentery. The classic triad of the disease, namely urethritis, arthritis, and conjunctivitis, is present in only one third of the patients.
- Reactive arthritis is frequently associated with the *human leukocyte antigen B27* (1-ILA-B27) haplotype.
- The etiology of reactive arthritis remains uncertain. The most accepted theory about the pathophysiology of reactive arthritis involves initial activation by a microbial antigen, followed by an autoimmune reaction that involves the skin, eyes, and joints.
- Two forms are recognized: a sexually transmitted form and a dysenteric form. Gastrointestinal infections with *Shigella*, *Salmonella*, and *Campylobacter* species and other microorganisms, and genitourinary infections especially with *Chlamydia trachomatis*

- have been found to trigger reactive arthritis.
- Young children tend to have the post dysenteric form, whereas adolescents and young men are most likely to acquire reactive arthritis after they have urethritis.
 - *It's not clear which organism is most commonly associated with reactive arthritis. Both Shigella and Chlamydia appear to be most common. After going through many articles from journals on the net, Chlamydia appears to be the most common. We would prefer to go with Chlamydia. (However if any one finds a reliable reference documenting the most common organism, please mail us at our email id.*
 - The article on Reactive Arthritis in the journal "Best Practice & Research Clinical Rheumatology" Vol. 20, No. 6, pp. 1119e1137, 2006 writes- *"The prevalence is estimated to be 30-40 cases per 100,000 adults; the annual incidence is estimated to be 4.6/100,000 for Chlamydia-induced arthritis and 5/100,000 for enterobacteria-induced reactive arthritis.4,5 However, real numbers may be significantly higher?"*
 - The following article "Frequency of triggering bacteria in patients with reactive arthritis and undifferentiated oligoarthritis and the relative importance of the tests used for diagnosis" in Ann Rheum Dis. 2001 April; 60(4): 337343 at the following website- <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1753604> writes its conclusion as:
"CONCLUSIONS—Chlamydia trachomatis, yersinia, and salmonella can be identified as the causative pathogen in about 50% of patients with probable or possible ReA if the appropriate tests are used."

18. Absence of Corpus callosum leads to

- a) Hemiparesis
- b) Hemisensory loss
- c) Astereognosis
- d) No neurological manifestations

Correct Answer - D

No neurological manifestations [Ref: *Internet reference*]

- Agenesis of corpus callosum is a rare birth defect (congenital disorder) in which there is *complete* or *partial absence* of corpus callosum.
- Corpus callosum is a band of tissue *connecting the two hemispheres of the brain*. Fibres of corpus callosum arise from the superficial layers of the cerebral cortex and they project to the *homotypic regions* of the contralateral cortex by passing through the corpus callosum while crossing the midline.
- Clinical features of Agenesis of corpus callosum
- *Signs and symptoms of agenesis of corpus callosum vary greatly among individuals.*
- *Patients usually do not have any neurological manifestations.*
- However, some features common in agenesis of corpus callosum are:-
 - Vision impairment*
 - * *Low muscle tone (hypotonia)*
 - Poor motor coordination*
 - * *Delay in motor milestones such as sitting and walking.*
 - Low perception of pain*
 - * *Delayed toilet training*
 - * *Chewing and swallowing difficulties*
 - * *Early speech and language delays*

Social difficulties

- Other characteristics sometimes associated with callosal disorders are:- Seizures

- * *Spasticity*

- * *Early, feeding difficulties and or gastric reflux-*

- * *Hearing impairments*

- * *Abnormal head and facial features*

- * *Mental retardation*

Investigation

- CT and MRI reveal "Bat wing" deformity of the ventricles.

Treatment

- There are currently no specific medical treatments for callosal disorders.

An important point

- *The neurological abnormalities associated with corpus callosum are not caused by absence of corpus callosum per se.*

- * *These conditions are believed to be caused due to associated cerebral anomalies rather than in corpus callosum per se.*

- * *The most common associated brain anomalies with absent corpus callosum are*

- * *Dandy walker malformation*

- * *Interhemispheric cyst with hydrocephalus*

- * *Migrational disorder*

- * *Absence of the inferior vermis*

- * *The children who had the best prognosis without any significant neurological sequelae were those with isolated agenesis of corpus callosum.*

- * *The children with the worst prognosis and neurological sequelae were those with agenesis of corpus callosum and migrational disorder with or without Dandy — walker malformation.*

- * *Hence prognosis is determined primarily by the underlying or associated malformation.*

19. Water hammer pulse seen in

a) >Aortic stenosis

b) >Aortic regurgitation

c) >Aortic stenosis and Aortic regurgitation

d) >Mitral regurgitation

Correct Answer - B

Aortic regurgitation [Ref. Harrison 17th/e p 1476 & 16th/e p 1400
Kundu, bedside clinics in medicine]

Water hammer pulse

- It is a *large bounding pulse*, associated with *increased stroke volume* of the left ventricle and *decrease* in the *peripheral resistance*, leading to a wide pulse pressure.
- The pulse strikes the palpating finger with a *rapid, forceful jerk* and quickly disappears.
- It is best felt in the *radial artery* with the patient's *arm elevated*.
- It is seen in *Aortic regurgitation*.

Pathophysiology of water hammer pulse

- In Aortic re^gurgitation the stroke volume is *high*, so the *systolic pressure is high* and this is responsible for sharp rise in the pulse.
- The stroke volume is high because the left ventricle gets blood from two sources during the diastole i.e. *blood leaking* from the *Aorta* and the blood it receives from left atria.
- *The collapse occurs because*
- *Diastolic leak of blood into the left ventricle from the Aorta*
- *Rapid run off to the periphery as a result of low systemic vascular resistance (the increased cardiac output stimulates the baroreceptors in the aortic arch and the result is reflex vasodilatation of the peripheral vessels into which the blood flows rapidly).*

Why are arms elevated in the examination ?

- When the arm is raised there is fall of blood column resulting in vasodilation and thus helps to reduce the diastolic pressure more, so *the pulse pressure widens*.
- It may be so that the artery palpated becomes more in the line of Aorta after elevation of the arm and thus allows the direct systolic ejection and diastolic backward flow.

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20. Interstitial nephritis is seen with all except

a) Beta lactam inhibitors

b) INH

c) Diuretics

d) Allopurinol

Correct Answer - B

INH [Ref. Harrison 17th/e p 1806, 1807 & 16th/e p 1702, 1703]

DRUGS CAUSING INTERSTITIAL NEPHRITIS

Antibiotics

. *filactams*^o

.

Sulfonamides^o

• Quinolones^o

. Vancomycin

.

Erythromycin

. Minocycline

. Rifampicin

• Ethambutol

. Acyclovir

Diuretics

• Thiazide^o

.

Furosemide^o

Triamterene

. NSAIDS^o

. Indinavir

. Allopurinol

Anticonvulsants

• Phenytoin^u

.

Phenobarbitone^o

Carbamazepine

• Valproic acid

.

Miscellaneous

. Captopril^o

• H₂ receptor

blocker

. Omeprazole

. Mesalazine

21. A person is not able to extend his metacarpophalangeal joint. Injury to which of the following nerve result in this?

a) Ulnar nerve

b) Radial nerve injury

c) Median nerve injury

d) Post. Interosseous nerve injury

Correct Answer - D

Damage to posterior interosseous nerve result in inability to extend the fingers at the metacarpophalangeal joints and radial deviation of the wrist on wrist extension caused by weakness of extensor carpi ulnaris muscle.

- **Posterior interosseous nerve** or deep ulnar nerve is a pure motor branch of radial nerve in the forearm. It supplies the extensor muscles of forearm including the extensor carpi ulnaris.
- **Ulnar nerve** palsy result in loss of fine intrinsic motions of hand. It result in an abduction deformity of the little finger from paralysis of the interossei, interosseous muscle wasting, and partial claw hand from interphalangeal flexion deformities of the ring and little fingers.
- **Radial nerve injury** result in wrist drop. Axillary or proximal injury result in triceps weakness in addition to wrist drop. Injury in the axilla causes damage to triceps brachii, anconeus, brachioradialis and extensor carpi radialis longus.

Ref: Neurology in Clinical Practice: The neurological disorders, Volume 2 edited by Walter George Bradley page 2315. LeBlond R.F., DeGowin R.L., Brown D.D. (2009). Chapter 14. The Neurologic Examination. In R.F. LeBlond, R.L. DeGowin, D.D. Brown (Eds), *DeGowin's Diagnostic Examination*, 9e.

22. Tension band wiring is indicated in fracture of which of the following ?

a) Fracture humerus

b) Olecranon

c) Fracture tibia

d) Fracture spine

Correct Answer - B

Tension band wiring is indicated in the treatment of two types of olecranon fracture. First type is a clean break with separation of the fragments, and second type is comminuted fracture of the olecranon with displaced fragments.

A crack in the olecranon without displacement is treated by immobilising the elbow in an above elbow plaster slab in 30 degrees of flexion.

23. Which of the following attitude will be seen in a patient with posterior dislocation of hip?

a) Flexion, Abduction, Internal rotation

b) Flexion, Adduction, Internal rotation

c) Flexion, Abduction, External rotation

d) Flexion, Adduction, External rotation

Correct Answer - B

Dislocations are usually posterior, and occasionally anterior, or central through the acetabulum.

Posterior dislocation: Hip is flexed, adducted, and internally rotated, and leg is shortened.

Anterior dislocation: Hip is flexed, abducted, and externally rotated, and leg is shortened.

Central dislocation: Trochanter is displaced medially. One may be able to feel the head of femur rectally. There is no shortening.

24. Which of the following is/are true about perthes disease?

1. Avascular necrosis of femoral head
2. Onset before 10 years of age
3. Osteotomy is used for treatment
4. Limb shortening

a) 1,2 true & 3,4 false

b) 2,3 True & 1,4 false

c) 1,2,3 true & 4 false

d) All are true

Correct Answer - D

It is also known as the pars plana and Pseudo-Coxalgia. It is an osteochondritis of the femoral head. The femoral head becomes partly or wholly avascular and deformed.

Etiology is not definitely known. It is supposed to be due to recurrent episodes of ischemia of the femoral head in the susceptible age group, probably precipitated by episodes of synovitis.

Pathology: the disease progresses in three ill defined stages:

- Stage of synovitis
- Stage of trabecular necrosis
- Stage of healing

Clinical features:

Commonly seen in the age group of 5 to 10 years. Child presents with pain in the hip which often radiates to the knee or may also present with limp or hip stiffness. On examination, the findings are minimal. Sometimes the only finding being limitation of abduction and internal rotation and shortening.

X-ray shows collapse and sclerosis of the epiphysis of the femoral head. Hip joint space is increased. Bone scan may show a decreased uptake by the head of the femur.

Treatment: The primary aim is to prevent the head from ill-shaping while the bone is in the softening phase. The head is required to be kept inside the acetabulum while the revascularization takes place (i.e. containment). This may be achieved by corrective methods (plaster, splint etc.) or by operation (containment osteotomy).

Ref: Maheshwari 3/e, Page 269-70.

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25. Blount's disease is associated with all of the following, EXCEPT:

a) Genu varum

b) Genu Recurvatum

c) Internal Tibial Torsion

d) External Tibial Torsion

Correct Answer - D

Blount's disease is characterized by varus and internal tibial torsion and genu recurvatum, with varus of the proximal tibia being the primary deformity. It is not associated with external tibial torsion.

Ref: Operative techniques in pediatric orthopedics, by John M.Flynn, Sam W.Wiesel, Page 205, 206.

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26. Brown tumors are seen in:

a) Hyperparathyroidism

b) Pigmented villonodular synovitis

c) Osteomalacia

d) Neurofibromatosis

Correct Answer - A

Brown tumors are highly vascular lytic lesions of the skeleton seen in both primary and secondary hyperparathyroidism. They result from the accumulation of abundant fibrovascular tissue and osteoclast like giant cells.

Ref: Robbin's Basic Pathology, 7th Edition, Pages 1186, 1286; Orthopaedic Pathology By Vincent J. Vigorita, Bernard Ghelman, Douglas Mintz, 2007, Page 187.

27. Lift off test is done to assess the function of:

a) Supraspinatus

b) Infraspinatus

c) Teres Minor

d) Subscapularis

Correct Answer - D

D i.e. Subscapularis

- Failure to perform maximum internal rotation (as tested in belly press and lift off test) or inability to maintain position of maximal internal rotation (internal rotation lag sign) indicate tear of subscapularis tendon.

Lift off test is done to assess the strength of subscapularis muscle and detect an isolated rupture of subscapularis tendon in a rotator cuff tear.

28. The most common bone fractured during birth

a) Clavicle

b) Scapula

c) Radius

d) Humerus

Correct Answer - A

A i.e. Clavicle

Clavicle is the most common bone to be fractured in children and during birth.

29. The malunion of supracondylar fracture of the humerus most commonly leads to:

a) Flexion deformity

b) Cubitus varus

c) Cubitus valgus

d) Extension deformity

Correct Answer - B

B i.e. Cubitus Varus

- **Malunion** : - It is the *commonest complication* of supracondylar fracture and results in *cubitus varus (Gun stock deformity)*. Cubitus valgus is rare and may occur occasionally in posterolateral displacement.

30. Treatment of choice in Acute myositis ossificans is:

a) Immobilization of elbow

b) Short wave diathermy

c) Passive movements of arm

d) Active exercises

Correct Answer - A

A i.e. Immobilization of elbow

* Rest of the affected part during the period while the process is active is the basic principle of treatment(TN 91) .

* No massage should be given.

* If any physical therapy is going on, it should be discontinued immediately.

* All passive movements and vigorous exercise must be stopped. Very gentle exercise must be started.

* Indomethacin and radiotherapy prevent calcification. However, radiotherapy should be avoided in children.

- Surgical excision is indicated if myositis ossificans interferes with function. It is worth noting that **surgical excision is contraindicated during active phase when calcification matures.**

* **Surgical excision, if required, should be done only after complete maturation of ossification.**

31. Pulled Elbow is:

a) Disarticulation of elbow

b) Disarticulation of elbow

c) Subluxation of proximal radio ulnar joint

d) None of the above

Correct Answer - C

C i.e. subluxation of proximal radio ulnar joint

- If a young child is lifted by the wrist, the *head of the radius may be pulled partly out of the annular ligament, i.e., subluxation of the head of the radius.*

It occurs when *forearm is pronated, elbow is extended and longitudinal traction is applied to the hand or wrist, e.g., lifting, spinning or swinging a child with wrist or hand.* Pulled elbow most commonly occurs between the age of 2-5 years

32. In Monteggia fracture, which is true about ulnar fracture and head of radius

- a) Both ulnar fracture and head of radius is displaced posteriorly
- b) Both ulnar fracture and head of radius is displaced anteriorly
- c) Ulnar fractures is posteriorly and head of radius is displaced anteriorly
- d) Ulnar fracture is anteriorly and head of radius is displaced posteriorly

Correct Answer - B

Ans: B i.e. Both ulnar fracture and head of radius is displaced anteriorly

* This is a fracture of the upper-third of the ulna with dislocation of the head of the radius. It is caused by a fall on an outstretched hand. It may also result from a direct blow on the back of the upper forearm.

- These fall into two main categories depending upon the angulation of the ulna fracture - extension and flexion type. The extension type, is the commoner of the two, where the ulna fracture angulates anteriorly (extends) and the radial head dislocates anteriorly. The flexion type is where the ulna fracture angulates posteriorly (flexes) and the radial head dislocates posteriorly.

33. The most common complication of intracapsular fracture neck of femur is

a) Mal union

b) Osteoarthritis

c) Non-Union

d) Shortening

Correct Answer - C

C i.e. Nonunion

- Both intracapsular neck fracture and extracapsular fracture (basicervical and IT fracture) have same deformities, i.e. external rotation and shortening.
- These displacements are more marked in extracapsular fractures, because in an intracapsular fracture, the capsule of the hip joint is attached to the distal fragment and prevents extreme rotation and displacement of the distal fragment (and with it, the limb).
- In extracapsular fracture, distal fragment being outside the capsule is displaced more markedly.

34. AVN is seen in which type of # of femur:

a) Intertrochantric #

b) Subcapital #

c) Trans cervical #

d) B AND C

Correct Answer - D

B. i.e. Subcapital > C. i.e. Transcervical

- Fracture of the neck of femur
- Fracture of the Scaphoid (Proximal pole > Waist)
- Fracture neck of talus
- Posterior dislocation of the hip

35. Vascular sign of Narath is noticed in

- a) Fracture neck of femur
- b) Perthes disease
- c) Posterior dislocation of hip
- d) All of the above

Correct Answer - C

C i.e. Posterior dislocation of hip

- Vascular sign of narath is positive in posterior dislocation of hip joint.
- Due to posterior dislocation, the hip joint falls on the femoral artery, and this causes feeble or absent femoral pulse.

36. Seat belt injury is

a) Tear drop fracture

b) Wedge fracture

c) Chance fracture

d) Whiplash injury

Correct Answer - C

C i.e. Chance fracture

A horizontal fracture of the vertebra extending from body to the posterior element, caused by a strong distraction force

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37.

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Which part of the spine is most commonly affected in Rheumatoid arthritis:

a) Cervical

b) Lumbar

c) Thoracic

d) Sacral

Correct Answer - A

Answer is A (Cervical):

Rheumatoid arthritis commonly involves the joints of hands, wrist, elbow, knees, ankle, and feet in a symmetrical manner.

Axial skeleton involvement is usually limited to Upper Cervical Spine.

38. Complications of elbow dislocation are all **EXCEPT:**

March 2004

a) Vascular injury

b) Median nerve injury

c) Myositis ossificans

d) Radial nerve injury

Correct Answer - D

Ans. d i.e. Radial nerve injury

1) Early complications

- *Vascular injury :- Brachial artery may injured. It may result in compartment syndrome and Volkmann's ischemic contracture.*
- *Nerve injury :- Median and ulnar nerve injury*

2. Late complications

- . Stiffness ? Myositis ossificans
- . Unreduced dislocation ? Recurrent dislocation

39. True regarding Monteggia fracture is:
March 2007, March 2013 (a, b, d, f)

a) Upper ulnar fracture & dislocated radial head

b) Upper radial fracture & dislocated ulna

c) Lower radial fracture & dislocated ulna

d) Lower ulnar fracture & dislocated radius

Correct Answer - A

Ans. A: Upper ulnar fracture & dislocated radial head

Monteggia fracture-dislocations are classified by the Bado system

- Bado type I injuries are characterized by a proximal ulnar fracture with anterior dislocation of the radial head. This is due to a forceful pronation injury of the forearm and is the most common type.
- Bado type II injuries are "reversed" Monteggia fracture-dislocation injuries.
- Here, there is posterior angulation of the ulnar fracture site and posterior dislocation of the radial head. Bado type III and IV are rare injuries.

40. March fracture is fracture of:
September 2007

a) Calcaneus

b) 2nd metatarsal

c) Distal fibula

d) Proximal tibia

Correct Answer - B

Ans. B: 2nd metatarsal

A stress fracture of the 2nd or 3rd metatarsal bone is sometimes called a 'march fracture' because soldiers running in boots often get it.

The fracture heals spontaneously, so treatment is purely symptomatic.

41. Most common type of shoulder dislocation is:

March 2011

a) Posterior

b) Anterior

c) Inferior

d) Superior

Correct Answer - B

Ans. B: Anterior

Shoulder joint is the commonest joint in the body to dislocate
Anterior shoulder dislocation is much more common than posterior dislocation

Shoulder dislocation:

- MC joint to dislocate in body: Shoulder
- MC type of shoulder dislocation: Subcoracoid/ inferior
- Rarest type of shoulder dislocation: Posterior
- Posterior type of shoulder dislocation is associated with: Epileptic fits
- Bankart's lesion is related with avulsion of glenoidal labrum
- Hill Sach's lesion is found on humeral head
- Test for dislocation of shoulder joint:
 - Duga's test,
 - Hamilton ruler test,
 - Callaways test
- Kocher's manoeuvre is done to reduce a dislocated shoulder

42. Felon/ Whitlow is: *September 2012*

- a) Midpalmar space infection
- b) Terminal pulp space infection
- c) Infection of the ulnar bursa
- d) Infection of the radial bursa

Correct Answer - B

Ans. B i.e. Terminal pulp space infection

a painful abscess of the deep tissues of the palmar surface of the fingertip that is typically caused by bacterial infection (as with a staphylococcus) and is marked by swelling and pain

43. Swan neck deformity is seen in:
March 2013 (a, c, e)

a) Ankylosing spondylitis

b) Rheumatoid arthritis

c) Osteoarthritis

d) Reiter's syndrome

Correct Answer - B

Ans. B i.e. Rheumatoid arthritis

Rheumatoid arthritis

- RA is a disease of: Synovium/ synovial membrane
- RA starts in: Synovium
- Body tissue mostly affected in RA: Synovium
- Characteristic feature:
 - Persistent inflammatory synovitis,
 - Peripheral joint,
 - Symmetrical distribution

Causes:

- Immunological,
- Familial,
- Infective (implicated)
- Mostly affects: Females (three times)
- Earliest lesion in rheumatoid synovitis:
 - Microvascular injury,
 - Increase in number of synovial lining cells

Joints characteristically involved in RA:

- MCP,
- PIP (symmetric arthritis)
- Boutonniere deformity:

- Flexion contracture of the PIP
- Extension of DIP
- Criteria for diagnosis: Any 4 criteria must be present
- Pathognomic feature: Rheumatoid nodule
- Extra-articular manifestations are seen in: Individuals with high titres of RF (autoantibodies to the Fc component of IgG)

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44. Perthe's disease is Osteochondritis of the epiphysis of the:
March 2013 (g)

a) Capitulum

b) Lunate

c) Femoral head

d) Calacaneal tuberosity

Correct Answer - C

Ans. C i.e. Femoral head

Osteochondritis

Perthes disease:

- Osteochondritis of femoral head
- Adduction is unaffected
- IOC for Perthes disease: MRI

- Osteochondritis of lunate: Kienbock's disease
- Osteochondritis of tibial tubercle: OschGood's Schlatter's disease
- Osteochondritis of calcaneum: Sever's disease

45. Best diagnostic modality to diagnose avascular necrosis is:
March 2007

a) MRI scan

b) CT scan

c) X-ray

d) USG

Correct Answer - A

Ans. A: MRI Scan

Avascular necrosis/ osteonecrosis/ aseptic (bone) necrosis/ ischemic bone necrosis is a disease resulting from the temporary or permanent loss of the blood supply to the bones. Without blood, the bone tissue dies and causes the bone to collapse. There are many causes of avascular necrosis such as:

- Alcoholism
- Excessive steroid use
- Post trauma
- Caisson disease (decompression sickness)
- Vascular compression
- Vasculitis
- Thrombosis
- Damage from radiation
- Bisphosphonates (particularly the mandible)
- Sickle cell anaemia
- Gaucher's Disease
- Idiopathic (no cause is found).

Rheumatoid arthritis and lupus are also common causes of AVN.

Avascular necrosis most commonly affects the head of femur. Other

Avascular necrosis most commonly affects the head of femur. Other common sites include the talus, scaphoid and the jaw. Avascular necrosis usually affects people between 30 and 50 years of age. When it occurs in children at the femoral head, it is known as Legg-Calve-Perthes syndrome.

It is most often diagnosed clinically.

Because early X-rays are usually normal in the early stage of the disease, bone scintigraphy and MRI are the diagnostic modality of choice since both can detect minimal changes at early stages of the disease.

Late radiographic signs include a radiolucency area following the collapse of subchondral bone (crescent sign) and ringed regions of radiodensity.

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46. Cubital tunnel syndrome involves:
March 2013 (c, f)

a) Radial nerve

b) Ulnar nerve

c) Median nerve

d) Axillary nerve

Correct Answer - B

Ans. B i.e. Ulnar nerve

When the ulnar nerve compression occurs at the elbow, it is called "cubital tunnel syndrome."

47. Foot drop occurs due to the involvement of:

September 2006, March 2013 (b, f g, h)

- a) Sciatic nerve
- b) Direct injury to the dorsiflexors
- c) Common peroneal nerve palsy
- d) All of the above

Correct Answer - D

Ans. D: All of the above

Foot drop may follow direct injury to the dorsiflexors.

A few cases of rupture of the tibialis anterior tendon leading to foot drop and suspicion of peroneal nerve palsy have occurred. This subcutaneous tendon rupture usually occurs after a minor trauma with the foot in plantar flexion.

- Compartment syndromes also may lead to foot drop. March gangrene, a form of anterior compartment syndrome, is thought to be due to edema and small hemorrhages in the muscles of the anterior compartment occurring after strenuous activity in individuals not accustomed to it. Deep posterior compartment syndrome also may result in foot drop as a late sequela due to resultant contracture formation.
- Neurologic causes of foot drop include mononeuropathies of the deep peroneal, common peroneal, or sciatic nerves. Lumbosacral plexopathy, lumbar radiculopathy, motor neuron disease, or parasagittal cortical or subcortical cerebral lesions also can manifest as foot drop. These lesions can be differentiated through clinical and electrodiagnostic examinations.

- A common behavioral cause of foot drop is habitual crossing of the legs. These cases typically resolve with discontinuation of the habit.
- Foot drop also may be seen as a combination of neurologic, muscular, and anatomic dysfunction. Charcot foot is one example.

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48. Most common nerve injured in fracture of medial epicondyle of humerus is:
March 2007

a) Radial nerve

b) Ulnar nerve

c) Median nerve

d) Musculocutaneous nerve

Correct Answer - B

Ans. B: Ulnar Nerve

Certain lesions are commonly associated with fractures to specific areas of the humerus.

At the upper end, the surgical neck of the humerus and anatomical neck of humerus can both be involved, though fractures of the surgical neck are more common. The axillary nerve can be damaged in fractures of this type.

Mid-shaft fractures may damage the radial nerve, which traverses the lateral aspect of the humerus closely associated with the radial groove.

The median nerve is vulnerable to damage in the supracondylar area.

The ulnar nerve is vulnerable to damage near the medial epicondyle, around which it curves to enter the forearm.

49. Waddling gait due to:

March 2009

a) Bilateral congenital dysplasia of hip

b) Coxa valga

c) CTEV

d) Bilateral coxa valgum

Correct Answer - A

Ans. A: Bilateral congenital dysplasia of hip

A waddling gait is the style of walking that is seen in a patient with proximal myopathy. It is characterised by:

- A broad-based gait with a duck-like waddle to the swing phase
- The pelvis drops to the side of the leg being raised
- Forward curvature of the lumbar spine
- Marked body swing
- This gait may be seen in patients with bilateral congenital hip dislocation and pregnancy.

50. Knuckle bender splint is used for:
September 2009

a) Ulnar nerve palsy

b) Radial nerve palsy

c) Median nerve palsy

d) Axillary nerve palsy

Correct Answer - A

Ans. A: Ulnar Nerve Palsy

- Cock-up splint
- Radial nerve palsy
- Knuckle-bender splint
- Ulnar nerve palsy

51. Maximum weight that can be given with skeletal traction is:
September 2009

a) 5 kg

b) 10 kg

c) 15 kg

d) 20 kg

Correct Answer - D

Ans. D: 20 kg

Traction is usually applied to the spine, pelvis, neck, arms, or legs. The force is generated by weight or force against the weight of the body.

The two main types of traction are skin traction and skeletal traction. Of these two types, many specialized forms have been developed to treat conditions in specific parts of the body.

With skin traction, weights are attached to the skin, which applies the pulling force to the bone. It is used when light (3 to 4 kg) or short-term traction is needed.

With skeletal traction, pins are attached to the bone so that the pulling force is applied directly to the bone. Skeletal traction is used when skin traction is not possible and when greater weight (upto 20 kg) is needed.

52. Cock up splint is used in treatment of ?

- a) Radial nerve palsy
- b) Ulnar nerve palsy
- c) Median nerve palsy
- d) Posterior interosseous nerve palsy

Correct Answer - A

Ans. is 'a' i.e., Radial nerve palsy

Splints

- Any material which is used to support a fracture is called *splint*.
- Splints are used for immobilizing fractures; either temporarily during transportation or for definitive treatment.
- The most commonly employed splint is plaster of paris (POP) splint. Various POP splints are.
 1. Casts : - Here the POP roll completely encircles the limb.
 2. Slab : - It is not completely encircles the limb, but only one half or one third circumference.
 3. Spica : - This encircles a part of the body; e.g., hip spica for fractures around hip.

53. Froment's sign is positive in cases of weakness of ?

a) Thumb adduction

b) Thumb abduction

c) Thumb flexion

d) Thumb extension

Correct Answer - A

Ans. is 'a' i.e., Thumb adduction

Normally when a person is asked to grasp a book between the thumb and index finger, he will grasp the book firmly with thumb extended, taking full advantage of the adductor pollicis and the first dorsal interosseous muscles.

If the ulnar nerve is injured the adductor pollicis will be paralysed and the patient will hold the book by using the flexor pollicis longus (supplied by median nerve) producing flexion at the interphalangeal joint.

This becomes more pronounced if the examiner tries to pull the book out while the patient tries to hold it.

This sign is known as 'Froment's sign' or the 'book test'.

54. Most common cause of amputation in India is ?

a) Diabetic gangrene

b) Gas gangrene

c) Road traffic accident

d) Tumors

Correct Answer - C

Ans. is 'c' i.e., Road traffic accident

Amputation

Amputation is a procedure where a part of the limb is removed through one or more bones.

Disarticulation is a procedure where the limb is removed through a joint.

Indications of amputation

Indications of amputations may be absolute or relative :?

A) Absolute indications

- Gas gangrene
- Diabetic gangrene
- Irreparable loss of blood supply due to trauma or disease
- Peripheral vascular disease (Burger's gangrene)

B) Relative indications

- Trauma
- Tumors
- Severe loss of function of limb
- Nerve injuries
- Congenital anomalies
- Overall most common cause of amputation is trauma (injury) to a limb.

- Most common cause of trauma is road traffic accident.

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55. All are true about colles fracture except ?

- a) In old age
- b) Dorsal shift
- c) At cortico-cancellous junction
- d) Garden spade deformity

Correct Answer - D

Ans. is 'd' i.e., Garden spade deformity

COLLES FRACTURE

- Colle's fracture is an *extra-articular* fracture at the *distal end* of radius, at its *cortico-cancellous junction*. It is the *most common fracture in person over 40 years of age* and especially in women after menopause (*Postmenopausal females*). The association of the fracture with osteoporosis is now well established and it is one of the *fragility fracture*, seen in osteoporosis. The fracture nearly always caused by fall on outstretched hand.

Displacement in colle's fracture

The fracture line runs transversely at the cortico-cancellous junction. In the majority of the cases, one or more displacements *of the distal fragment* occur :-

- i. *Dorsal displacement (Dorsal shift)*
- i. *Lateral tilt (lateral angulation)*
- i. *Dorsal tilt (Dorsal angulation)*
- i. *Supination (external rotation)*
- i. *Lateral displacement (lateral shift)*
- i. *Impaction (proximal migration)*
- i. Clinical features of colles fracture

Pain and swelling at the wrist.

Typical deformity : There is a dorsal hollow or depression just

proximal to the fracture and immediately distal to this there is a marked prominence caused by lower fragment being displaced backwards, carrying with it the whole of the carpus and hand. This gives appearance of a fork, So named *dinner fork/ silver fork / spoon shaped deformity*.

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56. Most common type of supra condylar fracture in children ?

a) Posteromedial extension

b) Posterolateral extension

c) Anteromedial flexion

d) Anterolateral flexion

Correct Answer - A

Ans. is 'a' i.e., Posteromedial extension

Supracondylar fracture of humerus

- *Supracondylar humeral fractures are the most common elbow fractures in children.* Most common age group affected is 5-8 years. Boys are affected more than girls. Left side is more common than right.

Mechanism of injury

- Mostly it occurs due to *hyperextension injury*.
- Fracture is caused by a *fall onto the outstretched hand with hyperextension at elbow*.

Types of supracondylar fracture

- Supracondylar fracture is broadly classified **into** *extension type* and *flexion type*.

1) Extension type

- It is **the most common type (97 - 99%)**.
- *Distal fragment is extended (tilted backward/posteriorly)* in relation to proximal fragment.
- Occurs due to hyperextension injury after fall on outstretched hands.
- Generally, displacement of distal fragment may be : -
 - i) *Posteromedial (70-80%)*
 - ii) *Posterolateral (20-30%)*

2) Flexion type

- It is less common type (1-3 %)
- Distal fragment is flexed (tilted forward/anteriorly) in relation to proximal fragments.
- The mechanism of injury generally is believed to be a *fall directly onto the elbow* rather than a fall on outstretched hand.
- As the extension type fracture is more common (97 - 99%), *the most common elbow injury in children is extension type of supracondylar fracture.*

Clinical features of supracondylar fracture

- **Following a fall, the child is** in pain and elbow is swollen.
- In extension type of injury, *`S' shaped deformity* of the elbow is obvious.
- There is loss of both active and passive movements of elbow.
- Symptoms relating to vascular and nerve injury may be seen.
- Unusual posterior prominence of the point of elbow (tip of olecranon) because of backward tilt of the distal fragment.
- *Three point bony relationship is maintained* as the fracture is above the level of condyles.
- *Dimple sign* due to one of the spikes of proximal fragment penetrating the muscle and tethering the skin.

57. Most common joint involved in gout is ?

a) Knee

b) Hip

c) MP joint of great toe

d) MP joint of thumb

Correct Answer - C

Ans. is 'c' i.e., MP joint of great toe

Gout is the common end point of a group of disorders that produce hyperuricemia.

It is marked by transient attacks of acute arthritis initiated by crystallization of **monosodium urate** into the joints, leading eventually to **chronic gouty arthritis** and deposition of masses of urates in joints and other sites, creating tophi.

Most common joint involved in gout is big toe, i.e. metatarsophalangeal joint of great toe.

Tophi are pathognomic of gout. They are formed by large aggregations of urate crystals. The **urate crystals** are surrounded by -

58. Which of the following structure are not normally visualized during the arthroscopy of the knee?

a) Meniscus

b) Cruciate ligaments

c) Collateral ligaments

d) Patella articular surface

Correct Answer - C

Ans. is 'c' i.e., Collateral ligaments

The following structures are visualized during the knee arthroscopy :-

- i) Medial and lateral meniscus
- ii) Anterior and posterior cruciate ligaments
- iii) Knee articular cartilage
- iv) Patello - femoral joint
- v) Loose bodies in joint

59. Not a complication of fracture neck of femur ?

a) Non-union

b) Malunion

c) AVN

d) Osteoarthritis

Correct Answer - B

Ans. is 'b' i.e., Malunion

Complications of femoral neck fracture

- Fractures of the neck of the femur are more prone to serious complications than in any other fracture. All the complications affect fractures with displacement rather than impacted abducted (valgus impacted) fractures.

The important complications are :

- 1) Avascular necrosis of femoral head
- *AVN is the most common complication of femoral neck fracture.*
 - It occurs in 15-35% of cases of displaced fractures and
- 2) Non-union
- *Non-union is the second most common complication of femoral neck fracture.*
 - It occurs in 10-30% of cases of displaced fractures and
- 3) Secondary osteoarthritis
- It occurs a few years following fracture neck femur.
 - Avascular necrosis or collapse of femoral head leads to secondary osteoarthritis of the hip joint.

60. Most common site of metastasis in skeleton ?

a) Femur

b) Tibia

c) Vertebrae

d) Skull

Correct Answer - C

Ans. is 'c' i.e., Vertebrae

Metastasis

- *Metastatic bone disease is the commonest malignancy of bones and is much more common than primary bone tumors.*
- *The commonest sites for bone metastases are vertebrae (most common), pelvis, the proximal half of the femur and the humerus.*
- *Extremities distal to elbow and knee are least commonly involved sites.*
- *Spread is usually via the blood stream; occasionally, visceral tumors spread directly into adjacent bones e.g., the pelvis and ribs.*
- *Certain tumors are known to be common sources of bone metastasis.*
- *The following primary tumors are the most common to metastasize in the bone; breast, prostate, lung, thyroid, kidney, and gastrointestinal tract.*
- *The commonest source of metastatic bone disease is carcinoma of the breast.*
- *In males most common source is prostate carcinoma.*
- *Bladder and uterine carcinomas are less common sources. In children, skeletal metastases originate from neuroblastoma, Ewing's sarcoma, and osteosarcoma.*

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61. Perkin's line on X-ray is used for diagnosis of -

a) Perthe's disease

b) CDH

c) CTEV

d) AVN Hip

Correct Answer - B

Ans. is 'b' i.e., CDH

Radiological features of DDH/CDH

- In *Von Rosen's view* following parameters should be noted
- Perkin's line : Vertical line drawn at the outer border of acetabulum
- Hilgenreiner's line : Horizontal line drawn at the level of tri-radiate cartilage
- Shenton's line : Smooth curve formed by inferior border of neck of femur with superior margin of obturator foramen.
- Acetabular index : Normally is $\leq 30^\circ$
- CE angle of Wiberg : Normal value is $15-30^\circ$
- *Normally the head lies in the lower and inner quadrant formed by two lines (Perkin's & Hilgenreiner's). In DDH the head lies in outer & upper quadrant*
- *Shenton's line is broken*
- Delayed appearance & retarded development of ossification of head of femur
- Sloping acetabulum
- *Superior & lateral displacement of femoral head*

Von-Rosen's line

- This is a line, which helps in the diagnosis of DDH in infants *less than 6 months*.

- For this AP view of pelvis is taken with both lower limb in 45° abduction and full internal rotation.
- Upward prolongation of long axis of shaft of the femur points towards the lateral margin of the acetabulum and crosses the pelvis in the region of sacroiliac joint.
- In CDH, upward prolongation of this line points towards anterior superior iliac spine and crosses the midline in the lower lumbar region → *Positive Von-Rosen's sign*.

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62. Which joint is most commonly affected in pseudogout -

a) Knee

b) Hip

c) MP joint great toe

d) MP joint thumb

Correct Answer - A

Ans. is 'a' i.e., Knee

Pseudogout

It is one of the forms of "*Calcium pyrophosphate dihydrate*" (CPPD) *arthropathy*.

Pseudogout commonly *involves the larger joints*. *Knee joint is most commonly involved*; other sites are wrist, elbow, shoulder, ankle.

Involvement of small joints is uncommon.

Age group is > 60 yrs.

In CPPD arthropathy, CPPD deposition occurs in *articular tissues*. It can present in any of the following three forms :?

1) *Asymptomatic chondrocalcinosis*

2) *Acute synovitis - Pseudogout*

3) *Chronic pyrophosphate arthropathy*

The radiologic hallmark of CPPD is "*chondrocalcinosis*."

Chondrocalcinosis is seen as punctate and/or linear radiodense deposits in fibrocartilaginous joint menisci or articular hyaline cartilage.

Definitive diagnosis is made by *synovial fluid polarised light microscopy which shows weakly positive, birefringent, rhomboid crystals of CPPD*. [In gout polarized light shows - strongly negative birefringent, needle shaped crystals of monosodium urate]

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63. Loose body in joint most common site is -

a) Knee

b) Hip

c) Elbow

d) Ankle

Correct Answer - A

Ans. is 'a' i.e., Knee

Loose body in joint

A loose body is a free-floating piece of bone, cartilage or foreign object in a joint.

The knee is the most common joint where one would find a loose body.

Causes of loose bodies include :-

- i) Osteoarthritis
- ii) Osteochondritis dissecans
- iii) Osteochondral fracture (injury)
- iv) Charcot's disease
- v) Synovial chondromatosis

64. Investigation of choice for entrapment neuropathy is ?

a) CT SCAN

b) Clinical examination

c) Ultrasonography

d) EMG NCV

Correct Answer - D

Ans. is 'd' i.e., EMG NCV

The diagnosis of mononeuropathy in entrapment neuropathy is based on electrodiagnostic studies (EMG/ NCV) and Magnetic resonance imaging (MRI).

Entrapment neuropathy is a medical condition caused by entrapment and compression of a peripheral nerve wherever it traverses fibro-osseous tunnels.

Sites of entrapment neuropathy are : -

- i. *Carpal tunnel* :- Median nerve (carpal tunnel syndrome)
- i. *Cubital tunnel* :- Ulnar nerve (cubital tunnel syndrome)
- i. *Guyan's canal* :- Ulnar nerve (Guyan's canal syndrome)
- r. *Tarsal tunnel* :- Posterior tibial nerve (Tarsal tunnel syndrome)
- r. *Inguinal ligament* :- Lateral cutaneous nerve of thigh (meralgia paraesthetica).
- i. *Suprascapular notch* :- Suprascapular nerve
- i. *Neck of fibula* :- Common peroneal nerve
- i. *Fascial tunnel of superficial peroneal nerve* :- Superficial peroneal nerve
- c. *Arcase of Frohse* :- Posterior interosseous syndrome
- c. *Thoracic outlet* :- Lower trunk of brachial plexus
- i. *Compression in the foot* :- Digital nerve (Morten's metatarsalgia)

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65. Posterior gliding of tibia on femur is prevented by ?

- a) Anterior cruciate ligament
- b) Posterior cruciate ligament
- c) Medial collateral ligament
- d) Lateral collateral ligament

Correct Answer - B

Ans. is 'b' i.e., Posterior cruciate ligament

Posterior cruciate ligament

- PCL begins from posterior part of intercondylar area of tibia and runs upwards, forwards and medially to attach the anterior part of the lateral surface of medial condyle of femur.
- PCL is extrasynovial but intracapsular, i.e., lies between synovium and capsule of the knee joint.
- It provides antero-posterior stability and prevents posterior gliding of tibia on femur.
- It is taut in flexion.
- Blood supply of cruciate (anterior & posterior) ligaments is from : -
 - .. Middle genicular artery (major supply)
 - .. Inferior genicular (medial & lateral) artery (less important).
- Nerve supply of cruciate ligaments (ACL & PCL) is from posterior articular branch of tibial nerve.

66. Cozen's test is used for the diagnosis of ?

- a) Tennis elbow
- b) Golfer's elbow
- c) Base baller's pitcher elbow
- d) Carpal tunnel syndrome

Correct Answer - A

Ans. is 'a' i.e., Tennis elbow

Signs and Tests

- Adson's test : for thoracic outlet syndrome
- Allen's test : for testing patency of radial and ulnar arteries
- Alli's test : for CDH
- Anvil test : for testing tenderness of the spine
- Ape thumb : for median nerve injury
- Apley's grinding test :for meniscus injury
- Apprehension test : for recurrent dislocation of the shoulder
- Barlow's test : for CDH
- Blue sclera : Osteogenesis imperfecta
- Bryant's test : for anterior dislocation of the shoulder
- Callways' test : for anterior dislocation of the shoulder
- Chovstek's sign : for tetany
- Claw hand : for ulnar nerve injury
- Coin test : for dorso lumbar tuberculosis of spine
- Cozen's test : for tennis elbow
- Drawer test : for ACL and PCL injutries
- Anterior : for ACL injury
- Posterior : for ACL injury
- Finkelstein's test : for de Quervain's tenovaginitis
- Foot drop : for common peroneal nerve injury

- Froment's sign : for ulnar nerve injury
- Gaenslen's test: for SI joint involvement
- Galeazzi sign : for CDH
- Gower's sign : for muscular dystrophy
- Hamilton ruler test : for anterior dislocation of the shoulder
- Kanavel's sign : for infection in ulnar bursa
- Lasegue's test: for disc prolapse
- Lachmann test : for ACL injury
- Ludloff's sign: for avulsion of lesser trochanter
- McMurray's test : for meniscus injury
- Nagfzger test : for disc prolapse
- Ober's test : for tight ilio- tibial band (e.g., in polio)
- O' Donoghue triad: triad of MCL, ACL & medial meniscus injuries occurring together
- Ortolani's test : for CDH
- Pivot shift test : for ACL injury
- Policeman tip : for Erb's palsy
- Runner's knee : Patellar tendinitis
- Sulcus sign: for inferior dislocation of the shoulder
- Thomas' test : for hip flexion deformity
- Trendelenburg's test: for unstable hip due to any reason (e.g., CDH)
- Tinel's sign: for detecting improving nerve injury
- Volkmann's sign : for ischaemic contracture of forearm muscles
- Wrist drop : for radial nerve injury

67. Most common site for the osteoporotic vertebral fracture is ?

a) Dorsolumbar spine

b) Cervical spine

c) Lumbosacral spine

d) Dorsal spine

Correct Answer - A

Ans. is 'a' i.e., Dorsolumbar spine

- Osteoporosis is an asymptomatic disorder unless complications (predominantly fractures) occur.
- *Most common symptom of osteoporosis is back pain secondary to vertebral compression fracture.*
- *Dorso-lumbar spine is the most frequent site.*
- Other common sites of fracture are lower end radius (Colle's fracture) and fracture neck femur.
- Osteoporotic fracture (fragile fractures) are : (i) *Fracture vertebrae (most common)*, (ii) *Colle's fracture*, (iii) *Fracture neck femur*.
- Serum calcium, phosphate and alkaline phosphatase are normal in osteoporosis.

68. Sunray appearance on X - ray is seen in ?

a) Osteosarcoma

b) Osteochondroma

c) Osteoclastoma

d) Chondroblastoma

Correct Answer - A

Ans. is 'a' i.e., Osteosarcoma

- *Codman's triangle and sunray appearance are typical of osteosarcoma.*
- However, you should keep in your mind following very important facts : -
- *Sunray (sunburst) appearance and codman's triangle* indicates periosteal reaction (periosteal new bone formation).
- Both these are typical of *osteosarcoma* but may also occur in other rapidly growing bone tumors (*Ewing's sarcoma*), and *infection (osteomyelitis)*.
- Similarly, *onion peel appearance* indicates periosteal new bone-formation and is typical for *Ewing's sarcoma*. But this can also occur in *osteosarcoma and osteomyelitis*.
- The crux is that, aggressively growing tumors and infection stimulate the periosteum which then react by forming new bone, (therefore it is called periosteal reaction) which may take any of the above form.

69. Puttiplat operation is done for ?

a) Elbow instability

b) Shoulder instability

c) Rotator cuff tear

d) Biceps Tendinitis

Correct Answer - B

Ans. is 'b' i.e., Shoulder instability

- Important surgeries for recurrent anterior dislocation of shoulder are:

- | | |
|-----------------------------|------------------------------|
| i) Barkart's operation | iii) Bristow's operation |
| ii) Putti-Platt's operation | iv) McLaughlin's operation |
| v) Eden Hybinette operation | vi) Magnum & Stack operation |

70. Lachmann's test is used for ?

a) ACL injury

b) PCL injury

c) MCL injury

d) LCL injury

Correct Answer - A

Ans. is 'a' i.e., ACL injury

ACL injury

ACL is the *most commonly injured ligament of knee*.

Most common mechanism of injury is twisting (medial rotation) with valgus injury on semiflexed knee.

Often with this mechanism MCL and medial meniscus are also injured. This triple injury of ACL, MCL and medial meniscus is called O'Donoghue triad.

Isolated ACL can also be injured by hyperextension injury.

Tests for ACL injury

Following tests are used for ACL injury : ?

- i. *Lachman's test*
- i. *Pivot shift test*
- i. *Flexion-rotation drawer test*
- i. *Anterior drawer test*
- i. *Jerk test*
- i. *Loose's test*
- Lachman's test is the *most sensitive test for anterior cruciate ligament tears*. It is done with the knee flexed at *20 degrees*. So it can be done in acute as well as *chronic injuries*. (because in acute cases with hemarthrosis more flexion is usually not possible so performing anterior drawer test is difficult).

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71. Infection of ulnar bursa is diagnosed by -

a) Kanavel's sign

b) Chowstek's sign

c) Gower's sign

d) Ludloff's sign

Correct Answer - A

Ans. is 'a' i.e., Kanavel's sign

- Kanavel's sign is for infection of ulnar bursa.

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72. Ring shaped epiphyses is seen in ?

- a) Osteogenesis imperfecta
- b) Morquio's syndrome
- c) Zellweger syndrome
- d) Multiple epiphyseal dysplasia

Correct Answer - A

Ans. is 'a' i.e., Osteogenesis imperfecta

Ring shaped epiphysis

- | | |
|---|------------|
| i) Hypothyroidism (healing phase) | iv) |
| Osteoporosis | |
| ii) Osteogenesis imperfecta (healing phase) | v) Rickets |
| iii) Osteopetrosis | vi) Scurvy |

73. Development of Chondrosarcomas is related with?

a) Maffucci syndrome

b) Felty syndrome

c) a and b both

d) None of the above

Correct Answer - A

Ans. is 'a' i.e., Maffucci syndrome

Chondrosarcomas developing in patients with Ollier's and Maffucci syndrome is called secondary chondrosarcoma.

Secondary chondrosarcoma

- It is the chondrosarcoma arising in benign precursor either osteochondroma and enchondroma.
- There are no reliable figures about the risk of developing secondary chondrosarcoma in benign precursors.
- The risk of chondrosarcoma in solitary osteochondroma is 2% and that for osteochondromatosis is 5 - 25%.
- Patients with Ollier's disease and Maffucci syndrome have a 25 - 30% risk of developing chondrosarcoma.

74. CASPAR criteria is used in diagnosis of ?

- a) Psoriatic arthritis
- b) Rheumatoid arthritis
- c) Ankylosing spondylitis
- d) Reactive synovitis

Correct Answer - A

Ans. is 'a' i.e., Psoriatic arthritis

Classification criteria for psoriatic arthritis (CASPAR) is used for the diagnosis of psoriatic arthropathy.

- The CASPAR (classification Criteria for Psoriatic Arthritis) Criteria
- To meet the CASPAR criteria a patient must have inflammatory articular disease (joint, spine, or enthesal) with 3 points from any of the following five categories :
 1. Evidence of current psoriasis, a personal history of psoriasis, or a family history of psoriasis.
 2. Typical psoriatic nail dystrophy observed on current physical examination.
 3. A negative test result for rheumatoid factor.
 4. Either current dactylitis or a history of dactylitis recorded by a rheumatologist.
 5. Radiographic evidence of juxtaarticular new bone formation in the hand or foot.

75. Drug of choice for the treatment of acute gout in patients in whom NSAIDs are contraindicated is?

a) Colchicine

b) Allopurinol

c) Xyloric acid

d) Paracetamol

Correct Answer - A

Ans. is 'a' i.e., Colchicine

Treatment of Gout

1) *Acute gout*

- NSAIDs are the drugs of choice.
- *Colchicine is the fastest acting drug.* However it is reserved for the patients in which NSAIDs are contraindicated, because colchicine can cause gastrointestinal disturbances.
- If neither NSAIDs nor colchicin are tolerated, oral prednisolone is used.
- *Allopurinol and uricosuric drugs (sulfipyrazone, probenacid) are not effective in acute gout because they will not relieve symptoms as they don't have anti-inflammatory property.*

2) *Chronic gout*

- Allopurinol is the drug of choice.
- Other drugs are sulfipyrazone and probenacid.

76. Causes of painful arc syndrome is/ are ?

- a) Supraspinatus tendinitis
- b) Subacromial bursitis
- c) Fracture of greater tuberosity
- d) All the above

Correct Answer - D

Ans. is 'd' i.e., All the above

Painful Arc syndrome

- This is a clinical syndrome in which there is pain in the shoulder and upper arm during the mid range of glenohumeral abduction. Following are the common causes :
 - i. Minor tears of the supraspinatus tendon
 - i. Supraspinatus tendinitis
 - i. Calcification of supraspinatus tendon
 - /i. Subacromial bursitis
 - /i. Fracture of the greater tuberosity
- In all these conditions, the space between the upper - end of the humerus and the acromion gets compromised, so that during mid - abduction the tendon of the rotator - cuff gets nipped between the greater tuberosity and acromion.
- X- ray of the shoulder may show calcific deposit, or a fracture of the greater tuberosity or acromion. o Treatment consists of ultrasonics to the tender point and anti- inflammatory drugs.
- Some cases need an injection of hydrocortisone in the subacromial space or excision of the anterior, often prominent part of the acromion.

77. Fat embolism syndrome is most commonly seen after ?

a) Femur fracture

b) Acetabular fracture

c) Pelvis fracture

d) Calcaneal fracture

Correct Answer - A

Ans. is 'a' i.e., Femur fracture

Fat embolism means circulation of fat globule away from its site of origin.

When fat embolism causes symptoms it is called fat embolism syndrome.

Causes of fat embolism

1. Fracture of long bone (most common) - Blunt trauma
2. Recent Corticosteroid administration
3. Soft tissue trauma
4. Acute pancreatitis
5. Burns
6. D.M.
7. Parenteral lipid infusion
8. Liposuction
9. Sickle cell crisis
10. Decompression sickness

78. What about durham pin is true ?

- a) It is used to give skeletal traction
- b) It has threads in the center of pin
- c) It is used to give skeletal traction through calcaneum
- d) All the above

Correct Answer - D

Ans. is 'd' i.e., All the above

Denham pin

- It is a type of pin used to give skeletal traction.
- Threaded portion of the pin engages the bony cortices and reduces the chances of pin sliding.
- This type of pin is used commonly to give skeletal traction through the cancellous bone i.e. calcaneum. It can also be used to give traction through osteoporotic bones.

79. Z score measures the bone mineral density compred to ?

- a) Age, Race and sex matched individuals
- b) Race and sex matched individuals
- c) Sex matched individuals
- d) None of the above

Correct Answer - A

Ans. is 'a' i.e., Age, Race and sex matched individuals

T Score and Z score are the measures of bone mineral density.

Z score : Measures the bone mineral density in terms standard deviation from the mean bone mineral density of age, race and sex matched individuals.

T score : Measures the bone mineral density in terms standard deviation from the mean bone mineral density of race and sex matched individuals of normal younger age group.

80. Osteoid osteoma consists of -

a) Osteoblasts

b) Osteoclasts

c) Both of above

d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Both of above

Osteoid Osteoma

- Osteoid osteoma is the *most common true benign tumor of the bone*. This is a benign circumscribed lesion that may arise in the cortex of long bones or occasionally in the cancellous bone of spine. The characteristic feature is the formation of a *small nidus of osteoid tissue, surrounded by a reactive zone of dense sclerosis (Sclerotic new bone formation)*.
- Microscopically, the tumor is composed of thin, irregular, trabeculae within a cellular granulation tissue containing osteoblasts and osteoclasts. Trabeculae are more mature in the center, which is often partially calcified. Reactive, sclerotic bone surrounds the nidus.

Clinical features of osteoid osteoma

- The tumor occurs between *10-30 years of age* and is more common in males.
- The diaphysis of long bones is involved, most common bone involved is the *tibia* followed by *femur*. Posterior elements of the vertebrae may also be involved.
- The presenting complaint is a nagging pain, worst at night, and is *relieved by salicylates or other NSAIDs, a diagnostic feature*.
- On X-ray, there is a *small radiolucent area (nidus) surrounded by dens sclerosis*.

- X-ray, in some cases, *show local sclerotic thickening of the shaft that may obscure the small central nidus within the area of rarefaction.*
- Bone scan shows increased uptake in the nidus.
- The only treatment is *wide en block excision along with internal fixation with or without bone grafting.*

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81. Most common cause of acute compartment syndrome in children is ?

a) Fracture supracondylar humerus

b) Transphyseal humerus fracture

c) Fracture radius /ulna

d) Fracture shaft humerus

Correct Answer - A

Ans. is 'a' i.e., Fracture supracondylar humerus

Compartment syndrome is most commonly caused by extremity fractures :-

- i. Supracondylar fracture of humerus is the most common cause in children.
- i. Crush injuries to forearm are the most common cause in adults.
- i. Other injuries are fracture both bones forearm, elbow dislocation.

82. Thomas splint is used for immobilizing fractures of ?

a) Femur

b) Tibia

c) Radius

d) Ulna

Correct Answer - A

Ans. is 'a' i.e., Femur

Splints

Any material which is used to support a fracture is called *splint*. Splints are used for immobilizing fractures; either temporarily during transportation or for definitive treatment.

The most commonly employed splint is plaster of paris (POP) splint. Various POP splints are:-

- 1) Casts : - Here the POP roll completely encircles the limb.
- 2) Slab : - It is not completely encircles the limb, but only one half or one third circumference.
- 3) Spica : - This encircles a part of the body; e.g., hip spica for fractures around hip.

83. Which of the following is not the extra-articular manifestations of ankylosing spondylitis?

- a) Acute anterior uveitis
- b) Aortic valve disease
- c) Pulmonary fibrosis
- d) Dilated cardiomyopathy

Correct Answer - D

Ans. is 'd' i.e., Dilated cardiomyopathy

Extra articular manifestations of ankylosing spondylitis are acute anterior uveitis (in 5%); rarely aortic valve disease, carditis and pulmonary fibrosis also occur.

Ankylosing spondylitis (marie-strumpell disease)

- Ankylosing spondylitis is a chronic progressive inflammatory disease of the sacroiliac joints and the axial skeleton.
- Prototype of seronegative (absence of rheumatoid factor) spondyloarthropathies.
- Inflammatory disorder of unknown cause.
- Usually begins in the *second or third decade* with a median age of 23, in 5% symptoms begin after 40.
- *Male to female ratio is 2-3 : 1*
- *Strong correlation with HLA-B27*
- *90-95% of cases are positive for HLA - B27.*
- Joints involved in ankylosing spondylitis
- Ankylosing spondylitis primarily affects axial skeleton.
- The disease usually begins in the sacro-iliac joints and usually extends upwards to involve the lumbar, thoracic, and often cervical

spine.

- In the worst cases the hips or shoulders are also affected. Hip joint is the most commonly affected peripheral joint.
- Rarely knee (Ebenzar 4th/e 593) and ankle (Apley's 9th/e 67) are also involved. Pathology
- Enthesitis i.e. inflammation of the insertion points of tendons, ligaments or joint capsule on bone is one of the hallmarks of this entity of disease.
- Primarily affects axial (spinal) skeleton and sacroiliitis is often the earliest manifestation of A.S..
- Involvement of costovertebral joints frequently occur, leading to diminished chest expansion (normal 5 cm) o Peripheral joints e.g. shoulders, and hips are also involved in 1/3rd patients.
- Extraarticular manifestations like acute anterior uveitis (in 5%); rarely aortic valve disease, carditis and pulmonary fibrosis also occur.
- Pathological changes proceed in three stages?
 1. Inflammation with granulation tissue formation and erosion of adjacent bone.
 2. Fibrosis of granulation tissue
 3. Ossification of the fibrous tissue, leading to ankylosis of the joint.

84. Which of the following deformity is evident in case of erbs palsy?

a) Policeman tip deformity

b) Winging of scapula

c) Claw hand

d) Wrist drop

Correct Answer - A

Ans. is 'a' i.e., Policeman tip deformity

Deformity (position of the limb) in Erb's palsy

i) Arm : Hangs by the side; it is adducted and medially rotated

ii) Forearm : Extended and pronated

The deformity is known as 'policeman's tip hand' or 'porter's tip hand'.

85. Functional cast bracing not used in fracture of ?

a) Humerus

b) Tibia

c) Ulna

d) Thoracolumbar spine

Correct Answer - D

Ans. is 'd' i.e., Thoracolumbar spine

Functional cast bracing is used for the fracture of :-

- i. Humerus
- i. Femur
- i. Ulna
- i. Tibia

86. What is not true about pulled elbow?

- a) Occurs due to sudden axial pull on extended elbow
- b) Forearm is held in pronation and extension
- c) Most commonly occurs between 2-5 years of age
- d) Treatment is quick pronation and flexion of elbow

Correct Answer - D

Ans. is 'd' i.e., Treatment is quick pronation and flexion of elbow

Pulled elbow

- If a young child is lifted by the wrist, the *head of the radius may be pulled partly out of the annular ligament, i.e., subluxation of the head of the radius.*
- It occurs when *forearm is pronated, elbow is extended and longitudinal traction is applied* to the hand or wrist, e.g., lifting, spinning or swinging a child with wrist or hand. Pulled elbow most commonly occurs between the age of 2-5 years.

Clinical features of pulled elbow

- History of *sudden axial pull on extended elbow.*
- Immediately child starts crying and is unable to move the affected elbow.
- The forearm is held in *pronation and extension* and any attempt to supinate is resisted.
- Child does not allow to touch the affected limb.
- X-ray seems to be normal.

Treatment of pulled elbow

- *Treatment is simple.* The child's attention is diverted, the elbow is quickly supinated and then slightly flexed.
- *This reduces the subluxation or dislocation and the radial head is*

relocated with a snap.

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87. Heberden node denotes involvement of ?

- a) Distal interphalangeal joint
- b) Proximal interphalangeal joint
- c) Metacarpophalangeal joint
- d) Metatarsophalangeal joint

Correct Answer - A

Ans. is 'a' i.e., Distal interphalangeal joint

In osteoarthritis of hand :

i) *Distal interphalangeal joint :- Heberden's node*

ii) *Proximal interphalangeal joint :- Bouchard's node*

88. De - quervian's tenovaginitis involves ?

a) Abductor pollicislongus

b) Extensor pollicisbrevis

c) Both of the above

d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Both of the above

- De-Quervian's tenovaginitis is characterized by *pain over the styloid process of the radius* and palpable thickening in the course of the *abductor pollicis longus and extensor pollicis brevis tendons*.
- The *fibrous sheaths* of the abductor pollicis longus and extensor pollicis brevis tendons are thickened where they cross the tip of the radial styloid process.
- The tendons themselves appear normal as does the synovial lining of sheath.
- Exact cause is unknown. Excessive friction from overuse may be a factor, because the condition seems prone to follow repetitive actions such as wringing clothes, or in more recent times excessive typing or manipulations.
- The condition is five times *commoner in women* than men, predominantly in *middle age*.
- The main symptom is pain on using the hand, especially when movement tenses the abductor pollicis longus and extensors pollicis brevis tendons (as in lifting a saucepan or a teapot).
- On examination, there is local tenderness at the point where the tendons cross the radial styloid process.
- *The thickened fibrous sheath are usually palpable as firm nodule.*
- *Passive adduction of the wrist or thumb causes the patient to wince*

with pain.

- Finkelstein's test is used to diagnose De-Quervain's tenovaginitis.
- To perform the test, the patients ask to flex their thumb and clench their fist over the thumb followed by ulnar deviation. This produces sharp pain along the distal radius.

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89. The typical deformity in CTEV is ?

- a) Ankle equinus
- b) Subtalar inversion
- c) Forefoot adduction
- d) All the above

Correct Answer - D

Ans. is 'd' i.e., All the above

CTEV is the commonest and most important congenital deformity of the foot.

CTEV is *more common males in* than in females (males to female ratio 2.5 : 1).

In half of the cases CTEV is bilateral.

Right and left foot are affected equally.

The deformity consists of following elements :?

i) *Equinus*, i.e. Plantar flexion at ankle joint (tibiotalar joint).

ii) *Inversion of foot* at subtalar joint (talocalcaneal joint).

iii) *Forefoot adduction*, at mid-tarsal joints, especially at talonavicular joint.

iv) Sometimes *forefoot cavus*, i.e. excessive arching of the foot at mid-tarsal joints.

90. Ortolani test is positive when the examiner hears the ?

- a) Clunk of entry on abduction and flexion of hip
- b) Clunk of entry on extension and adduction of hip
- c) Click of exit on abduction and flexion of hip
- d) Click of exit on extension and adduction of hip

Correct Answer - A

Ans. is 'a' i.e., Clunk of entry on abduction and flexion of hip

Clinical tests for CDH/DDH

- In *infancy* two tests are used.
- Barlow's test
- This test is done within *2-3 days of birth*.
- The test has two parts :?
- .. *Part 1* :- Infant is in supine position with hip and knee in 90° of flexion, *The hip is slowly adducted & pushed* to dislocate the hip and one can hear a clunk of exit of femoral head out of the acetabulum.
- ?. *Part 2* :- Now the hip is *gently abducted and pulled* to reduce the hip. This will cause 'clunk' indicating reduction of hip.
- It is quite obvious that part 1 can be done only dislocatable hip; but not in already dislocated hip as the head is already out of the acetabulum.

Ortolani's test

- This test is similar to 2nd part of Barlow's test, i.e. slow abduction of hip in flexed position of hip & knee to reduce the hip.

91. When do you operate for prolapsed disc ?

- a) Busy executive needs quick surgery
- b) Only with weakness no pain
- c) Severe pain interfering with activity and not relieved by rest and treatment of 8 weeks
- d) Patient of PID with difficulty in ambulation

Correct Answer - C

Ans. is 'c' i.e., Severe pain interfering with activity and not relieved by rest and treatment of 8 weeks

Indications for surgery in cases of Prolapsed intervertebral disc are :-

- i) Failure of conservative treatment (even after 8 weeks of treatment).
- ii) Progressive neurological deficit.
- iii) Cauda - equina syndrome.
- iv) Severe sciatic tilt.

92. Vertebral rotation in scoliosis is checked in

- a) Forward bending
- b) Backward bending
- c) Sideways
- d) Without bending

Correct Answer - A

Ans. is 'a' i.e., Forward bending

The forward bending test is very sensitive in demonstrating the vertebral rotation that takes place in a structural scoliotic curve.

- Quantification of the rotation is done by measuring the rib hump by use of inclinometer or scoliometer.
- Severity of the curve in scoliosis is measured by Cobb's angle, i.e. an angle between line passing through the margins of vertebra at ends of curve. To use the Cobb method, one must first decide which vertebrae are the end-vertebrae of the curve. These end vertebrae are the vertebrae at the upper and lower limits of curve which tilt most severely toward the convexity of the curve. Other method used to measure scoliosis angle is Ferguson's method.

93. Patient comes with crush injury to upper limb, doctor is concerned about gangrene and sepsis what can help decide between amputation and limb salvage?

a) MESS

b) Guliton score

c) Gustilo Anderson classification

d) ASIA guidelines

Correct Answer - A

Ans. is 'a' i.e., MESS

MESS (Mangled Extremity Severity Score) :

- Estimates viability of an extremity after trauma, to determine need for salvage vs empiric amputation.
- Following parameters are looked for :-
 - i) Limb ischemia
 - ii) Patient age range
 - iii) Shock
 - iv) Injury mechanism

94. Inability to pronate forearm is due to injury to which nerve ?

a) Ulnar

b) Radial

c) Median nerve

d) Musculocutaneous

Correct Answer - C

Ans. is 'c' i.e., Median nerve

- Pronation of the forearm is by two muscles pronator teres and pronator quadratus. These two muscles are supplied by median nerve. Thus injury to median nerve produces inability to pronate forearm.
- The median nerve is also called labourer's nerve. The median nerve arises by two roots, one from the lateral cord (C5,6,7) and the other from the medial cord (C8, T1). The various muscles supplied by median nerve are : ?
 - 1) *In the forearm*
- All the flexor muscles of the forearm, except the flexor carpi ulnaris and the medial half of flexor digitorum profundus to the ulnar two fingers. These muscles are : -
 - i. *Pronator teres*
 - i. *Flexor digitorum superficialis*
 - i. *Flexor pollicis longus*
 - i. *Flexor carpi radialis*
 - i. *Flexor digitorum profundus (lateral half)*
 - i. *Pronator quadratus*
 - i. *Pulmaris longus*
 - 2) *In hand*

- Median nerve supplies : -
 - i. *Thenar muscles (except adductor pollicis)* - Flexor pollicis brevis, opponens pollicis and *abductor pollicis brevis*. *Adductor pollicis is supplied by ulnar nerve.*
 - i. First two lumbricals

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95. High stepping gait is seen in ?

a) CTEV

b) Common peroneal nerve palsy

c) Polio

d) Cerebral palsy

Correct Answer - B

Ans. is 'b' i.e., Common peroneal nerve palsy

First to touch the ground is the forefoot, and not the heel.

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96. Sectoral sign is positive in ?

- a) Avascular necrosis of femur head
- b) Osteoarthritis of hip
- c) Protrusio acetabuli
- d) Slipped capital femoral epiphyses

Correct Answer - A

Ans. is 'a' i.e., Avascular necrosis of femur head

Clinical features of AVN

In the earlier stages of AVN, the patient is asymptomatic, and by the time patient presents, the lesion is well advanced.

Common histories patient gives (Any of the following) : -

- i) Dislocation of Hip
- ii) Alcoholism
- iii) Steroid intake for any disorder
- iv) Nephrotic syndrome

Pain is a common complaint. Pain is felt in the groin and may radiate to knee.

Decreased range of motion especially internal rotation followed by abduction.

Sectoral sign or Differential rotation : - Internal rotation is possible in extended position of hip, but as seen as the hip is flexed to 90° no internal rotation is possible. This is the characteristic sign of AVN.

Limp with antalgic gait.

Trendelenberg's test positive.

97. Garden's classification used for which fracture?

a) Surgical neck humerus

b) Shaft humerus

c) Neck of femur

d) Shaft femur

Correct Answer - C

Ans. is 'c' i.e., Neck of femur

Garden's classification

Garden's classification is the *most useful and most accepted classification of the neck of femur*. This is based on the degree of displacement of the fracture. Following 4 stages of fracture are there :?

1) *Stage 1* : The fracture is *incomplete*, with head tilted in postero-lateral direction, i.e. into valgus, therefore is known as *valgus (abduction) impacted fracture*.

2) *Stage 2* : Complete fracture but undisplaced.

3) *Stage 3* : Complete fracture with partial displacement.

4) *Stage 4* : Complete fracture with total displacement.

The degree of displacement, in Garden's classification, is judged from change in the direction of medial trabecular stream of the neck, in relation to the bony trabeculae in the weight bearing part of the head and in the corresponding part of the acetabulum.

i) *Stage 1* :- There is an obtuse angle laterally at the trabecular stream.

ii) *Stage 2* :- Trabeculae between head and neck are broken but they are in alignment with each other and with trabeculae in the acetabulum.

- iii) *Stage 3* :- All three trabeulae are out of alignment.
- iv) *Stage 4* :- Acetabular and head trabeculae are in alignment but head and neck trabeculae are not aligned.

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98. One of the common fractures that occur during boxing by hitting with a closed fist is ?

a) Monteggia fracture dislocation

b) Galeazzi fracture dislocation

c) Bennett's fracture dislocation

d) Smith's fracture

Correct Answer - C

Ans. is 'c' i.e., Bennett's fracture dislocation

The common mechanism of injury for Bennett's fracture is an axial blow directed against the partially flexed metacarpal, in most cases during 'fist fights'.

Bennett's fracture

Bennett's fracture is an intra-articular fracture dislocation of the *palmar base of first metacarpal bone* of the thumb with either *subluxation or dislocation of first carpometacarpal joint, i.e. trapezometacarpal joint*. The common mechanism of injury is an axial blow directed against the partially flexed metacarpal, in most cases during "Fist fights ". Patient complains of pain, swelling and tenderness over the base of the thumb. Movements of thumb are restricted.

Displacing force in Bennett's fractures

Following are the deforming forces in Bennett's fracture :-

i) At the distal fragment, it is the *adductor pollicis*.

ii) At the proximal fragment, it is the *abductor pollicis longus*.

Base of the thumb metacarpal is pulled dorsally and medially by the abductor pollicis longus, while the distal attachment of adductor

pollicis further levers the base into abduction.

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99. Causes of Carpal tunnel syndrome are all except?

a) DM

b) RA

c) Leprosy

d) Gout

Correct Answer - C

Ans. is 'c' i.e., Leprosy

Carpal tunnel syndrome

- Carpal tunnel syndrome is the most common and widely known entrapment neuropathy in which the body's peripheral nerve is compressed or traumatized. Carpal tunnel syndrome occurs when the median nerve is compressed in the carpal tunnel below flexor retinaculum. The carpal tunnel is a narrow rigid passage way of ligament and bones at the base of hand, in front of distal part of wrist. Carpal tunnel houses the median nerve and 9 tendons (4 FDS, 4 FDP & FPL).

Causes of carpal tunnel syndrome

There are many causes of carpal tunnel syndrome :

- 1) *Idiopathic* : - This is the most common cause.
- 2) *Pregnancy* and menopause
- 3) *Metabolic* : - Gout, *Diabetes mellitus*
- 4) *Endocrine* : - *Hypothyroidism*, *Myxedema*, *Acromegaly*, *Hyperparathyroidism*.
- 5) *Deposition disorder* *Amyloidosis*, *Sarcoidosis*, *Rheumatoid arthritis*, *Leukemia*, *CRF*, *Mucopolysaccharoidosis*.
- 6) *Alcoholism*
- 7) *Local causes* : - Malunited colle's fracture, osteo-arthritis of the

carpal bones, synovitis of flexor tendon sheath, hematoma.

Clinical features of carpal tunnel syndrome

Carpal tunnel syndrome is *more common in women* and occurs between 35-50 years.

Symptoms usually start gradually, with frequent burning, tingling, *paresthesia* and numbness in the distribution of median nerve, i.e., lateral three & half of fingers and lateral 2/3rd of palm.

The symptoms often first appear during night, since many people sleep with flexed wrists. (Flexion decreases the space in carpal tunnel which results in increased pressure over median nerve).

Sensory symptoms can often be reproduced by percussing over median nerve (*Tinel's sign*) or by holding the wrist fully flexed for a minute (*Phalen's test*).

As the disease progresses, clumsiness of hand and impairment of digital function develop.

Later in the disease, there is sensory loss in median nerve distribution and obvious *wasting of thenar eminence*. Clinical Tests for Carpal tunnel syndrome

There are some provocative tests which act as important screening methods : ?

1) Wrist flexion (Phalen's test) : - The patient is asked to actively place the wrist in complete flexion. If tingling and numbness develop in the distribution of median nerve, the test is positive. This is the *most sensitive provocative test*.

2) Tourniquet test : - A pneumatic BP cuff is applied proximal to the elbow and inflated higher than the patient's systolic BP. The test is positive if there is paresthesia or numbness in the region of median nerve distribution in hand.

3) Median nerve percussion test (*Tinel's sign*) : - The median nerve is gently tapped at the wrist. The test is positive if there is tingling sensation.

4) Median nerve compression test : - Direct pressure is exerted equally over both wrists by the examiner. If symptoms of carpal tunnel syndrome appear, the test is positive.

100. Radiological factors indicating an unstable pelvis are all except ?

- a) Posterior sacroiliac complex displacement by > 1 cm
- b) Avulsion fracture of sacral or ischial end of the sacrospinous ligament
- c) Avulsion fractures of the L5 transverse process
- d) Isolated disruption of pubic symphysis with pubic diastasis of 2 cm.

Correct Answer - D

Ans. is 'd' i.e., Isolated disruption of pubic symphysis with pubic diastasis of 2 cm

Radiographic factors indicating unstable pelvis are :-

- Posterior sacroiliac complex displacement by > 1cm
- Avulsion fracture of sacral or ischial end of the sacrospinous ligament
- Avulsion fractures of the L5 transverse process
- Disruption of pubic symphysis with pubic diastasis of 2 cm with posterior pelvic injury or injury to anterior/ posterior sacroiliac ligament or sacrospinous ligaments.
- Presence of gap rather than impaction in the posterior pelvic ring.

101. Most common complication of mid shaft humerus fracture is ?

a) Radial nerve palsy

b) Median nerve palsy

c) Nonunion

d) Malunion

Correct Answer - A

Ans. is 'a' i.e., Radial nerve palsy

Complications of humerus shaft fracture

1. *Nerve injury* : - Radial nerve is the most commonly injured nerve in fracture shaft humerus. It is particularly common in oblique fractures at the junction of middle and distal third of the bone (Holstein- Lewis fracture).
2. *Vascular injury* : - Brachial artery damage.
3. *Delayed union or non-union* : - Delayed union or non-union may occur, especially in transverse fracture of the midshaft. *The cause of non-union is distraction at fracture site due to gravity and weight of plaster.*
4. *Joint stiffness* : - Shoulder & elbow stiffness.

102. Deformity of hip in stage of tubercular synovitis stage is ?

- a) Flexion, abduction external rotation
- b) Flexion, adduction internal rotation
- c) Flexion adduction external rotation
- d) Flexion abduction internal rotation

Correct Answer - A

Ans. is 'a' i.e., Flexion, abduction external rotation

Synovitis- Flexion abduction external rotation apparent lengthening

103. Needle shaped crystals negatively birefringent on polarized microscopy is characteristic of which crystal associated arthropathy?

a) Gout

b) CPPD

c) Neuropathic arthropathy

d) Hemophilic arthropathy

Correct Answer - A

Ans. is 'a' i.e., Gout

- Crystal of Pseudogout
 - Made up of *calcium pyrophosphate*
 - *Weakly positive birefringent, rhomboid*
- Crystal of gout :-
- Made up of uric acid (monosodium urate)
 - *Strongly negative birefringent, needle shaped*

104. Which of the following is not a feature of rheumatoid arthritis?

- a) Heberden nodes
- b) Swan neck deformity
- c) Ulnar deviation of fingers at metacarpophalangeal joint
- d) Symmetric reduction of joint space

Correct Answer - A

Ans. is 'a' i.e., Heberden nodes

Heberden nodes is a feature of osteoarthritis and not rheumatoid arthritis.

Important hand deformities of hand in RA

- Boutonniere deformity : Flexion contracture of PIP joint and extension of DIP joint.
- Swan neck deformity : Hyperextension of PIP joint and flexion at DIP joint.
- Z-deformity : Radial deviation of wrist with ulnar deviation of fingers.
- Hyperextension of 1st interphalangeal joint and flexion of MP joint.

105. Keinbock's disease is osteochondritis of ?

a) Scaphoid

b) Lunate

c) Calcaneum

d) Tibial tuberosity

Correct Answer - B

Ans. is 'b' i.e., Lunate

- Perthes's disease- Femoral head
- Panner's disease- Capitulum
- Kienbock's disease- Lunate bone
- Osgood Shlatter's disease- Tibial tubercle
- Sever's disease- Calcaneal tuberosity
- Kohler's disease- Navicular bone

106. Metaphyseal fracture touching physis but not crossing it, comes under which type of Salter Harris physeal injury?

a) I

b) II

c) III

d) IV

Correct Answer - B

Ans. is 'b' i.e., II

Salter and Harris have classified epiphyseal injuries into five types -

- Type I : Complete separation of epiphysis from the metaphysis without fracture. Common in rickets, scurvy and osteomyelitis.
- Type II : The fracture involves the physis and a triangle of metaphyseal bone (*Thurston Holland sign*) i.e. *metaphyseal fracture touching the physis but not crossing it*. This is the commonest type of epiphyseal injury accounting for 73 percent of cases over 10 years of age.
- Type III : The fracture is intra- articular and extends along the physis and then along the growth plate. This injury is relatively uncommon.
- Type IV : The fracture is intra- articular and extends through the epiphysis, physis and metaphysis. Perfect reduction is necessary and open reduction is more often necessary to prevent growth arrest.
- Type V : Crushing of epiphysis. Growth arrest usually follows.
- Type VI (*Rang's type*) : *There is a peripheral physis (perichondrial ring) injury.*

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107. Motorcyclist's fracture is ?

- a) Stellate fracture across base of skull
- b) Transverse fracture across base of skull
- c) Lamina fracture of C1 vertebra
- d) Spinous process fracture of C7 vertebra

Correct Answer - B

**Ans. is 'b' i.e., Transverse fracture across base of skull
Motorcyclist's fracture**

- Because of the inherent instability of two wheeled vehicles, the rider and passenger inevitably fall to the ground in a crash. Injuries can occur to any part of the body, but the limbs and head are particularly susceptible to serious injury.
- Impact with the road surface or another vehicle at speed often causes skull fracture, even in the presence of a helmet.
- A transverse fracture across the floor of the skull, usually called a "hinge fracture", is sometimes referred to as motorcyclist fracture. At autopsy, the base of the skull may be appreciated to have divided into two halves, each moving independently of each other like a hinge, the so-called motorcyclist fracture.

108. Which among the following is not a feature of Unhappy triad of O' Donoghue?

- a) ACL injury
- b) Medial meniscus injury
- c) Medial collateral ligament injury
- d) Fibular collateral ligament injury

Correct Answer - D

Ans. is 'd' i.e., Fibular collateral ligament injury

The most common mechanism of ligament disruption of knee is *adduction (valgus), flexion and internal rotation of femur on tibia* which usually occur in sports in which the foot is planted solidly on the ground and leg is twisted by rotating body (i.e., foot ball, soccer, basket ball, skiing).

The medial structures *medial (tibial) collateral ligament (MCL) and medial capsular ligament* are first to fail, followed by *ACL tears*, if the force is of sufficient magnitude. The medial meniscus may be trapped between condyles and have a peripheral tear, thus producing unhappy triad of O' Donoghue.

109. Which is the commonest true benign bone tumor?

a) Osteoid osteoma

b) Hemangioma

c) Osteochondroma

d) Enchondroma

Correct Answer - A

Ans. is 'a' i.e., Osteoid osteoma

- Osteoid osteoma is the *most common true benign tumor of the bone*. This is a benign circumscribed lesion that may arise in the cortex of long bones or occasionally in the cancellous bone of spine. The characteristic feature is the formation of a *small nidus of osteoid tissue, surrounded by a reactive zone of dense sclerosis (Sclerotic new bone formation)*.

110. Which of the following is true about hallux valgus?

- a) Great toe points laterally
- b) Great toe points medially
- c) Lateral angulation of the 1st metatarsophalangeal joint
- d) Dorsal angulation of the 1st metatarsophalangeal joint

Correct Answer - A

Ans. is 'a' i.e., Great toe points laterally

Hallux valgus

- Hallux valgus is *lateral (outward) deviation* of great toe at the metatarsophalangeal joint.
- It is the *commonest foot deformity*.
- It is common in *women past middle age*, and is not infrequent even in young women.

Common causes are :

- Rheumatoid arthritis
- Wearing pointed shoes with high heels
- Hereditary factors
- Idiopathic

Pathology

- Outward deviation of the great toe.

After several years two secondary changes occur :-

- i) Formation of a thick walled bursa (*bunion*) over the medial prominence of 1st metatarsal head.
- ii) *Osteoarthritis of metatarsophalangeal joint.*
- It is worth noting that *medial prominence over metatarsal head looks like an exostosis, but there is no true exostosis.*
- Lateral deviation of great toe causes *overcrowding of lateral toes*

and sometimes overriding of adjacent toes.

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111. Jaipur foot was invented by ?

- a) P. K. Sethi
- b) S. K. Verma
- c) B. L. Sehgal
- d) H. R. Gupta

Correct Answer - A

Ans. is 'a' i.e., P. K. Sethi

P. K. Sethi. Pramod Karan Sethi (28 November 1927 - 6 January 2008) was an Indian orthopaedic surgeon. With Ram Chandra Sharma, he co-invented the "Jaipur foot", an inexpensive and flexible artificial limb, in 1969.

112. Test used for prolapsed lumbar intervertebral disc is -

a) Active straight leg raising test

b) Lasegue test

c) Thomas test

d) Apley's grinding test

Correct Answer - B

Ans. is 'b' i.e., Lasegue test

Clinical examination in PID

- Forward stooping (bending), twisting or coughing aggravate the pain.
- The trunk is tilted to one side (sciatic scoliosis or sciatic tilt).
- Movements of lumbar spine are restricted especially flexion.
- *Straight leg raising (SLR) test is positive, i.e. straight leg raising is possible 40° or less (AIIMSO4).*
- Lasegue test (a modification of SLR test) is positive.

113. Lumbar canal stenosis presents as ?

a) Claudication

b) Scoliotic deformity

c) Kyphotic deformity

d) Radiculopathy

Correct Answer - A

Ans. is 'a' i.e., Claudication

The patient of lumbar canal stenosis is usually a man aged over 50, complains of aching, heaviness, numbness and paraesthesia in the thighs and legs; it comes on after standing upright or walking for 5-10 minutes, and is consistently relieved by sitting, squatting or leaning against a wall to flex the spine (hence the term 'spinal claudication').

114. Callus formation is seen between what duration of fracture healing ?

a) 0 - 2 weeks

b) 2 - 4 weeks

c) 4 - 12 weeks

d) 12 - 16 weeks

Correct Answer - C

Ans. is 'c' i.e., 4 - 12 weeks

Healing of a fracture

The process of fracture healing varies according to the type of bone involved and the amount of movement at the fracture site. Following healing processes are there :?

Indirect fracture healing (healing by callus)

This is the 'natural' form of healing in tubular bones and in the absence of rigid fixation when there is micromovement at fracture site. There is formation of *internal and external callus*. This stage is divided in *three phases* which are further subdivided into five *stages* :

115. In osteogenic sarcoma predominant histological finding is ?

- a) Giant cells
- b) Osteoid forming tumor cells
- c) Fibroblastic proliferation
- d) Chondroblasts

Correct Answer - B

Ans. is 'b' i.e., Osteoid forming tumor cells

Histologic appearance of osteosarcoma

- It appears pale and extending through the cortex on gross cut section examination.
- On histological sections it consists of malignant stromal tissue showing osteoid formation.
- Osteoid bone formation by tumor cells is diagnostic of OGS.

116. Osteoporosis is characterized by all the following except ?

- a) Decreased bone mineral density
- b) Decreased Serum Calcium, phosphorus and alkaline phosphatase is seen
- c) Glucocorticoids can cause osteoporosis
- d) Dorsolumbar spine is the most common site of osteoporotic fracture

Correct Answer - B

Ans. is 'b' i.e., Decreased Serum Calcium, phosphorus and alkaline phosphatase is seen

Osteoporosis is a state of decreased mass per unit volume of a normally mineralized bone. Osteoporosis is the *commonest metabolic bone disease*. Osteoporosis is characterized by an *abnormally low bone mass (low bone density)* and defects in bone structure, a combination of which renders the bone unusually fragile and at greater than normal risk of fracture. Bone depletion may be brought about by predominant bone resorption, decreased bone formation or a combination of the two.

117. Arthritis involving DIP, PIP, 1st carpometacarpal with sparing of MCP and wrist joints is typical of ?

a) Osteoarthritis

b) Rheumatoid arthritis

c) Ankylosing spondylitis

d) Psoriatic arthritis

Correct Answer - A

Ans. is 'a' i.e., Osteoarthritis

1st Carpometacarpal joint Wrist- Osteoarthritis

118. Sunderland classification is used for ?

a) Nerve injury

b) Muscle injury

c) Tendon injury

d) Ligament injury

Correct Answer - A

Ans. is 'a' i.e., Nerve injury

Sunderland is an extension of the seddon classification and includes 5 types of nerve injuries.

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119. Index finger infection spreads to ?

a) Thenar space

b) Mid palmar space

c) Hypothenar space

d) Flexion space

Correct Answer - A

Ans. is 'a' i.e., Thenar space

Thenar space communicates with the index finger while the mid palmar space communicates with the middle, ring and little fingers.

Thus infection of index finger leads to thenar space infection while the infection of middle, ring or little finger leads to mid palmar space infection.

120. Pipkin's classification system is used for ?

- a) Fracture femur head
- b) Fracture femur shaft
- c) Fracture proximal tibia
- d) Fracture calcaneum

Correct Answer - A

Ans. is 'a' i.e., Fracture femur head

Pipkin's classification of femoral head fracture

- *Type I* : Femoral head fracture inferior (caudal) to fovea.
- *Type II* : Femoral head fracture superior (cephalad) to fovea.
- *Type III* : Femoral head fracture with associated femoral neck fracture.
- *Type IV* : Type I, II or III with associated acetabular fracture.

121. Tinel sign is seen in ?

a) Nerve degeneration

b) Nerve regeneration

c) Muscle degeneration

d) Muscle regeneration

Correct Answer - B

Ans. is 'b' i.e., Nerve regeneration

Pathological changes after nerve injury

- After nerve injury, nerve first degenerates and then tries to regenerate.

Nerve degeneration

- The part of the neurone distal to the point of injury undergoes *secondary or Wallerian degeneration*; the proximal part undergoes primary or retrograde degeneration upto a single node.

Nerve regeneration

- As regeneration begins, the axonal stump from the proximal segment begins to grow distally. If the endoneurial tube with its contained Schwann cells is intact, the axonal sprout may readily pass along its primary course and reinnervate the end-organ. *The rate of recovery of axon is 1 mm per day.* The muscles nearest to the site of injury recovers first, followed by others as the nerve reinnervates muscles from proximal to distal, the so-called *motor march*.
- When the skin over the nerve is percussed gently from distal to proximal, the patient gets a tingling sensation if the nerve is recovering. This is called Tinel's sign and is a sign of recovery.

122. Dinner fork deformity is seen in?

- a) Colle's fracture
- b) March fracture
- c) Lateral condyle fracture
- d) Supracondylar fracture

Correct Answer - A

Ans. is 'a' i.e., Colle's fracture

Complications of colle's fracture

- Complications in colle's fracture are high (50-60%). Following complications may occur
 - 1) *Stiffness of fingers and joints*
- *Stiffness of finger, wrist and shoulder is the most common avoidable complication of colle's fracture.*
- This occurs due to lack of exercise. Therefore, patient should be encouraged for active exercise of finger and shoulder.
 - 2) *Malunion*
- It is the *second most common complication*
- It results in *dinner fork deformity*
 - 3) *Sudek's osteodystrophy (reflex sympathetic dystrophy)*
 - 4) *Carpal tunnel syndrome:*
- Median nerve may get compressed in carpal tunnel
 - 5) *Carpal instability*
 - 6) *Rupture of the extensor pollicis longus tendon*
 - 7) *Frozen shoulder syndrome*
- This is a troublesome complication which develops due to unnecessary voluntary shoulder immobilization by the patient on the affected side for fear of fracture displacement.
 - 8) *TFCC injury*

9) *Non-union is very rare*

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123. Tennis elbow is characterized by ?

- a) Tenderness over the medial epicondyle
- b) Tendinitis of common extensor origin
- c) Tendinitis of common flexor origin
- d) Painful flexion and extension

Correct Answer - B

Ans. is 'b' i.e., Tendinitis of common extensor origin

Tennis elbow is extraarticular affection characterized by *pain and acute tenderness at the origin of the extensor muscles of the forearm from the lateral epicondyle.*

It is believed to be caused by strain of the forearm extensor muscles, particularly the *extensor carpi radialis brevis*, at the point of their origin from lateral epicondyle.

124. False about osteoarthritis is ?

- a) Involves synovial joints
- b) Progressive softening of the articular cartilage
- c) It is an inflammatory arthritis
- d) Marginal osteophytes are produced

Correct Answer - C

Ans. is 'c' i.e., It is an inflammatory arthritis

Osteoarthritis (OA) is a chronic disorder of synovial joints in which there is progressive softening and disintegration of articular cartilage accompanied by new growth of cartilage and bone at the joint margins (osteophytes), cyst formation and sclerosis in the subchondral bone, mild synovitis and capsular fibrosis.

The term osteoarthritis is a misnomer as it is a *non-inflammatory condition*.

The right term is osteoarthrosis or degenerative joint disorder because it is a degenerative wear - and - tear process occurring in joints.

125. Tardy ulnar nerve palsy is seen in

a) Medial condyle # humerus

b) Lateral condyle # humerus

c) Humerus shaft fracture

d) Fracture shaft radius

Correct Answer - B

Ans. is 'b' i.e., Lateral condyle # humerus

Causes of tardy ulnar nerve palsy are : -

1. Malunited lateral condyle humerus fracture (cubitus valgus)
2. Displaced medial epicondyle humerus fracture
3. Cubitus varus deformity (due to supracondylar fracture humerus)
4. Elbow dislocation
5. Contusions of ulnar nerve
6. Shallow ulnar groove
7. Hypoplasia of humeral trochlea
8. Joint deformity after prolonged arthritis of elbow

126. Ankle sprain due to forced inversion of a plantar flexed foot is due to injury to

- a) Anterior talofibular ligament
- b) Posterior talofibular ligament
- c) Calcaneofibular ligament
- d) Posterior fibres of deltoid

Correct Answer - A

Ans. a. Anterior talofibular ligament

* Structures damaged due to inversion injury.

- Peroneal tendon injury.
- Avulsion fracture of tip of lateral malleolus .
- Avulsion fracture of anterolateral surface of talus & calcaneum (sustentaculum tali).
- Fracture of base of 5th metatarsal.
- Lateral collateral ligament injury (anterior talo fibular > calcaneofibular > posterior- talofibular ligament).
- Medial malleolus fracture.

127. Gallows traction is used for fracture:

a) Shaft femur

b) Neck femur

c) Shaft tibia

d) Tibial tuberosity

Correct Answer - A

Ans. a. Shaft femur

Gallow's traction is used for treatment of fracture shaft of femur, in infants and children

Gallow's Traction

- Gallow's traction is used for treatment of fracture shaft of femur, in infants and children
- Weight must not be >12 kgs
- *Both the fractured and the normal femur are placed in skin traction and infant is suspended by these from a special frame. The buttocks should be lifted just off the bed so that the weight of the body provides counter traction and the fracture is reduced*

Uses of Traction

Name	Use
Bryant's Traction ^Q	Fracture shaft of femur in children
Gallow's Traction ^Q	Fracture shaft of femur in children
Russel's Traction ^Q	Fracture shaft of femur in older children
Perkin's Traction ^Q	Fracture shaft of femur in adults

90°-90° Traction ^Q	Fracture shaft of femur in children
Agnes-Hunt Traction ^Q	Correction of Hip deformity
Well-Leg Traction ^Q	Correction of adduction or abduction deformity of hip
Dunlop Traction ^Q	Supracondylar fracture of humerus
Smith's Traction ^Q	Supracondylar fracture of humerus

Uses of Traction

Name	Use
Calcaneal Traction	Open fractures of ankle or leg
Metacarpal Traction	Open forearm fractures
Head-Halter Traction	Cervical spine injuries
Crutchfield Traction ^Q	Cervical spine injuries
Halo-Pelvic Traction	Scoliosis

128. True about ankylosing spondylitis are all except ?

a) Affects males

b) 30-40yrs

c) 90% HLA-B5

d) Bamboo spine

Correct Answer - C

Ans. is 'c' i.e., 90% HLA-B5

Ankylosing spondylitis (marie-strumpell disease)

- Ankylosing spondylitis is a chronic progressive inflammatory disease of the sacroiliac joints and the axial skeleton.
- rototype of seronegative (absence of rheumatoid factor) spondyloarthropathies.
- **Inflammatory disorder of unknown cause.**
- Usually begins in the second or third decade with a median age of 23, in 5% symptoms begin after 40.
- **Male to female ratio is 2-3 : 1**
- **Strong correlation with HLA-B270-95% of case**
- **9s are positive for HLA - B27.**

Joints involved in ankylosing spondylitis

- Ankylosing spondylitis primarily affects axial skeleton.
- The disease usually begins in the sacro-iliac joints and usually extends upwards to involve the lumbar, thoracic, and often cervical spine.
- In the worst cases the hips or shoulders are also affected. Hip joint is the most commonly affected peripheral joint.
- Rarely knee (Ebenzar 4th/e 593) and ankle (Apley's 9th/e 67) are also involved. Pathology

- Enthesitis i.e. inflammation of the insertion points of tendons, ligaments or joint capsule on bone is one of the hallmarks of this entity of disease.
- Primarily affects axial (spinal) skeleton and sacroiliitis is often the earliest manifestation of A.S..
- Involvement of costovertebral joints frequently occur, leading to diminished chest expansion (normal \approx 5 cm)
- Peripheral joints e.g. shoulders, and hips are also involved in 1/3rd patients.
- Extraarticular manifestations like acute anterior uveitis (in 5%); rarely aortic valve disease, carditis and pulmonary fibrosis also occur.
- Pathological changes proceed in three stages?
- Inflammation with granulation tissue formation and erosion of adjacent bone.
- Fibrosis of granulation tissue
- Ossification of the fibrous tissue, leading to ankylosis of the joint.

Radiological features of ankylosing spondylitis

- Radiographic evidence of sacroiliac joint is the most consistent finding in ankylosing spondylitis and is crucial for diagnosis. The findings are :-
- Sclerosis of the articulating surfaces of SI joints
- Widening of the sacroiliac joint space
- Bony ankylosis of the sacroiliac joints
- Calcification of the sacroiliac ligament and sacro-tuberous ligaments
- Evidence of enthesopathy - calcification at the attachment of the muscles, tendons and ligaments, particularly around the pelvis and around the heel.

X-ray of lumbar spine may show :-

- Squaring of vertebrae : The normal anterior concavity of the vertebral body is lost because of calcification of the anterior longitudinal ligament.
- Loss of the lumbar lordosis.
- Bridging 'osteophytes' (syndesmophytes)
- Bamboo spine appearance

129. In extension type of supracondylar fracture, the usual displacement

a) Anterolateral

b) Anterolateral

c) Posteromedial

d) Posterolateral

Correct Answer - D

Ans. is 'd' i.e., Posterolateral

Types of supracondylar fracture

- Supracondylar fracture is broadly classified into *extension type* and *flexion type*. 1. Extension type
- It is the *most common type* (97 - 99%).
- *Distal fragment is extended (tilted backward/posteriorly)* in relation to proximal fragment.
- Occurs due to hyperextension injury after fall on outstretched hands.
- Generally, displacement of distal fragment may be : ?
- Posteromedial (70-80%)
- Posterolateral (20-30%)

2. Flexion type

- It is less common type (1-3 %)
- Distal fragment is flexed (tilted forward/anteriorly) in relation to proximal fragments.
- The mechanism of injury generally is believed to be a fall directly onto the elbow rather than a fall on outstretched hand.
- As the extension type fracture is more common (97 - 99%), the most common elbow injury in children is extension type of supracondylar fracture.

130. In Articular cartilage, most active chondrocytes are seen in ?

a) Zone 1

b) Zone 2

c) Zone 3

d) Zone 4

Correct Answer - C

Ans. is 'c' i.e., Zone 3

- There are four zones (layers) of articular cartilage from the articular surface to subchondral bone.
- .. **Superficial zone (Zone-1)**
 - It is the thinnest zone.
 - It consists of two layers : (i) A sheet of densely packed collagen with little polysaccharide and to cells, covers the joint surface, and (ii) flattened ellipsoid-shaped chondrocytes, with their major axis parallel to joint surface.
- 2. **Transition zone (Zone-2)**
 - Composition is intermediate between superficial zone and middle zone.
- 3. **Middle zone or radial zone or deep zone (Zone-3)**
 - The chondrocytes are spheroidal in shape with their major axis perpendicular to joint surface.
 - Chondrocytes are most active synthetically in this zone.
 - This zone contains the largest diameter collagen fibrils, the highest concentration of proteoglycans and the lowest concentration of water.
- 4. **Calcified cartilage zone (Zone-4)**
 - It separates the middle zone from subchondral bone.
 - The cells are small with small amount of endoplasmic reticulum and

golgi apparatus with very little metabolic **activity.**

- Cells are surrounded by calcified cartilage.

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131. Most common cause of neuropathic joint ?

a) Leprosy

b)) Tabes dorsalis

c) Diabetes

d) Nerve injury

Correct Answer - C

Ans. is 'c' i.e., Diabetes

Neuropathic joint (Charcot's joint)

- It is a progressive destructive arthritis associated with loss of pain sensation, proprioception or both, in addition normal muscular reflexes that modulate joint movements are decreased.
- Without these protective mechanisms, joints are subjected to repeated trauma, resulting in progressive cartilage and bone damage.
- It is most commonly caused by diabetes mellitus.
- Causes of Neuropathic joint disease (Charcot's joint)

Causes of Neuropathic joint disease (Charcot's joint)

Diabetes mellitus (most common)	Amyloidosis
Tabes Dorsalis	Leprosy
	Congenital
Meningomyelocele	indifference to pain
Syringomyelia	Peroneal muscular atrophy

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132. Most common nerve used for nerve conduction study in H reflex ?

a) Median nerve

b) Ulnar nerve

c) Tibial nerve

d) Peroneal nerve

Correct Answer - C

Ans. is 'c' i.e., Tibial nerve

- It is recorded over the soleus or gastrocnemius muscles.
- It is used most
- The H reflex is basically an electrophysiologically recorded Achilles tendon stretch reflex. o It is performed by stimulating the tibial nerve in popliteal fossa.
- It is commonly used to evaluate S₁ radiculopathy or to distinguish it from an L₅ radiculopathy.

133. Moth eaten bone is ?

- a) Osteoid osteoma
- b) Multiple myeloma
- c) Eosinophilic granuloma
- d) Chondromyxoid fibroma

Correct Answer - B

Ans. is 'b' i.e., Multiple myeloma

Patterns of bone destruction present in a lytic lesion ?

1. Geographic : Sharp clearly defined margins. Less aggressive, benign. Eg: non ossifying fibroma, chondromyxoid fibroma, eosinophilic granuloma.
2. Moth eaten appearance : Holes in destroyed bone. Rapid growth, malignant Eg: Myeloma, metastasis, lymphoma.
3. Permeative : Ill defined, diffuse, somewhat subtle destructive process of bone. Eg: Lymphoma, leukemia, Ewing's sarcoma, osteomyelitis.

134. Commonest ligament injured in ankle injury ?

a) Anterior talofibular ligament

b) Calcaneofibular ligament

c) Posterior talofibular ligament

d) Spring ligament

Correct Answer - A

Ans. is 'a' i.e., Anterior talofibular ligament

- The ankle is one of the most common sites for acute musculoskeletal injuries. Sprains constitute 85% of all ankle injuries, and 85% of those involve a lateral inversion mechanism.
- Inversion Sprain - Inversion ankle sprains occur when the foot turns in or out to an abnormal degree relative to the ankle. The most common mechanism of an ankle sprain is a combination of plantarflexion and inversion where the foot is pointing downward and inward.
- The lateral ligaments are involved in an inversion ankle sprain and hence most commonly damaged. These ligaments are on the outside of the ankle, which includes the anterior talofibular (ATFL), calcaneofibular (CFL) and posterior talofibular ligaments (PTFL). Injury to the ATFL is the most common. When both the ATFL and CFL are injured together, ankle instability will be more noticeable. The PTFL is the strongest of the three ligaments and is rarely injured in an inversion sprain.

135. Flexor tendon graft repair graft is taken from ?

a) Plantaris

b) Palmaris longus

c) Extensor digitorum

d) Extensor indicis

Correct Answer - D

Ans. is 'd' i.e., Extensor indicis

- Beside covering the bone and sharing some of its blood supply with the bone, periosteum (particularly cambium layer) also produces bone when it is stimulated.
- Practically anything that breaks, tears, stretches, inflames or even touches the periosteum, stimulates the reactive bone formation by periosteum.
- This is called periosteal reaction.

Differential Diagnosis of Periosteal Reaction

Arthritis

Psoriatic arthritis

Reactive arthritis

Metabolic

Hypertrophic pulmonary osteoarthropathy

Thyroid acropathy

Congenital

Pachydermoperiostosis

Periosteal reaction of newborn

Trauma

Stress fracture

Fracture

Drugs Fluorosis

Hypervitaminosis A

Prostaglandins

Tumors Osteosarcoma

Ewing's sarcoma

Chondroblastoma

Eosinophilic granuloma

Osteoid osteoma

Leukemia and lymphoma

Infection

Genetic

Caffey disease

Vascular

Venous stasis

- **Neuropathic arthropathy is also associated with periosteal reaction.**

136. Insal-Salvati index is used for ?

a) Olecranon

b) Patella

c) Talus

d) Scaphoid

Correct Answer - B

Ans. is 'b' i.e., Patella

- Two radiological indices are commonly used for determining the position of patella -
- **Insall-Salvati index**
 - 1. It is the ratio of patellar tendon length to patella length.
 - 2. Normally it is 1.0.
 - 3. An index of 1.2 or more is seen in patella alta (high riding patella).
 - 4. An index of 0.8 or less is seen in patella baja (low lying patella).
- **Blackburne-Peel index**
 - 1. It is the ratio of (i) the distance of tibial plateau to inferior articular surface of patella (numerator), to (ii) length of articular surface of patella (denominator).
 - 2. Normally it is 0.8.
 - 3. An index of 1 or more is seen in patella alta.

137. Intramembranous ossification is seen in which bones?

a) Pelvis

b) Long bones

c) Maxilla

d) None

Correct Answer - C

Ans. is 'c' i.e., Maxilla

Bone formation

- Bone formation (ossification) occurs by two methods : 1) Endochondral ossification, 2) Intramembranous ossification.
- In both, mesenchymal connective tissue is replaced by bone but by different mechanics.
- **Endochondral ossification**
 - 1. This type of ossification involves the replacement of a cartilaginous model by bone.
 - 2. Bone formation takes place in pre-existing cartilage.
 - 3. Mesenchymal tissue first forms cartilage which is latter ossified to become bone.
 - 4. Most of the long bones develop by endochondral ossification.
 - 5. Other bones are vertebrae, pelvis, skull base bones.
 - 6. Interstitial growth of long bone at epiphyseal cartilage occurs by endochondral ossification.
- **Intramembranous ossification**
 - 1. Mesenchymal cells give rise to osteogenic cells which develop into osteoblasts.
 - 2. Osteoblasts begin to lay down osteoid which latter mineralised to form bone

- 3. Thus, there is direct formation of bone from mesenchymal tissue (with no cartilage formation as occurs in Endochondral ossification).
- 4. This type of ossification transforms membrane into bone.
- 5. The bone formation occurs at the periphery with layers of bone being laid down analogous to the ring-like diameter of a tree.
- 6. This type of growth is called appositional growth.
- 7. Skull vault, maxilla, most of the mandible and clavicle are formed by intramembranous ossification.

138. Radiological sign in case of Perthe's disease ?

- a) Epiphyseal calcification
- b) Organized calcification
- c) Lateral subluxation femur head
- d) Restriction of abduction

Correct Answer - B

Ans. is 'b' i.e., Organized calcification

Seronegative spondyloarthropathies

- The seronegative spondyloarthropathies are a group of disorders that share certain clinical features and genetic associations. The word seronegative refers to the absence of rheumatoid factor in this group of disorders. The seronegative spondyloarthropathies include ?
- 1. Ankylosing spondylitis
- 2. Reactive arthritis → Reiter syndrome and enteritis associated arthritis
- 3. Psoriatic arthritis
- 4. Arthritis associated with inflammatory bowel disease, i.e. enteropathic arthritis

Features of seronegative spondyloarthropathies

- Onset usually before 40 years
- Absence of RA factor
- HLA - B27 positive
- Presence of uveitis

139. True about proximal fragment in supratrochantric fracture is ?

- a) Flexion
- b) Abduction
- c) External rotation
- d) All the above

Correct Answer - D

Ans. is 'd' i.e., All of the above

Deformity in cases of fracture subtrochanteric femur

- The proximal femur is surrounded by very large and powerful muscles.
- In the case of a fracture, their spatial arrangement, combined with their origin and insertion, results in a very characteristic deformity.
- The proximal fragment, as a result of contraction of the abductors, the external rotators, and the iliopsoas muscle, is flexed, abducted, and externally rotated.
- The adductors cause the shaft to be adducted, and the force of gravity causes the distal fragment to fall into some external rotation.
- All the muscles that span the fracture combine to cause shortening.
- Thus, the resultant deformity is one of an anterior and lateral bowing of the proximal shaft, combined with considerable shortening and variable degrees of external rotation.

140. Anterolateral arthroscopy of knee is for ?

- a) To see patella femoral articulation
- b) To see the posterior cruciate ligament
- c) To see the anterior portion of lateral meniscus
- d) To see the periphery of the posterior horn of medial

Correct Answer - A

Ans. is 'a' i.e., To see patella femoral articulation

Standard Portals In Knee Arthroscopy :

- **Anterolateral portal ?**
 - .. Almost all the structures within the knee joint can be seen except the posterior cruciate ligament, the anterior portion of the lateral meniscus and the periphery of the posterior horn of the medial meniscus in tight knees.
 - 2. Located 1 cm above the lateral joint line and 1 cm lateral to the margin of the patellar tendon.
- **Anteromedial portal ?**
 - .. Used for additional viewing of lateral compartment and insertion of probe for palpation of medial and lateral compartment structures.
 - 2. Placed 1 cm above the medial joint line, 1 cm inferior to the tip of patella, and 1 cm medial to the edge of the patellar tendon.
- **Posteromedial portal ?**
 - .. Located on the soft triangular soft spot formed by the posteromedial edge of the femoral condyle and the posteromedial edge of tibia.
 - 2. Used for viewing the posteromedial structures and for repair or removal of the displaced posterior horn of meniscal tears and for posteromedial loose body removal.
- **Superolateral portal -**
 - .. Used for diagnostically viewing the dynamics of patello - femoral

- joint, excision of medial plicae.
2. Located just lateral to the quadriceps tendon and about 2.5 cm superior to the superolateral corner of patella.

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141. Dripping Candle Wax lesion on spine ?

- a) Metastasis
- b) TB spine
- c) Osteopetrosis
- d) Melorheostosis

Correct Answer - D

Ans. is 'd' i.e., Melorheostosis

Melorheostosis

- Melorheostosis is a medical developmental disorder and mesenchymal dysplasia in which the bony cortex widens and becomes hyperdense in a sclerotomal distribution.
- Caused by a mutation of the LEMD3 gene.
- Can be detected by radiograph due to thickening of bony cortex resembling "dripping candle wax".
- Disorder tends to be unilateral and monoostotic, with only one limb typically involved. Cases with involvement of multiple limbs, ribs, and bones in the spine have also been reported.
- There are no reported cases of involvement of skull or facial bones.
- Melorheostosis can be associated with pain, physical deformity, skin and circulation problems, contractures, and functional limitation. It is also associated with a benign inner ear dysplasia known as osteosclerosis.

142. Cause of Coxa vera ?

- a) Congenital
- b) Perthe's disease
- c) SCFE
- d) All of the above

Correct Answer - A

Ans. is 'd' i.e., All of the above

Coxa vera

- Coxa vera refers to reduced angle between the neck and shaft of the femur.
- Coxa vera may be congenital or acquired.

1. Congenital (developmental / Infantile) coxa vera

1. This is coxa vara resulting from some unknown growth anomaly at the upper femoral epiphysis.
2. It is noticed as a painless limp in a child who has just started walking.
3. In severe cases, shortening of the leg may be obvious.
4. On examination, abduction and internal rotation of the hip are limited and the leg is short.
5. X - rays will show a reduction in neck - shaft angle.
6. The epiphyseal plate may be too vertical.
7. There may be a separate triangle of bone in the inferior portion of the metaphysis, called Fairbank's triangle.
8. Treatment is by a subtrochanteric corrective osteotomy.

2. Aquired coxa - vera

- Aquired coxa-vera is seen in :-
 1. SCFE (slipped capital femoral epiphysis)
 2. Sequelae of avascular necrosis of femoral epiphysis

- Legg-Calve Perthe's disease
- Femoral neck fracture
- Traumatic hip dislocation
- Post reduction of CDH
- Septic necrosis
- **Associated with pathological bone disorders**
 - 1. Osteogenesis imperfecta
 - 2. Fibrous dysplasia
 - 3. Osteopetrosis

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143. Bunion is commonly seen at ?

a) Great toe MTP joint

b) Medial malleolus

c) Lateral Malleolus

d) Shin of tibia

Correct Answer - A

Ans. is 'a' i.e., Great toe MTP joint

Bunion

- A hallux abducto valgus deformity, commonly called a bunion, is a deformity characterized by lateral deviation of the great toe, often erroneously described as an enlargement of bone or tissue around the joint at the head of the big toe.
- The bump itself is partly due to the swollen bursal sac or an osseous (bony) anomaly on the metatarsophalangeal joint. The larger part of the bump is a normal part of the head of the first metatarsal bone that has tilted sideways to stick out at its top.

144. Most common type of shoulder dislocation is ?

a) Preglenoid

b) Subcoracoid

c) Subclavicular

d) Posterior

Correct Answer - A

Ans. is 'a' i.e., Preglenoid

- Anterior dislocation of the shoulder is the most common type of shoulder dislocation. Head of the humerus comes out of the glenoid cavity and lies anteriorly. Anterior dislocation of shoulder could be :?
 1. Preglenoid - It is the most common type of anterior dislocation and head lies in front of glenoid.
 2. Subcoracoid - The head lies below the coracoid process.
 3. Subclavicular (infraclavicular) - The head lies below the clavicle.
 4. Intrathoracic - It is very rare.

145. Pencil in cup deformity is seen in ?

- a) Rheumatoid arthritis
- b) Ankylosing spondylitis
- c) AVN
- d) Psoriatic arthritis

Correct Answer - D

Ans. is `D i.e., Psoriatic arthritis

Gull's wing appearance- Psoriatic arthritis

Opera glass deformity- Psoriatic arthritis

Cup and pencil deformity- Psoriatic arthritis

146. All are true about aneurismal bone cyst except ?

- a) Eccentric
- b) Expansile & lytic
- c) Treated by simple curettage
- d) Metaphysis of long bones

Correct Answer - C

Ans. is 'c' i.e., Treated by simple curettage

Aneurysmal bone cyst

- Aneurysmal bone cyst occur in children and young adults (5-20 years).
- The term aneurysmal is used because it causes expansion of overlying cortex like vascular expansion of an aneurysm.
- The metaphysis of long bones is involved most commonly. Most common in femur and tibia; however any long bone can be involved.
- Other common sites are posterior elements of vertebrae and pelvis.

athology

- Cystic spaces of variable sizes & number which are filled with blood but not lined with vascular endothelium. The wall of vascular space is lined with fibroblast cells with collagen, giant cells, hemosiderin & osteoid (secondary to microfractures).

Clinical features

- With expanding lesions, pain may be a presenting feature.
- Large cyst can also cause swelling
- Pathological fracture may occur (but less frequent than simple bone cyst).

Radiological features of aneurysmal bone cyst

- Eccentric, expansile osteolytic lesion

- The characteristic feature is 'blown-out' distension of one surface of the bone.
- Overlying cortex may be intact or disrupted.
- Extensive sclerosis at the interface between normal and expanded cortex (butterflying) may be present.
- Delicate thin trabeculae is characteristic and an expansile ballooning lesion may produce a 'soap-bubble appearance'.
- Lesion occurs at metaphysis of long bones. Other common locations include the posterior elements of the spine (pedicle, lamina, transverse process, spinous process) and pelvis.

Treatment

- Surgery is the treatment of choice. Curettage and bone grafting is the procedure commonly followed.

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147. Painful arc syndrome is caused by impingement of ?

a) Sub acromial bursa

b) Sub deltoid bursa

c) Rotator cuff tendon

d) Biceps tendon

Correct Answer - C

Ans. is 'c' i.e., Rotator cuff tendon

Painful arc syndrome

- Pain in the shoulder and upper arm during mid range of glenohumeral abduction.
- Causes - supraspinatus tendon tear or tendinitis, subacromial bursitis, fracture of greater tuberosity.
- The space between the upper end of humerus and the acromion gets compromised so that during mid abduction the tendon of rotator cuff gets nipped between the greater tuberosity and acromion.

148. The father of joint replacement surgery is ?

a) Manning

b) Girdlestone

c) Charnley

d) Ponseti

Correct Answer - C

Ans. is 'c' i.e., Charnley

- **Father of the modern hip replacement: Professor Sir John Charnley (1911-82).**
- Professor Sir John Charnley was a British orthopaedic surgeon, inventor and skilled craftsman. He is best known for his development of the first truly successful operation for total arthroplasty of the hip, the low-friction arthroplasty. As well as publishing significant works on closed fracture management and compression arthrodesis, he can also be accredited with pioneering work in the development of clean-air operating conditions and body-exhaust suits.

149. Halopelvic traction is used for correcting which deformity

a) Spine

b) Pectus Carinatum

c) Spondyloptosis

d) Coxa Vara

Correct Answer - A

Ans. is 'a' i.e., Spine

- Head-pelvic skeletal traction was first attempted in 1958. With the description of the "halo" skull traction apparatus by Perry and Nickel (1959), a method was provided for immobilising the unstable cervical spine. From this developed "halo-femoral" traction, now used by some surgeons for the correction of spinal deformities before and after operation.

150. Game keepers thumb is ?

- a) Thumb metacarpophalangeal joint ulnar collateral ligament rupture
- b) Thumb metacarpophalangeal joint radial collateral ligament rupture
- c) Thumb interphalangeal joint ulnar collateral ligament rupture
- d) Thumb interphalangeal joint radial collateral ligament rupture

Correct Answer - A

Ans. is 'a' i.e., Thumb metacarpophalangeal joint ulnar collateral ligament rupture

- Injury to the thumb metacarpophalangeal joint ulnar collateral ligament is commonly referred to as gamekeeper thumb or skier's thumb, although the original "gamekeeper" description (Campbell, 1955) referred to an attritional ulnar collateral ligament injury.
- Snow skiing accidents and falls on an outstretched hand with forceful radial and palmar abduction of the thumb are the usual causes.

151. Von-Rosen's sign is positive in ?

a) Perthe's disease

b) SCFE

c) DDH

d) CTEV

Correct Answer - C

Ans. is 'c' i.e., **DDH**

Radiological features of DDH/CDH

- In Von Rosen's view following parameters should be noted .
 1. Perkin's line : Vertical line drawn at the outer border of acetabulum
 2. Hilgenreiner's line : Horizontal line drawn at the level of tri-radiate cartilage
 3. Shenton's line : Smooth curve formed by inferior border of neck of femur with superior margin of obturator foramen.
 4. Acetabular index : Normally is 30°
 5. CE angle of Wiberg : Normal value is $15-30^\circ$
- *Normally the head lies in the lower and inner quadrant formed by two lines (Perkin's & Hilgenreiner's). In DDH the head lies in outer & upper quadrant*
- *Shenton's line is broken*
- Delayed appearance & retarded development of ossification of head of femur
- Sloping acetabulum
- *Superior & lateral displacement of femoral head*
- **Von-Rosen's line**
 - This is a line, which helps in the diagnosis of DDH in infants *less than 6 months*.
 - For this AP view of pelvis is taken with both lower limb in 45°

- abduction and full internal rotation.
- Upward prolongation of long axis of shaft of the femur points towards the lateral margin of the acetabulum and crosses the pelvis in the region of sacroiliac joint.
 - In CDH, upward prolongation of this line points towards anterior superior iliac spine and crosses the midline in the lower lumbar region ---> *Positive Von-Rosen's sign.*

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152. Which of the following is not a diarthrosis ?

- a) Elbow joint
- b) Interphalangeal joint
- c) Skull sutures
- d) Hip joint

Correct Answer - C

Ans. is 'c' i.e., Skull sutures

Functional classification of joints (movement)

- Joints can also be classified functionally according to the type and degree of movement they allow:
 1. Synarthrosis - Permits little or no mobility. Most synarthrosis joints are fibrous joints (e.g., skull sutures).
 2. Amphiarthrosis - Permits slight mobility. Most amphiarthrosis joints are cartilaginous joints (e.g., intervertebral discs).
 3. Diarthrosis - Freely movable. All diarthrosis joints are synovial joints (e.g., shoulder, hip, elbow, knee, etc.), and the terms "diarthrosis" and "synovial joint" are considered equivalent by Terminologia Anatomica

153. Block vertebrae are seen in ?

a) Pagets disease

b) Leukemia

c) TB

d) Klippel - Feil syndrome

Correct Answer - D

Ans. is i.e., Klippel - Feil syndrome

- A block vertebra is a type of vertebral anomaly where there is a failure of separation of two or more adjacent vertebral bodies
- Associations
 - .. There is a frequent association with hemivertebrae / absent vertebra above or below block level, posterior element fusion
 - 2. Fusion of multiple cervical vertebral bodies is also seen in Klippel-Feil syndrome and VACTERL anomaly.

154. Bulge sign in knee joint is seen after how much fluid accumulation ?

a) 100ml

b) 400ml

c) 200ml

d) <30 ml

Correct Answer - D

Ans. is i.e., < 30 ml

- The bulge test is used to determine the presence of fluid in the knee joint. It is useful when only a little fluid is present in the joint.
- The suprapatellar bursa is first emptied of fluid by squeezing distally from about 15 cm above the patella. The medial compartment of the knee joint is emptied by pressing on the side of the joint with the free hand. The hand is then lifted away and then the lateral side is sharply compressed.
- If the test is positive, a ripple is seen on the flattened, medial surface.
- The test is negative if the effusion is tense - up to 120 ml.
- The bulge test is used to determine minimal fluid in the knee joint. It can detect as little as 4 - 6 ml of fluid in the knee joint.

155. Splint used in CTEV after correction ?

a) Bohler-Brown splint

b) Thomas splint

c) Dennis Brown splint

d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Dennis Brown splint

Treatment of CTEV at birth

- Ideally treatment should be begun immediately after birth, certainly not more than 1 week later
- The principles of treatment are :-
 1. Correction of deformity by manipulation
 2. Maintenance of this correction by immobilizing the foot in over-corrected position in between the manipulations. Three methods are available for maintenance :-
 1. A plaster of paris cast (most commonly used)
 2. Metal splints (Denis brown splint)
 3. Adhesive strapping
- Among these, retention in a plaster is much to be preferred, because it holds the foot in the over-corrected position more efficiently and for a longer period than do metal splints or strapping.
- The plaster must extend to the upper thigh, with the knee flexed 90°.
- The plaster must be changed every week for the first 6 weeks and then every 2 weeks until the correction is achieved.

156. Which of the following is least likely associated with vascular injury ?

- a) Fracture supracondylar femur
- b) Fracture supracondylar humerus
- c) Fracture shaft of femur
- d) Fracture shaft humerus

Correct Answer - D

Ans. is 'd' i.e., Fracture shaft humerus

- **Vascular injury may be seen in -**
 - 1. Fracture supracondylar humerus ---> Brachial artery
 - 2. Fracture shaft femur (especially distal 3rd)--->Popliteal artery
 - 3. Fracture supracondylar femur --> Popliteal artery

157. Turn-buckle cast is used for ?

a) Fracture shaft humerus

b) Fracture shaft femur

c) Scoliosis

d) Cervical spine injury

Correct Answer - C

Ans. is 'c' i.e., Scoliosis.

Name of the case

Minerva cast

Risser's cast

Turn-buckle cast

Shoulder spica

U-slab

Hanging cast

Colle's cast

Hip spica

Cylinder cast

PTB cast

Use

Cervical spine disease

Scoliosis

Scoliosis

Shoulder immobilisation

Fracture of the humerus

Fracture of the humerus

Colles' fracture

Fracture of the femur

Fracture of the patella

Fracture of the tibia

158. Frozen pelvis is seen in ?

a) Osteoarthritis

b) Potts disease

c) Actinomycosis

d) Reiters disease

Correct Answer - B

Ans. is 'b' i.e., Potts disease

- A term for significant involvement of the pelvic floor by malignancy, usually carcinoma, or tuberculosis; in which there is massive extension of pathology to the urinary bladder, female genital tract, and sigmoid colon. Adequate resection of a frozen pelvis is virtually impossible; chemotherapy and radiation therapy are palliative at best.

159. All are true about chronic osteomyelitis except ?

- a) Reactive new bone formation
- b) Cloaca is an opening in involucrum
- c) Involucrum is dead bone
- d) Sequestrum is hard and porous

Correct Answer - C

Ans. is 'c' i.e., Involucrum is dead bone

Pathology in chronic osteomyelitis

- Chronic osteomyelitis occurs most commonly in long bones. Bone is destroyed or devitalized in the affected part. Cavities containing pus and pieces of dead bone (sequestra) are surrounded by vascular tissue, and beyond that by areas of sclerosis due to reaction new bone formation, which may take the form of a distinct bony sheath (involucrum) Often sinus track leads to the skin surface; the sinus tends to heal and present down recurrently, but if a sequestrum is present it never heals permanently. This is because sequestra act as substrate for bacterial adhesion in much the same way as foreign implants, ensuring the persistence of infection until they are removed or discharged through perforations in the involucrum and sinuses that drain to the skin.

Sequestrum

- Sequestrum is a piece of dead bone, surrounded by infected granulation tissue trying to eat the sequestrum away.
- The sequestrum is hard, rough, porous, light in weight and lighter in colour than normal. Normal pattern of bone is lost. (Note : Sequestrum in syphilis and TB is heavier than normal bone because sclerosis usually precedes the death of the bone).

- On x-ray, sequestra show up as unnatural dense fragments, in contrast to the surrounding osteopenic bone.
Involucrum
- Involucrum is reactive new bone overlying a sequestrum.
- There may be some holes in the involucrum for pus to drain out. These holes are called cloaca.

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160. Ischial bursitis is also known as ?

a) Clergyman's knee

b) Housemaid's knee

c) Weaver's bottom

d) Students elbow

Correct Answer - A

Ans. is 'c' i.e., Weaver's bottom

Prepatellar bursitis	Housemaid's knee
-----------------------------	-------------------------

Infrapatellar bursitis	Clergyman's knee
------------------------	------------------

Olecranon bursitis	Student's elbow
--------------------	-----------------

Ischia] bursitis	Weaver's bottom
------------------	-----------------

On lateral malleolus	Tailor's ankle
----------------------	----------------

On great toe	Bunion
--------------	--------

161. Articular cartilage, true is ?

- a) Very vascular structure
- b) Surrounded by thick perichondrium
- c) Has no nerve supply
- d) Fibrocartilage

Correct Answer - C

Ans. is 'c' i.e., Has no nerve supply

Articular cartilage

- The articulating surfaces of a synovial joint are covered by articular cartilage.
- The articular cartilage has following features :-
 1. It is a hyaline cartilage
 2. It is avascular
 3. It is non-nervous (no nerve supply)
 4. Does not have perichondrium
- Articular cartilage lacks the ability to properly repair and regenerate itself. The regeneration capacity of cartilage is limited due to its isolation from systemic regulation, and its lack of vasculature and nerve supply.

162. Essex lopresti lesion in upper limb-

- a) Injury to interosseous membrane
- b) Radial head and DER fracture
- c) Radial shaft
- d) Radial shaft and radio-ulnar joint fracture

Correct Answer - A

Ans. is 'a' i.e., Injury to interosseous membrane

The Essex-lopresti fracture is a fracture of the radial head with concomitant dislocation of the distal radio-ulnar joint with disruption of the interosseous membrane

163. Brodie's abscess is ?

- a) Acute osteomyelitis
- b) Subacute osteomyelitis
- c) Chronic osteomyelitis
- d) Septic arthritis

Correct Answer - C

- Brodie's abscess is a sub-acute form of osteomyelitis, presenting as a collection of pus in bone, often with an insidious onset.
- Classically, this may present after progression to a draining abscess extending from the tibia out through the skin.
- Occasionally acute osteomyelitis may be contained to a localized area and walled off by fibrous and granulation tissue. This is termed **Brodie's abscess**.
- Most frequent causative organism is *Staphylococcus aureus*.
- Usually occurs at the metaphysis of long bones. Distal tibia, proximal tibia, distal femur, proximal or distal fibula, and distal radius.
- Brodie's abscess is best visualized using computed tomography (CT) scan.
- Associated atrophy of soft tissue near the site of infection and shortening of the affected bone. Osteoblastoma may be a classic sign for Brodie's abscess.
- In the majority of cases, surgery has to be performed.
- If the cavity is small then surgical evacuation and curettage are performed under antibiotic cover.
- If the cavity is large then the abscess space may need packing with cancellous bone chips after evacuation.

164. Fracture of proximal forearm cast position is ?

- a) Pronated flexion
- b) Neutral position
- c) Supinated position
- d) Position does not matter

Correct Answer - C

Ans. is 'c' i.e., Supinated position

- *Fracture proximal third - supination of forearm*
- *Fracture middle third - mid pronation offorearm*
- *Fracture distal third - pronation offorearm*

165. Which of the following movements is restricted in Perthe's disease -

a) Adduction & external rotation

b) Abduction & external rotation

c) Adduction & internal rotation

d) Abduction & internal rotation

Correct Answer - D

Ans. is.'d' i.e., Abduction & internal rotation

Clinical features of Perthes disease

- Perthes disease is common in *male of age group 5-10 years*.
- *Pain in the hip, often radiating to knee.*
- *Limp (antalgic limp)*
- *Limitation of movement :- Abduction, internal rotation and extension are limited, therefore there is adduction, external rotation, and flexion deformity.*
- *Shortening of limb.*
- *Positive trendelenburg test.*
- *During the disease process, bone age is 1-3 years lower than the normal. After healing, bone age returns to normal.*

166. Windswept deformity in foot is seen in ?

a) Rickets

b) RA

c) Hyperparathyroidism

d) Scurvy

Correct Answer - B

Ans. is 'b' i.e., RA

Windswept deformity

1. Knee : - A valgus deformity of one knee in association of varus deformity of other knee is known as windswept deformity. It is seen in : Rickets, Physeal oseocondromatosis, Hereditary dysplasia (epiphyseal dysplasia) of bone and Rheumatoid arthritis.
2. Foot : - Deviation of all - toes in one direction (usually laterally) is known as windswept deformity. It is seen in Rheumatoid arthritis.
3. Hand : - Deviation of all fingers (usually medial) is known as windswept deformity. It is seen in Rheumatoid arthritis, SLE, and Jacoud's arthropathy.

167. True Supracondylar fracture of femur?

a) Type A

b) Type B

c) Type C

d) Type D

Correct Answer - A

Ans. is 'a' i.e., Type A

A useful classification is from the AO group: type A fractures have no articular splits and are truly 'supra- condylar'; type B fractures are simply shear fractures of one of the condyles; and type C fractures have supra- condylar and intercondylar fissures

168. All are true about menisci of knee joint except

- a) Lateral meniscus covers more articular surface of tibia-
- b) Lateral meniscus is more mobile
- c) Lateral meniscus is more prone to injury
- d) Lateral meniscus is semicircular

Correct Answer - C

Ans. is 'c' i.e., Lateral meniscus is more prone to injury

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169. Garden spade deformity is seen in ?

a) Barton's fracture

b) Colle's fracture

c) Smith's fracture

d) Bennet's fracture

Correct Answer - C

Ans. is 'c' i.e., Smith's fracture

Smith fracture (Reverse colle's fracture)

- It is a fracture of distal third of radius with palmar displacement. Hence, it is called as reverse colles fracture (In colles fracture there is dorsal displacement).
- It is less common than colles fracture and is caused by fall on the back of hand.
- The deformity is opposite to that of colle's fracture and is called the 'garden spade deformity'.
- Treatment is closed reduction and immobilization in cast with forearm in supination and wrist in extension. o Percutaneous pinning may be done in unstable fractures.

170. Dignostic sign of a fracture-

a) Abnormal mobility at fracture site

b) Pain at the fracture site

c) Tenderness

d) Swelling

Correct Answer - A

Ans. is 'a' i.e., Abnormal mobility at fracture site

1. Unfailing signs (diagnostic or pathognomonic) -

- Abnormal mobility
- Crepitus
- Tenderness

2. Reliable signs

- Shortening
- Bruise

3. Important signs

- Swelling
- Loss of function
- Deformity
- Blisters

4. Late or inconsistent signs

- Ecchymosis
- Swelling due to callus

171. Fracture neck femur cause of non-union?

- a) Injury to blood supply with shearing stress
- b) Poor nutrition of the patient
- c) Smoking
- d) Old age and osteoporosis

Correct Answer - A

Ans. is 'a' i.e., Injury to blood supply with shearing stress

• **Causes of non-union in fracture neck of femur are :?**

1. Fracture morphology - high fracture angle and increased shear.
2. Displaced fracture grade 3/4.
3. Fracture comminution.
4. Inadequate reduction and stability of fixation.
5. Poor bone quality.
6. Injury to vascularity- direct and tamponade effect.
7. Absence of cambium layer in periosteum.
8. Factors in synovial fluid which inhibit the callus formation.
9. Lack of hematoma.
10. Washing away and dilution of osteogenic factors.

172. Exsanguinating blood loss in?

a) Closed humerus fracture

b) Closed tibia fracture

c) Open femur fracture

d) Open humerus fracture

Correct Answer - C

Ans. is 'c' i.e., Open femur fracture

- Exsanguination is the process of blood loss, to a degree sufficient to cause death.
- Shaft femur fracture out of the above is associated with maximum blood loss and more blood loss is expected in cases of open fracture. Thus, the most probable answer is open fracture shaft femur.
- Two important fractures which can cause significant blood loss are -
 - ... Fracture pelvis
 - ... Fracture shaft femur

173. Which of the following is an orthopedic emergency?

- a) Intraarticular fracture
- b) Septic arthritis
- c) Fracture lateral condyle humerus
- d) Fracture neck femur

Correct Answer - B

Ans. is 'b' i.e., Septic arthritis

Timing of surgery

- Fracture surgery can be divided into emergency, urgency or elective.

Emergency

- Emergency surgery is immediate for life and limb threatening problems. Examples are : -
 1. Fracture or dislocation with vascular injury.
 2. Fractures with compartment syndrome
 3. Irreducible dislocation or fracture dislocation of major joint.
 4. Compound (open) fractures
 5. Septic arthritis
 6. Spinal injuries with deteriorating neurological deficit.

Urgency

- Urgent surgery is the surgery, which should be done early (within 12-36 hours), but after arranging proper surgical facilities, Important examples are : -
 1. Intra-articular fractures
 2. Fracture neck femur
 3. Fracture lateral condyle humerus in children.
 4. Displaced supracondylar fracture humerus in children.

Elective

- Elective surgery is planned properly and can be done even after some delay (3-4 days to 3-4 weeks).
- Most of the surgeries in orthopaedics are elective. Example are : -
 1. Closed fracture long bone
 2. IT fracture
 3. Most of the orthoscopic procedures
 4. Arthroplasty

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174. Aeroplane splint is used in ?

- a) Radial nerve injury
- b) Ulnar nerve injury
- c) Brachial plexus injury
- d) Scoliosis

Correct Answer - C

Ans. is 'c' i.e., Brachial plexus injury

Name	Use
Cramer-wire splint	Emergency immobilisation
Thomas splint	Fracture femur-anywhere
Bohler-Braun splint	Fracture femur-anywhere
Aluminium splint	Immobilization of fingers
Dennis Brown splint	CIEV
Cock-up splint	Radial nerve palsy
Knuckle-bender splint	Ulnar nerve palsy
Toe-raising splint	Foot drop
Volkman's splint	Volkman's ischaemic contracture (VIC)
Four-post collar	Neck immobilisation
<i>Aeroplane splint</i>	<i>Brachial plexus injury</i>
SOMI brace	Cervical spine injury
ASHE (Anterior spinal hyperextension)	Dorso-lumbar spinal injury brace
Taylor's brace	Dorso-lumbar immobilisation
Milwaukee brace	Scoliosis
Boston bracet	Scoliosis
Lumbar corset	Backache

175. Commonest malignant tumor of skeletal system ?

a) Multiple myeloma

b) Metastasis

c) Osteosarcoma

d) Chondrosarcoma

Correct Answer - B

Ans. is 'b' i.e., Metastasis

- Commonest bone malignancies → Secondaries
- Commonest primary malignant tumor myeloma → A- Multiple
- Commonest primary malignant tumor Osteosarcoma of long bones →
- **Commonest benign tumor of bone Osteochondroma** - →
(Osteochondroma is not true neoplasm since its growth stops with cessation of growth at the epiphyseal plate)
- Commonest true benign tumor of bone Osteoid osteoma →
- Commonest benign tumor of hand Enchondroma →

176. Poor prognostic indicator of Pott's paraplegia

a) Early onset

b) Active disease

c) Healed disease

d) Wet lesion

Correct Answer - C

Ans. is 'c' i.e., Healed disease

Prognosis of Pott's paraplegia

	Poor	Good	
• Degree	Complete paraplegia (grade IV)	Partial (only sensory or motor)	
• Duration	Longer (> 12 months)	Shorter	
• Type	Late (chronic) onset	Early (acute) onset	
• Speed of onset	Rapid (sudden)	Slow (insidious)	
• Age		Younger	Old
• General condition	Poor	Good	
• Vertebral disease	Healed	Active	
• Kyphotic deformity	< 60°		>
• Cord on MRI		Normal	

Myelomalacia or syringomyelia		
• Preoperative lesion	Wet lesion	Dry

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177. Picture frame vertebra is seen in ?

- a) Paget's disease
- b) Osteopetrosis
- c) Osteoporosis
- d) Ankylosing spondylitis

Correct Answer - A

Ans. is 'a' i.e., Paget's disease

Radiological features of Paget's disease

- Radiographic features depend on the stage of the disorder : ?
A. In the early osteolytic phase
- Active bone resorption is evident as a radiolucent wedged area in long bones termed as 'candle flame' or 'blade of grass'.
- In the flat bones such as the calvarium or the iliac bone, purely osteolytic lesion is noted, known as osteoporosis circumscripta.
- B. Later phases of new bone formation**
- Bone remodelling appears radiographically as thickening of the cortex, coarse trabeculation and enlargement or expansion of an entire bone or area of a long bone.
- Vertebral cortical thickening of the superior and inferior end plates creates a 'picture frame vertebra'.
- Diffuse radiodense enlargement of a vertebra is referred to as 'ivory vertebra'.
- Skull x-ray shows focal patchy densities-cotton ball appearance, which is quite characteristic of Paget disease.
- Pelvic radiograph demonstrate disruption of fusion of the sacro-iliac joints and softening with protrusio acetabuli.
- Long bones reveal bowing deformities and typical pagetic changes of cortical thickening and expansion and areas of lucency and

sclerosis.

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178. Barton's fracture is ?

- a) Fracture distal end humerus
- b) Extra-articular fracture distal end radius
- c) Intra-articular fracture distal end radius
- d) Intra-articular fracture distal end radius with carpal bone subluxation

Correct Answer - A

Ans. is 'd' i.e., Intra-articular fracture distal end radius with carpal bone subluxation

Barton's fracture

- Barton's fracture is an intra-articular fracture of distal radius with subluxation of carpals.
- When carpals subluxation occurs anteriorly (volar), it is called volar Barton's fracture. It is the commonest type.
- When carpals subluxate posteriorly (Dorsal), it is called Dorsal Barton's fracture.
- The Barton's fracture is difficult to manage by conservative methods : reduction is often imperfect and tends to be unstable, so that redisplacement often occurs.
- Therefore, often internal fixation by small buttress plating is recommended.

179. Short 4th metacarpal is a feature of

- a) Hyperparathyroidism
- b) Hyperparathyroidism
- c) Pseudohypoparathyroidism
- d) Scleroderma

Correct Answer - C

Ans. is 'c' i.e., Pseudohypoparathyroidism

Short 4th metacarpal/metatarsal (metacarpal sign)

- Post - traumatic
- Post infection (from sickle cell anemia)
- Turner's syndrome
- Pseudohypoparathyroidism
- Pseudopseudohypoparathyroidism
- Hereditary multiple exostosis
- Chondroectodermal dysplasia (Ellis-vanCreveld syndrome)

180. Most common site of osteochondritis dessicans ?

- a) Lateral part of the medial femoral condyle
- b) Medial part of the medial femoral condyle
- c) Lateral part of the lateral femoral condyle
- d) Medial part of the lateral femoral condyle

Correct Answer - A

Ans. is 'a' i.e., Lateral part of the medial femoral condyle

- | • Joint | Site of osteochondritis dessicans |
|----------------|---|
| • Knee | Lateral surface of the medial femoral condyle |
| • Elbow | Capitulum of humerus |
| • Hip | Femoral head |
| • Ankle | Talus |

181. All are common sites of primary for bone metastasis except

a) Breast

b) Breast

c) Brain

d) Brain

Correct Answer - C

Ans. is 'c' i.e., Brain

- Metastatic bone disease is the commonest malignancy of bones and is much more common than primary bone tumors.
- The commonest sites for bone metastases are vertebrae (most common), pelvis, the proximal half of the femur and the humerus.
- Extremities distal to elbow and knee are least commonly involved sites.
- Spread is usually via the blood stream; occasionally, visceral tumors spread directly into adjacent bones e.g., the pelvis and ribs.
- Certain tumors are known to be common sources of bone metastasis.
- The following primary tumors are the most common to metastasize in the bone; breast, prostate, lung, thyroid, kidney, and gastrointestinal tract.
- The commonest source of metastatic bone disease is carcinoma of the breast
- In males most common source is prostate carcinoma.
- Bladder and uterine carcinomas are less common sources.
- In children, skeletal metastases originate from neuroblastoma, Ewing's sarcoma, and osteosarcoma.

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182. Madelung's deformity involves -

a) Humerus

b) Proximal ulna

c) Distal radius

d) Carpals

Correct Answer - C

Ans. is 'c' i.e., Distal radius

Madelung's deformity

- Madelung's deformity is a congenital disorder that affects *growth of distal radius*.
- The primary defect is failure of normal growth of medial and palmar halves of the distal radial physis, leading to curvature in an medial (ulnar) and palmar direction.
- The ulna is relatively long and becomes prominent dorsally.
- The carpus (carpal bones) sinks, along with the medial (ulnar) half of the distal radial articular surface, into the gaps between the two forearm bones.

183. Common causes of vertebra plana

a) TB

b) Eosinophilic granuloma

c) Metastasis

d) All of the above

Correct Answer - A

Ans. is 'd' i.e., All of the above

Vertebra plana

- This term is used to describe uniform collapse of a vertebral body into a thin, flat disc. The most common cause is eosinophilic granuloma, with the thoracic vertebrae most frequently affected. Causes are :?
 1. Histocytosis - X (Eosinophilic granuloma)
 2. Leukemia
 3. TB
 4. Metastasis, Multiple myeloma, Ewing's sarcoma, lymphoma
 5. Osteochondritis of vertebral body (Calve's disease)
 6. Hemangioma
 7. Trauma
 8. Steroids

184. DISC prolapse is common at all site except ?

a) L4 - L5

b) L5 - S1

c) C6 - C7

d) T3 - T4

Correct Answer - D

Ans. is 'd' i.e., **T3 - T4**

- Herniation of intervertebral disc is a common cause of combined back pain and sciatica (Pain in back with radiation to lower limb).
- Prolapsed intervertebral disc is often precipitated by injury, but it may also occur in the absence of any remembered injury.
- The disc between L_c and S_p and between **L4** and **L5** are those most often affected (80%).
- Lower cervical region (C's - C6 and C6_7) is affected in 19-20%.

185. Aspirated synovial fluid in septic arthritis will have?

- a) Clear color
- b) High viscosity
- c) Markedly increased polymorphonuclear leukocytes
- d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Markedly increased polymorphonuclear leukocytes

Appearance- Purulent

Clarity- Opaque

Viscosity- Decreased

Cell count- > 80000 (> 80% PMNs)

Example- Bacterial arthritis

186. Which can cause loose body in the joint -

a) RA

b) Ankylosing spondylitis

c) OA

d) SLE

Correct Answer - C

Ans. is 'c' i.e., OA

- **Causes of loose bodies include :-**

1. Osteoarthritis
 2. Osteochondritis dessicans
 3. Osteochondral fracture (injury)
 4. Synovial chondromatosis
 5. Charcot's disease
- Among these, osteochondral fracture causes single loose bodies, while all other can cause multiple loose bodies, maximum by synovial chondromatosis (up to hundrades).

187. Salter's pelvic osteotomy is done for treatment of ?

a) CTEV

b) SCFE

c) DDH

d) None

Correct Answer - C

Ans. is 'c' i.e., DDH

Treatment of CDH/DDH

- The aim of treatment in DDH is to achieve and maintain an early concentric reduction and maintain it until the hip becomes clinically stable and a round acetabulum cover it.
- Treatment plan is according to the age :?
 1. 1- 6 months of age :- Pavilk harness and/or Von-rosen splint are used to maintain the reduction. If dislocation persists, closed reduction or traction followed by casting is done.
 2. 6 - 18 months of age :- Closed reduction or traction followed by casting. If closed reduction fails, open reduction followed by casting is recommended.
 3. 18 months - 3 years :- Open reduction with femoral shortening (if femoral site is involved) or salter osteotomy (if acetabulum is involved).
 4. 3 - 8 years :- Open reduction with femoral shortening with or without acetabular reconstructive osteotomy.
- Acetabular reconstruction procedures are :-
 1. Salter 's osteotomy
 2. Chiari's pelvic displacement osteotomy
 3. Pemberton's pericapsular osteotomy

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188. All are features of Paget's disease except ?

- a) Defect in osteoclasts
- b) Common in female
- c) Can cause deafness
- d) Can cause osteosarcoma

Correct Answer - B

Ans. is 'b' i.e., Common in female

Paget disease

- Paget's disease is characterized by increased bone turnover and enlargement and thickening of the bone, but the internal architecture is abnormal and the bone is usually brittle. Primary defect is in osteoclasts with increased osteoclastic activity. This results secondarily increase in osteoblastic activity (normal osteoclasts and osteoblasts act in a co-ordinated manner). So, characteristic cellular change is a marked increase in osteoclastic and osteoblastic activity. Bone turnover is accelerated, plasma alkaline phosphatase is raised (a sign of osteoblastic activity) and there is increased excretion of hydroxyproline in urine (due to osteoclastic activity).

Clinical features of Paget's disease

- Paget's disease is slightly more common in males and is seen after 40 years of age.
- The pelvis and tibia being the commonest sites, and femur, skull, spine (vertebrae) and clavicle the next commonest.
- Most of the patient with Paget's disease are asymptomatic, the disorder being diagnosed when an x-ray is taken
- for some unrelated condition or after the incidental discovery of raised serum alkaline phosphatase.

- When patients does present, they present because any of the three :
-

- .. Pain : - Dull constant ache
- 2. Deformities : - Bowing of long bones, platybasia.
- 3. Complications of the disease

Complications of Paget's disease

- Following complications can occur in Paget's disease : -
- .. Fracture : Are common in weight bearing bones
- 2. Cranial nerve compression : - May cause impaired vision, facial palsy, trigeminal neuralgia or deafness.
- 3. Otosclerosis : - Another cause of deafness in Paget's disease.
- 4. Spinal canal stenosis and nerve root compression
- 5. High output cardiac failure
- 6. Osteoarthritis : of Hip and knee
- 7. Rarely osteosarcoma

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189. Deformity in transient synovitis of Hip ?

- a) Abduction
- b) Flexion
- c) External rotation
- d) All of the above

Correct Answer - D

Ans. is 'd' i.e., All of the above

Transient synovitis of Hip

- Transient synovitis of hip is also known as observation hip, toxic synovitis or irritable hip. Its a self-limiting, inflammatory condition of the synovium, that lasts only a short time (therefore known as transient) It is the most common cause of hip pain and limp in children under 10 yrs of age. Cause is not known but association has been seen with a recent history of an upper respiratory tract infection.
- Presentation is with hip pain or limp. The limb is in attitude of slight flexion, abduction and external rotation. The child may have low grade fever. The ESR, C-Reactive protein & WBCs count are normal (This differentiates Transient synovitis from Septic arthritis a serious condition, in which patient has high grade fever and elevated ESR, C-Reactive protein and WBC count). Radiograph or ultrasound may show widening of the joint space However, most of the time x-ray is normal.
- Usually the treatment of a clinically suspected case of transient synovitis of hip is Bed rest, NSAIDS and observation.
- USG guided aspiration is indicated for :-
 - .. Temperature > 99.5° F
 - ?. ESR > 20 (Raised ESR)

3. Severe hip pain with ROM

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190. Rocker bottom foot is due to ?

a) Overtreatment of CTEV

b) Malunited fracture calcaneum

c) Horizontal talus

d) Neural tube defect

Correct Answer - A

Ans. is 'a' i.e., Overtreatment of CTEV

Rocker bottom foot

- Rocker bottom foot is a foot with a convex plantar surface with an apex of convexity at the talar head (normal plantar surface is concave). Causes of Rocker Bottom foot are :-
 1. Congenital vertical talus
 2. Overcorrection of CTEV
 3. Improper correction of CTEV, i.e. forceful correction of equines by dorsiflexion before correction of adduction, varus and inversion.
 4. Edward's syndrome, Escobar syndrome, Apert's syndrome.
- Congenital vertical talus may be associated with arthrogryposis, Prune belly syndrome, neurofibromatosis, and spinal muscular dystrophy

191. Hangman's fracture is ?

- a) Subluxation of C5 over C6
- b) Fracture dislocation of C2
- c) Fracture dislocation of ankle joint
- d) Fracture of odontoid

Correct Answer - B

Ans. is 'b' i.e., Fracture dislocation of C2

Hangman's fracture

- Hangman's fracture is bilateral fracture of the pars interarticularis of axis (C_2) with traumatic spondylolisthesis of axis (C_2) over C_3 vertebrae. Thus Hangman's fracture is not simply a fracture, but fracture dislocation of axis (C_2).
- The mechanism of injury is extension with distraction (in true, judicial hangman's fracture) and hyper-extension, axial compression & flexion (in civilian injuries, which are now more common).
- It is second most common type of Axis (C_2) fracture, second only to odontoid fractures.
- Fatalities are common, However, neurological deficit is unusual as the fracture of posterior arch decompress the spinal cord.
- Most of the fatalities occur at the scene of injury, acute post admission mortality is low.
- Successful healing of C_2 traumatic spondylolisthesis is reported to approach 95%. This is most commonly achieved with non-operative measures, even in the presence of displacement of pars interarticularis.
- Undisplaced fractures are treated in a semi-rigid orthosis, and displaced fracture are closed reduced & treated with halo-vest.

- Occasionally, the hangman's fracture is associated with a C2/3 facet dislocation. This is a severely unstable injury; open reduction and stabilization is required.

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192. Most common cause of kyphotic deformity ?

a) Trauma

b) Osteoporosis

c) Ankylosing spondylitis

d) Rickets

Correct Answer - B

Ans. is 'b' i.e., Osteoporosis

Kyphosis

- Kyphotic deformities are characterized by an increased dorsal curvature in the sagittal plane of spinal alignment.
- Postural kyphosis (Postural round back) and Scheuermann's disease are the most common causes of kyphosis, particularly in adolescents.
- Most common cause in older persons is osteoporosis.
- Other common causes are tuberculosis of the vertebral bodies, ankylosing spondylitis, rickets, cancers and spina bifida.
- There are three types of kyphotic deformities :
 1. Knuckle - Prominence of one spinous process
 2. Gibbus - Prominence of two or three spinous processes
 3. Kyphus ---> Diffuse rounding of the vertebral column

193. Saturday night palsy is which type of nerve injury?

- a) Neuropraxia
- b) Axonotemesis
- c) Neurotemesis
- d) Complete section

Correct Answer - A

Ans. is 'a' i.e., Neuropraxia

Seddon's classification of nerve injuries

- Seddon identified three types of injuries
- 1. Neuropraxia**
- There is contusion of the peripheral nerve which causes reversible physiological nerve conduction block. The axis cylinder (i.e., axon with its endoneurium) is preserved. Thus, there is physiological conduction block without anatomic disruption. The injury is temporary and recovery is complete. It is seen in crutchpalsy, tourniquet palsy, and Saturday night palsy.
- 2. Axonotemesis**
- There is injury to axon but endoneurium is preserved. Spontaneous recovery is expected in some cases. This is seen in closed fractures and dislocations.
- 3. Neurotemesis**
- There is *complete anatomical section of nerve*. No recovery possible. It is seen in open wound.

194. Common fractures in children are all except ?

a) Lateral condyle humerus

b) Supracondylar humerus

c) Fracture of hand

d) Radius-ulna fracture

Correct Answer - C

Ans. is 'c' i.e., Fracture of hand

Common fractures in children

1. Forearm bones fractures
2. Supracondylar fracture of the humerus
3. Fracture of lateral condyle of humerus
4. Epiphyseal injuries
5. Spiral fracture of tibial shaft

195. Most common site of myositis ossificans ?

a) Knee

b) Elbow

c) Shoulder

d) Wrist

Correct Answer - B

Ans. is '**b**' i.e., Elbow

- Myositis ossificans is the extraskeletal heterotopic ossification that occurs in muscles and other soft tissues.
- Trauma is the most important cause of myositis ossificans.
- Usually there is history of severe single injury.
- It is more common in children.
- Most commonly involved joint is elbow followed by hip.
- There is history of trauma around the elbow, i.e. fracture supracondylar humerus, dislocation of elbow or surgery with extensive periosteal stripping.
- Massage to the elbow and vigorous passive stretching to restore movements are aggravating factor.
- It occurs in muscles which are vulnerable to tear under heavy loads, such as quadriceps, adductors, brachialis, biceps, and deltoid.
- X-ray finding is characteristic and shows distinct peripheral margin of mature ossification and a radiolucent center of immature osteoid & primitive mesenchymal tissue

196. Thurston Holland sign is seen in ?

a) Type I

b) Type II

c) Type III

d) Type IV

Correct Answer - B

Ans. is 'b' i.e., Type II

Epiphyseal (Physeal) Injuries

- The junction between the metaphysis and epiphysis, i.e. physal plate/growth plate, is the weakest point of a long bone *in children* and is, therefore, most vulnerable to shearing forces.
- Salter and Harris have classified epiphyseal injuries into five types ?

Type I : Complete separation of epiphysis from the metaphysis without fracture. Common in rickets, scurvy and osteomyelitis.

Type II: The fracture involves the physis and a triangle of metaphyseal bone (Thurston Holland sign). This is the commonest type of epiphyseal injury accounting for 73 percent of cases over 10 years of age.

Type III: The fracture is intra- articular and extends along the physis and then along the growth plate. This injury is relatively uncommon.

Type IV: The fracture is intra- articular and extends through the epiphysis, physis and metaphysis. Perfect reduction is necessary and open reduction is more often necessary to prevent growth arrest.

Type V : Crushing of epiphysis. Growth arrest usually follows.

Type VI (Rang's type) : There is a peripheral physis (perichondrial ring) injury.

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Which part of scaphoid fracture is most susceptible to avascular necrosis?

a) Distal 1/3rd

b) Middle 1/3rd

c) Proximal 1/3rd

d) Scaphoid Tubercle

Correct Answer - C

Answer. C. Proximal 1/3rd

- Scaphoid fractures (i.e. fractures through the [scaphoid bone](#)) are common, in some instances can be difficult to diagnose, and can result in significant functional impairment.

Epidemiology

- Scaphoid fractures account for 70-80% of all carpal bone fractures.
- Although they occur essentially at any age, adolescents and young adults are most commonly affected.
- Older patients falling in a similar manner are more likely to sustain a [distal radial fracture](#) (usually a [Colles fracture](#)).

Clinical Presentation

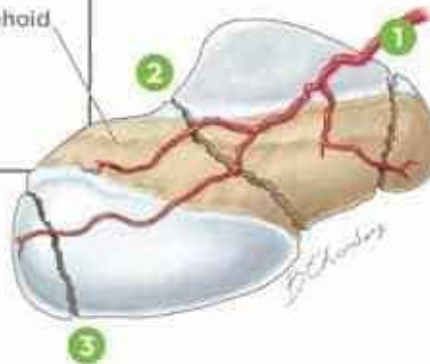
- Classically there can be pain in anatomical snuffbox which is thought to have a sensitivity of ~90% and a specificity ~40%
- Fractures can occur essentially anywhere along the scaphoid, but distribution is not even:
 - 1. waist of scaphoid: 70-80%
 - 2. proximal pole: 20%
 - 3. distal pole (or so-called scaphoid tubercle): 10%



Scaphoid

Classification of scaphoid fractures

- 1 Distal fracture
- 2 Waist fracture
- 3 Proximal fracture



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198. Pott's puffy tumor:

- a) Subperiosteal abscess of frontal bone
- b) Subperiosteal abscess of ethmoid bone
- c) Mucocele of frontal bone
- d) Mucocele of ethmoid bone

Correct Answer - A

Answer. A. Subperiosteal abscess of frontal bone

- Pott's puffy tumor, first described by Sir Percivall Pott in 1760, is a rare clinical entity characterized by **subperiosteal abscess** associated with osteomyelitis.
- It is characterized by an **osteomyelitis of the frontal bone**, either direct or through haematogenous spread.
- This results in a swelling on the forehead, hence the name.
- The infection can also spread inwards, leading to an intracranial abscess.
- Pott's puffy tumor can be associated with cortical vein thrombosis, epidural abscess, subdural empyema, and brain abscess.



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199. Scissor gait is seen in which of the following condition:

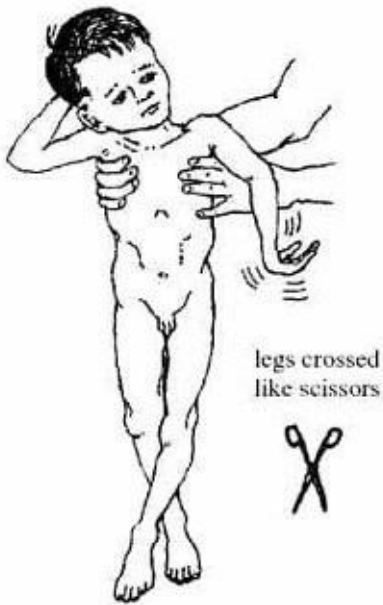
- a) Polio
- b) Cerebral palsy
- c) Hyperbilirubinemia
- d) Hyponatremia

Correct Answer - B

Answer. B. Cerebral palsy

- Scissor gait is a form of gait abnormality primarily associated with spastic cerebral palsy.
- That condition and others like it are associated with an upper motor neuron lesion.

The Spastic Child (Cerebral Palsy)



200. Most common joint involved in septic arthritis:

a) Knee

b) Hip

c) Shoulder

d) Elbow

Correct Answer - A

Answer. A. Knee

Septic arthritis (Acute suppurative arthritis)

- Septic arthritis refers to pyogenic infection of a joint, i.e., infection of a joint by pyogenic organism (bacteria).
- The joint can become infected by : –
 1. Hematogenous spread from a distant site (most common route).
 2. Direct invasion through a penetrating wound, intra articular injection, arthroscopy.
 3. Direct spread from adjacent osteomyelitis especially in joints where Metaphysis is intra articular e.g., hip and shoulder.

Clinical features

- Disease is more common in children.
- **Knee joint is the most commonly affected joint.**
- Other joint which are affected are hip, shoulder and elbow. The child is toxic with fever, tachycardia, tachypnea.
- There is severe pain, swelling, and redness over the joint. Movements are severely restricted and the joint is held in the position of ease. Weight bearing on limb is not possible.

201. Painful arc syndrome pain is felt during ?

- a) Mid abduction
- b) Initial abduction
- c) Full range of abduction
- d) Overhead abduction

Correct Answer - A

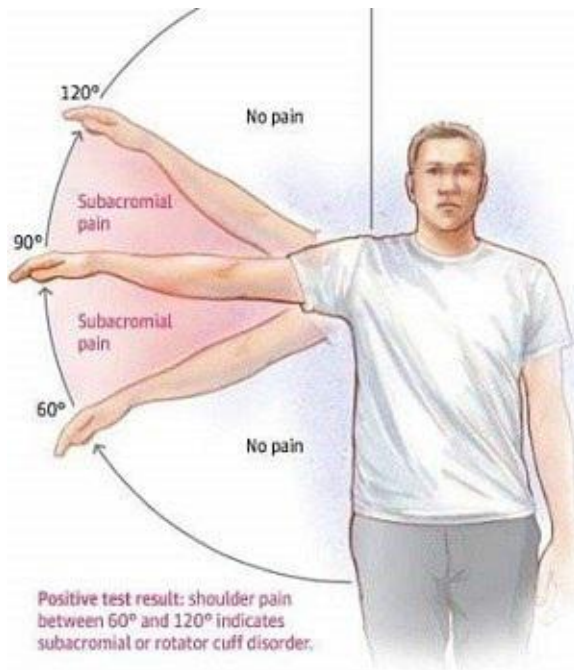
Answer. A. Mid abduction

PAINFUL ARC SYNDROME

Other Names

- **Impingement syndrome**
- **Supraspinatus syndrome**
- **Swimmer's syndrome**
- **Thrower's shoulder**

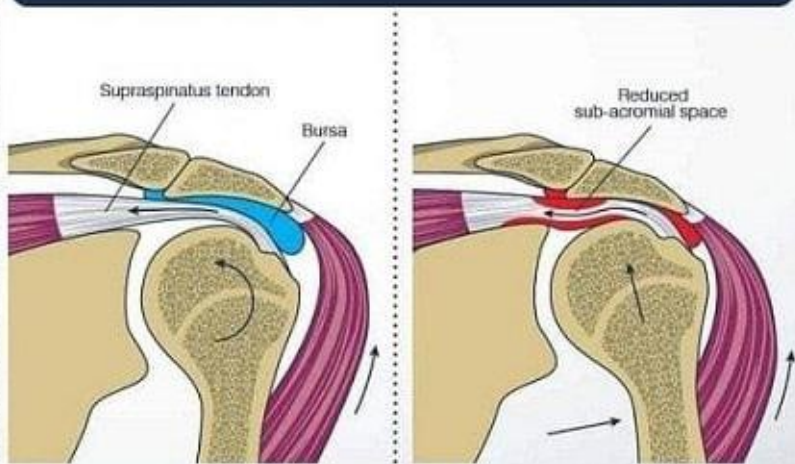
Clinical syndrome characterized by pain in the shoulder during an arc of movement between **60° and 120° of abduction.**



Etiology:

1. Minor tears of the supraspinatus tendon
2. Supraspinatus tendinitis
3. Calcification of supraspinatus tendon
4. Subacromial bursitis
5. Fracture of the greater tuberosity
6. Increase in bulk of the contents in the subacromial space, seen in inflammation of the rotator cuff

SHOULDER IMPINGEMENT SYNDROME



202. True about Tenosynovitis of finger ?

- a) Fingers held in mild extension / Extension deformity at the involved fingers.
- b) Tenosynovitis of little finger will spread to thumb rather than ring finger.
- c) With involvement of little finger the infection can spread to the index finger.
- d) Treatment is conservative.

Correct Answer - B

Ans. B. Tenosynovitis of little finger will spread to thumb rather than ring finger

- Infection of the synovial sheath that surrounds the flexor tendon
- Infection from the flexor tendon sheath of the thumb can also extend along the radial bursa to the space of Parona and then into the ulnar bursa and the flexor tendon sheath of the little finger—and vice versa—leading to a “horseshoe” abscess.

Horseshoe abscess:

- May develop from spread pyogenic flexor tenosynovitis, of many individuals have a connection between the sheaths of the thumb and little fingers at the level of the wrist

203. The last deformity to be corrected by Ponseti's method for CTEV is -

a) Heel Varus

b) Equinus

c) Foot Adduction

d) Cavus

Correct Answer - B

Answer- B. Equinus

Ponseti's technique

- This involves first correcting the cavus deformity then the adduction and heel varus and finally the equinus deformity.
- This technique is now mostly accepted technique for CTEV correction as it is based on better understanding of the pathoanatomy of the deformed foot.
- The success of reduction is 90-98 Percent.

204. Ossification centre of scaphoid appears at

a) 1-6 months

b) 1 to 2 years

c) 2 to 4 years

d) 4 to 6 years

Correct Answer - D

Answer- D. 4 to 6 years

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Which of the following is the most metabolically active part of long bone?

a) Epiphysis

b) Metaphysis

c) Diaphysis

d) Physis

Correct Answer - D

Answer- D. Physis

The growth plate (physis) and the adjacent terminal diaphysis represent the most metabolically active segment of the long bone. This part changes dramatically during development and hence it is called the metaphysis

206. Iliotibial band contracture in patients of poliomyelitis will lead to

- a) Flexion at hip and knee
- b) Flexion at hip, extension at knee
- c) Extension at hip flexion at knee
- d) Extension at hip and knee

Correct Answer - A

Answer- A. Flexion at hip and knee

Deformities: Iliotibial band contracture can lead to :

- Flexion, abduction and external rotation deformity at hip (most common).
- Flexion and valgus at knee or sometimes triple deformity at knee (flexion, posterior subluxation and external rotation of tibia on femur).
- Equinovarus at ankle and foot.
- Lumbar scoliosis and pelvic obliquity at spine and pelvis respectively.

207. Management of displaced non comminuted intercondylar humerus fracture is -

- a) Open reduction internal fixation
- b) Above elbow plaster slab application
- c) Olecranon pin traction
- d) External fixation

Correct Answer - A

Answer- A. Open reduction internal fixation

It depends upon the displacement.

An undisplaced fracture needs support in an above-elbow plaster slab for 3-4 weeks, followed by exercises.

A displaced fracture is treated generally by open reduction and internal fixation.

In cases with severe comminution, olecranon pin traction is given to reduce the fracture and maintain the reduction.

208. Jumpers knee

- a) Apophysitis of patellar tendon as it inserts in patella
- b) Apophysitis of patellar tendon as it inserts in tibia
- c) Apophysitis of quadriceps tendon as it inserts in patella
- d) Apophysitis of hamstring tendon as it inserts in tibia

Correct Answer - A

Answer- A. Apophysitis of patellar tendon as it inserts in patella

- It is also called Patellar tendinitis
- This is an apophysitis (inflammation) of the patellar tendon as it inserts into the patella.
- It is associated with pain, swelling and crepitus.

209. Proximal tibial epiphysis fuses at -

a) 12 - 14 years

b) 14 - 16 years

c) 16 - 18 years

d) 18 - 20 years

Correct Answer - C

Answer- C. 16 - 18 years

The tibia ossifies from three centres, one in the shaft and one in each epiphysis. Ossification begins in midshaft at about the seventh intrauterine week.

The proximal epiphysial centre is usually present at birth: at approximately 10 years a thin anterior process from the centre descends to form the smooth part of the tibial tuberosity.

210. What is the treatment for patient with hypertrophic nonunion with deformity at fracture site?

- a) No treatment required
- b) Fixation only
- c) Bone grafting only
- d) Fixation with bone grafting

Correct Answer - B

Answer- B. Fixation only

Patients with hypertrophic nonunion have sufficient vascularity to heal but stability is lacking or normal axial alignment has not been restored. Thus in a case of hypertrophic nonunion without deformity, fixation alone will provide stability and will lead to healing.

211. Chauffeur fracture is -

- a) Extra - articular fracture of styloid process
- b) Intra - articular fracture of styloid process
- c) Intra - articular fracture of base of 1st metacarpal
- d) Extra - articular fracture of base of 1st metacarpal

Correct Answer - B

Answer- B. Intra - articular fracture of styloid process

An intra-articular oblique fracture of the styloid process of the radius.

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212. Which of the following is not true about Galeazzi fracture dislocation?

- a) Fracture of distal third of radius and dislocation of distal radio-ulnar joint
- b) Results from fall on outstretched hand
- c) The distal end of ulna dislocates volarly after disruption of distal radio - ulnar joint
- d) Radius is angulated medially and anteriorly

Correct Answer - C

Answer- C. The distal end of ulna dislocates volarly after disruption of distal radio - ulnar joint

- Fracture of the distal third of the radius with dislocation of the distal radioulnar joint
- This injury is the counterpart of the Monteggia fracture-dislocation.
- It commonly results from a fall on an out stretched hand.
- The radius fracture is angulated medially and anteriorly. The distal radioulnar joint is disrupted, resulting in dorsal dislocation of the distal end of the ulna
- Malunion occurs because of displacement of the fragment. It results in deformity and limitation of supination and pronation.

213. Which of the following is not true about Jeffersons fracture?

- a) It is a burst fracture of the ring of atlas vertebra
- b) It is the most common type of atlas fracture
- c) Fracture definition is particularly clear on CT Scan image
- d) It is associated with injury elsewhere in spine in 25% of the cases

Correct Answer - D

Answer- D. It is associated with injury elsewhere in spine in 25% of the cases

Sudden severe load on the top of the head may cause a 'bursting' force which fractures the ring of the atlas (Jefferson's fracture). Thus it is a type of axial compression force.

It is the most common type of fracture of the Atlas.

There is no encroachment on the neural canal and usually no neurological damage.

With the exception of pain or loss of sensation in the greater occipital nerve distribution, neurological sequelae are uncommon and more likely to be related to associated injuries.

Fracture of atlas are associated with injury elsewhere in cervical spine in upto 50% of cases; odontoid fractures and hangman's fracture in particular should be excluded

214. Which of the following shoulder movements is/ are weak in patients of supraspinatus tear?

a) Abduction

b) Adduction

c) External rotation

d) Internal rotation

Correct Answer - A

Answer- A. Abduction

- Patients may tear the supraspinatus tendon acutely by falling on an outstretched arm or lifting a heavy object.
- Symptoms are pain along with weakness of abduction and external rotation of the shoulder.
- Atrophy of the supraspinatus muscles develops.

215. Most mobile segment of vertebral column is -

a) Cervical

b) Thoracic

c) Lumbar

d) Sacral

Correct Answer - A

Answer- A. Cervical

The spinal column can be divided into three mobile (cervical, thoracic, and lumbar regions) and two fused (sacrum and coccyx).

Cervical region: It is the most mobile region of the spinal column with range of motion of approximately 80 - 90 degrees of flexion, 70 degrees of extension, 20 - 45 degrees of lateral flexion, and upto 90 degrees of rotation to both sides

216. Which of the following is not true about impingement syndrome?

- a) It is the tendinitis caused by inflammation of the rotator cuff tendons
- b) Supraspinatus tendon is most often involved
- c) Shoulder abduction in the arc of 60 - 120 degrees is particularly painful
- d) Surgical decompression of the subacromial space is frequently indicated

Correct Answer - D

Answer- D. Surgical decompression of the subacromial space is frequently indicated

Impingement syndrome (painful arc syndrome) is most commonly due to tendinitis of the supraspinatus component of the rotator cuff and is characterized by pain in 60°- 120° of abduction. Treatment is initially conservative. Surgical decompression is required in failed cases.

217. Most dangerous type of odontoid fracture as per Anderson and D' Alonzo classification and its respective management is

- a) Type I - immobilization in rigid collar
- b) Type II - screw fixation
- c) Type III - halo vest immobilization
- d) Type IV - open reduction internal fixation

Correct Answer - B

Answer- B. Type II - screw fixation

Odontoid fractures have been classified by Anderson and D'Alonzo (1974) as follows:

1. Type I - An avulsion fracture of the tip of the odontoid process due to traction by the alar ligaments. The fracture is stable (above the transverse ligament) and unites without difficulty.
2. Type II - A fracture at the junction of the odontoid process and the body of the axis. This is the most common (and potentially the most dangerous) type. The fracture is unstable and prone to non-union. It requires fixation by screw.
3. Type III - A fracture through the body of the axis. The fracture is stable and almost always unites with immobilization.

218. Increased Q angle predisposes to

- a) Medial patellar subluxation
- b) Lateral patellar subluxation
- c) Superior patellar subluxation
- d) Inferior patellar subluxation

Correct Answer - B

Answer- B. Lateral patellar subluxation

Patellar alignment can be assessed by measuring the Q-angle (quadriceps angle).

This is the angle subtended by a line drawn from the anterior superior iliac spine to the centre of the patella and another from the centre of the patella to the tibial tubercle.

It normally averages about 14 degrees in men and 17 degrees in women.

Patellofemoral stability is maintained by a combination of the articular surface geometry and soft tissue restraints.

219. False about osteogenesis imperfecta is -

- a) Defective collagen formation
- b) Associated with cataract formation
- c) Autosomal dominant
- d) Known as Brittle bone disease

Correct Answer - B

Answer- B. Associated with cataract formation

Osteogenesis imperfecta, also known as brittle bone disease or Lobstein syndrome, is a hereditary condition characterized by fragility of bones, deafness, blue sclera, laxity of joints and tendency to improve with age.

It is a disease of defective collagen formation. Therefore, collagen-containing tissues are affected, e.g. bone, teeth, skin, tendons and ligaments.

Primary defect in bone is defective osteoid formation.

It is usually transmitted as an autosomal dominant, but in a severe variant of the disease the parents are normal and a fresh gene mutation or autosomal recessive inheritance is postulated.

Radiology shows wormian bones in the skull.

220. Shentons line is seen in X ray of -

- a) Antero-posterior pelvis with both hips
- b) Antero-posterior shoulder
- c) Lateral cervical spine
- d) Lateral lumbosacral spine

Correct Answer - A

Answer- A. Antero-posterior pelvis with both hips

With a normal hip Shenton's line, which continues from the inferior border of the femoral neck to the inferior border of the pubic ramus, looks continuous; any interruption in the line suggests an abnormal position of the femoral head.

Narrowing of the joint 'space' is a sign of articular cartilage loss, a feature of both inflammatory and non-inflammatory arthritis.

221. A patient presents with wrist trauma. On investigations patient is diagnosed to have a sprained wrist, without any evidence of fracture. There is tenderness in anatomical snuffbox. Which ligament is commonly involved -

- a) Scapholunate ligament
- b) Radial collateral ligament
- c) Lunotriquetral ligament
- d) Ulnar collateral ligament

Correct Answer - A

Answer- A. Scapholunate ligament

Lunate and scapholunate ligament- Tender in lunate fracture and scapholunate dissociation

222. Palpable femur head on per rectal exam is a feature of which of the following conditions?

a) Posterior hip dislocation

b) Anterior hip dislocation

c) Central hip dislocation

d) Inferior hip dislocation

Correct Answer - C

Answer- C. Central hip dislocation

In central fracture-dislocation of the hip the femoral head is driven through the floor (medial wall) of the acetabulum towards the pelvic cavity.

It occurs due to fall on the side, or a blow over the greater trochanter.

223. Popliteal artery injury is commonly seen in which type of traumatic knee dislocation?

a) Anterior

b) Posterior

c) Medial

d) Lateral

Correct Answer - B

Answer- B. Posterior

Popliteal artery injury is common with both anterior and posterior dislocations.

Posterior dislocations more likely to result in direct injury and even rupture of popliteal artery (isolated transection).

Anterior dislocations cause stretching of popliteal artery which may lead to intimal disruption and thrombosis (damage is over a longer segment of artery).

224. Kocher manoeuver is used for

a) Shoulder reduction

b) Elbow reduction

c) Ankle dislocation

d) Knee dislocation

Correct Answer - A

Answer- A. Shoulder reduction

Kocher's manoeuvre :

- This is the most commonly used method.

The steps are as follows:

1. Traction— with the elbow flexed to a right angle steady traction is applied along the long axis of the humerus;
2. External rotation—the arm is rotated externally;
3. Adduction—the externally rotated arm is adducted by carrying the elbow across the body towards the midline; and
4. Internal rotation – the arm is rotated internally so that the hand falls across to the opposite shoulder.

225. Treatment of scaphoid fracture

a) Conservative

b) Compression Screws

c) Compression Plating

d) Traction

Correct Answer - A

Answer- A. Conservative

The treatment of a scaphoid is essentially conservative.

The hand is immobilized in a scaphoid cast with wrist in little dorsiflexion and radial deviation (glass holding position).

226. All of the following are true regarding fracture of lateral condyle of humerus except

- a) Usually seen at 6 - 10 years of age
- b) Results in Gun stock deformity
- c) Cubitus valgus occurs
- d) Tardy ulnar nerve palsy is seen

Correct Answer - B

Answer- B. Results in Gun stock deformity

Fracture Lateral Condyle Humerus/Jupiter fracture

- It is a common fracture in children. The lateral condylar (or capitular) epiphysis begins to ossify during the first year of life and fuses with shaft at 12-16 years. Between these ages it may be sheared off or avulsed by forceful traction. The maximum chances of injury is between 6-10 years.

227. Most common complication of fracture of tibia

- a) Infection
- b) Compartment syndrome
- c) Delayed union
- d) Vascular injury

Correct Answer - C

Answer- C. Delayed union

The tibia has some characteristic features which are responsible for delayed union or non-union of tibia fractures.

The distal third of tibia is particularly prone for delayed union and nonunion because of its precarious blood supply.

228. Which of the following is not true about ACL injury?

- a) It is a component of the 0' Donoghue triad
- b) ACL is intrasynovial
- c) ACL is important for proprioceptive function
- d) Anterior drawer test is the most sensitive test

Correct Answer - D

Answer- D. Anterior drawer test is the most sensitive test

Lachman's test is the most sensitive test for anterior cruciate ligament tears. It is done with the knee flexed at 20 degrees. So it can be done in acute as well as chronic injuries. (because in acute cases with hemarthrosis more flexion is usually not possible so performing anterior drawer test is difficult).

ACL is intrasynovial & has proprioceptive function.

229. Cubitus valgus develops as complication of -

a) Jupiter fracture

b) Smith's fracture

c) Malgaigne fracture

d) Staddle fracture

Correct Answer - A

Answer- A. Jupiter fracture

Fracture of lateral condyle of humerus (Jupiter fracture)

230. X-ray appearance of sequestrum is -

- a) Unnatural radiodense fragments
- b) Osteopenic fragment
- c) Fragment with honeycomb loculated appearance
- d) Radiolucent area with speckled calcification

Correct Answer - A

Answer- A. Unnatural radiodense fragments

Sequestrum is a piece of dead bone, surrounded by infected granulation tissue trying to eat the sequestrum away.

On x-ray, sequestra show up as unnatural dense fragments, in contrast to the surrounding osteopenic bone

231. Continuous fixed traction is provided by

-

a) Thomas splint

b) BB splint

c) Hamilton Russel

d) Gallows

Correct Answer - A

Answer- A. Thomas splint

Combined traction - If a Thomas' splint is used, the tapes are tied to the end of the splint and the entire splint is then suspended, as in balanced traction

232. Cobra head plate is used for

a) Hip arthrodesis

b) Knee arthrodesis

c) Elbow arthrodesis

d) Ankle arthrodesis

Correct Answer - A

Answer- A. Hip arthrodesis

Special implants

- SP nail-plants
- Dynamic hip screw (DHS)- Intertrochanteric fracture
- Condylar blade-plate- Interochanteric fracture
- T-plate- Condylar fracture of femur
- Spoon plate tibia- Condylar fracture of tibia
- Cobra plate- Fracture of lower end of Hip arthrodesis

233. A 20 year old male presents with history of gradual onset pain and swelling in left knee since 6 months. Now since last 1 month patient has started limping while walking and also has flexion deformity of knee. Ultrasonography shows presence of synovial thickening. What is the most probable diagnosis?

- a) Tuberculosis of knee
- b) Pigmented villonodular synovitis
- c) Synovial sarcoma
- d) Hemarthrosis

Correct Answer - A

Answer- A. Tuberculosis of knee

Unilateral monoarticular knee involvement with gradual onset pain swelling and flexion deformity, with synovial thickening is most probably suggestive of tuberculosis of knee.

Presenting complaints :

- The patient, usually in the age group of 10-25 years, presents with complaints of pain and swelling in the knee

On Examination:

1. Swelling : The joint is swollen, which may be due to synovial hypertrophy or effusion.
2. Muscle atrophy
3. Cold abscess

- 4. Sinus
- 5. Deformity
- 6. The movements at the joint are limited

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234. Locking compression plating for is commonly indicated in the following fracture types

- a) Periarticular fractures
- b) Transverse or oblique fractures of long bones
- c) Intertrochanteric fractures
- d) Fracture of long bones

Correct Answer - A

Answer- A. Periarticular fractures

Locking compression plates are commonly used in periarticular fractures

235. Tuberculosis of spine most commonly affects which vertebral segment?

a) Upper dorsal

b) Lower dorsal

c) Lumbar

d) Cervical

Correct Answer - B

Answer- B. Lower dorsal

The spine is the commonest site of bone and joint tuberculosis. The most common site is Dorsolumbar region. Lower dorsal (thoracic) region is the most common segment involved followed by lumbar segment. The tuberculosis of spine is also called pott's disease or tubercular spondylitis.

236. Dunlop traction is a type of traction used in management of

a) Fracture humerus

b) Fracture radius

c) Fracture femur

d) Fracture Tibia

Correct Answer - A

Answer- A. Fracture humerus

It is used in management of fracture humerus.

It is a skin traction applied to the arm with the child supine.

Traction straps are applied to the forearm with the arm supinated.

A counterweight is hung from the upper part of the arm to help pull the proximal fragment of the humerus posteriorly, to approximate the distal fragment.

Longitudinal traction is then applied to the supinated forearm with the elbow flexed to about 45 degrees

237. Which of the following is not true about the management of potts paraplegia?

- a) Chemotherapy is the mainstay of conservative management
- b) Paraplegia not improving with conservative treatment even after 3 - 6 months is an indication for operative intervention
- c) Decompression via anterolateral approach is most preferred
- d) Posterior fusion and instrumentation can be used to correct the deformity

Correct Answer - C

Answer- C. Decompression via anterolateral approach is most preferred

The following measures are adopted in the treatment of Pott's paraplegia :

1) Conservative treatment

- Chemotherapy (ATTs) is the mainstay of conservative treatment.
- Immobilization by traction (in cervical spine) or brace (in dorsal region).
- Physiotherapy of paralysed limb.

2) Surgical treatment

- .. Following are the main indications for surgery.
- 2. Failed conservative treatment :- Paraplegia does not show improvement by conservative treatment even after 3-6 months.
- 3. Patient develops paraplegia while on conservative treatment.
- 4. Paraplegia getting worse despite adequate conservative treatment.
- 5. In doubtful diagnosis.
- 6. Rapid onset paraplegia
- 7. Recurrence of paraplegia after improvement initially.

Operative procedure for Pott's paraplegia

- There are various procedures, the most commonly used procedure is anterior decompression by surgical debridement (removal dead, necrotic & caseous material) followed by autogenous strut grafting.
- The logic is well understood; the compression is from anterior side most of the time because tuberculosis occurs in vertebral body which lies anterior to the spinal cord. So, anterior decompression is the best procedure.

Anterior decompression can be caused by :

1. Anterior approach : - Called anterior decompression. It is the most preferred procedure.
2. Anterolateral approach : - Called anterolateral decompression.

Other surgical procedures (other than anterior decompression) are :

1. Costo-transversectomy
2. Posterior fusion and instrumentation to correct kyphotic deformity.
3. Laminectomy

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238. First radiological sign for active tubercular arthritis is -

a) Localized osteoporosis

b) Sclerosis

c) Joint space reduction

d) Osteophytes

Correct Answer - A

Answer- A. Localized osteoporosis

In tubercular arthritis, localized osteoporosis is the first radiological sign of active disease.

239. 33 yr old female presents with a slow growing bony mass along the distal femur cortex in the metaphyseal region with an appreciable gap between the cortex and tumor without any cortical invasion. What is the usual treatment for the same?

a) Local resection

b) Amputaion

c) Chemotherapy

d) Radiotherapy

Correct Answer - A

Answer- A. Local resection

Slow growing bony mass along the distal femur cortex in the metaphyseal region with an appreciable gap between the cortex and tumor without any cortical invasion in an individual in the 3rd or 4th decade of life is suggestive of - parosteal osteosarcoma. Local resection of the lesion is the usual treatment for parosteal osteosarcoma.

240. Which is intramendullary tumor among carcinoma of bone -

a) Classical Osteosarcoma

b) Parosteal osteosarcoma

c) Periosteal osteosarcoma

d) None of the above

Correct Answer - A

Answer- A. Classical Osteosarcoma

In its classic (intramedullary) form, osteosarcoma is a highly malignant tumor arising within the bone and spreading rapidly outwards to the periosteum and surrounding soft tissue. The tumor most commonly begins in the metaphysis. Osteosarcoma arises from primitive bone - forming cells. Tumor destroys the bone structure and eventually bursts into the surrounding soft tissues.

241. Age group affected by osteosarcoma -

a) Upto 10 years

b) 10 - 20 years

c) 30 - 40 years

d) Older than 45 years

Correct Answer - B

Answer- B. 10 - 20 years

Osteogenic sarcoma is the most common primary malignant tumor of bone in children.

This is predominantly a tumor of childhood or adolescence, occurring most commonly in the 10-25 years.

The most common site of involvement is metaphysis of long bone around knee : -

- Lower end of femur (45%)
- Upper end of Tibia (25%)

242. Ankle reflex is affected in prolapsed intervertebral disc at what level?

a) L3 - L4

b) L4 - L5

c) L5 - S1

d) S1 - S2

Correct Answer - C

Answer- C. L5-S1

S1 root- Weakness of plantar flexors of foot- Over lateral side of foot

243. CTEV shoe true is

- a) It is the same as normal shoe
- b) It has straight medial border
- c) It has medical shoe raise
- d) It has heel with extra length

Correct Answer - B

Answer- B. It has straight medial border

It has straight inner (medial) border which helps prevent forefoot adduction.

It has outer shoe raise which helps prevent forefoot inversion.

There is no heel which helps prevent equinus.

244. Most commonly lesion associated with pathological fracture in hand is -

- a) Enchondroma
- b) Metastases
- c) Osteoid osteoma
- d) Osteochondroma

Correct Answer - A

Answer- A. Enchondroma

In hand pathological fractures are most commonly associated with benign bone tumors.

About 23 % of the bone tumors in hand present with pathological fractures.

The average age of presentation is 37 years.

The most common bone affected is the proximal phalynx, the fifth ray was involved in 44% of the patients.

Majority (approximately 88%) of the pathological fractures are caused by enchondromas.

245. All are features of inflammatory arthritis except?

- a) Morning stiffness
- b) X-ray showing sclerosis
- c) Elevated ESR
- d) Weight gain

Correct Answer - B

Answer- B. X-ray showing sclerosis

X-ray feature of inflammatory arthritis shows rarefaction while x-ray features in non-inflammatory arthritis reveals sclerosis.

246. All are true about Marie - strumpell disease except :

- a) Most commonly involves the sacro - iliac joints
- b) Enthesitis is common
- c) More common in males
- d) Roentgenogram is the most sensitive investigation

Correct Answer - D

Answer- D. Roentgenogram is the most sensitive investigation

Marie — Strumpell disease is also known as Ankylosing Spondylitis. In the early disease process, plain x-rays (Roentgenogram) may be read as normal → not very sensitive.

Ankylosing spondylitis primarily affects axial skeleton. The disease usually begins in the sacro-iliac joints and usually extends upwards to involve the lumbar, thoracic, and often cervical spine. In the worst cases the hips or shoulders are also affected. Hip joint is the most commonly affected peripheral joint.

It is more common in males (male to female ratio 2-3 : 1)

247. Which of the following is not true about the tests for hip instability in neonates?

- a) Ortolanis test has two parts
- b) They are performed at 2 - 3 days of birth
- c) In ortolanis test examiners fingers rest on the greater trochanter
- d) In barlows test examiners thumb is placed in the groin

Correct Answer - A

Answer- A. Ortolanis test has two parts

In Ortolani's test, the baby's thighs are held with the thumbs medially and the fingers resting on the greater trochanters; the hips are flexed to 90 degrees and gently abducted. Normally there is smooth abduction to almost 90 degrees.

In congenital dislocation the movement is usually impeded, but if pressure is applied to the greater trochanter there is a soft 'clunk' as the dislocation reduces, and then the hip abducts fully (the 'jerk of entry').

If abduction stops halfway and there is no jerk of entry, there may be an irreducible dislocation.

248. Oncogenic osteomalacia is mediated by

a) Phosphatonin

b) Calcitonin

c) Interleukin 2

d) Interleukin 6

Correct Answer - A

Answer- A. Phosphatonin

Oncogenic osteomalacia is mediated by phosphatonin in certain tumors, particularly vascular tumours like hemangiopericytomas and also fibrohistocytic lesions

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249. Which of the following is/are feature/s of sprengels deformity?

a) Elevated shoulder on affected side

b) Smaller than usual scapula

c) Short neck

d) All the above

Correct Answer - D

Answer- D. All the above

Sprengel's deformity : Deformity is the only symptom and it may be noticed at birth. The shoulder on the affected side is elevated; the scapula looks and feels abnormally high, smaller than usual and somewhat prominent; occasionally both scapulae are affected.

250. Which of the following is true about CTEV

- a) It is more common in females
- b) Right foot is usually more affected than the left
- c) Talus is displaced medial and plantarwards
- d) Tibia usually shows lateral torsion

Correct Answer - C

Answer- C. Talus is displaced medial and plantarwards

CTEV is the commonest and most important congenital deformity of the foot. CTEV is more common males in than in females (males to female ratio 2.5 : 1). In half of the cases CTEV is bilateral. Right and left foot are affected equally.

251. Which of the following is not true about the manipulation methods to correct CTEV?

- a) Involves serial casting and below knee plaster casting
- b) In kites method deformities are corrected sequentially
adduction → inversion → equinus
- c) Ponseti's technique has success rate of 90 - 98%
- d) Ponseti's method of correction involves cavus → adduction → heel varus → equinus

Correct Answer - A

Answer- A. Involves serial casting and below knee plaster casting

Serial manipulation and above knee plaster casting is done weekly for the first 6 weeks.

Other options are correct.

252. Psoriatic arthritis most commonly involves which joint -

- a) Distal interphalangeal joint
- b) Proximal interphalangeal joint
- c) Wrist joint
- d) Metacarpophalangeal joint

Correct Answer - A

Answer- A. Distal interphalangeal joint

These include :

1. Arthritis of distal interphalangeal (DIP) joints
2. Assymetrical oligoarthritis : Most common pattern
3. Symmetrical polyarthritis similar to RA
4. Axial involvement (sacroiliac and spine) similar to ankylosing spondylitis
5. Arthritis mutilans

253. Which of the following is the management for neglected case of CTEV in a patient > 10 years of age?

a) Triple arthrodesis

b) Ankle arthrodesis

c) Jess fixation

d) Ponseti casting

Correct Answer - A

Answer- A. Triple arthrodesis

* All these require surgical correction and the surgery depends upon the age of the patient.

- < 4 years of age :- Postero-medial soft tissue release

- > 4 years :- Postero-medial soft tissue release with a bony procedure :-

* 4 - 8 years :- Dilwyn - Evans procedure (PMR + Calcaneo-cuboid fusion)

* 8 - 10 years :- PMR + Wedge tarsectomy

* > 10 years :- Triple arthrodesis (subtalar, calcaneo-cuboid, and talonavicular joints)

254. Which of the following is not true about SCFE?

- a) Males are affected more frequently
- b) Extension is restricted
- c) Commonly occurs during adolescence
- d) Varus, adduction and external rotation deformities are present

Correct Answer - B

Answer- B. Extension is restricted

- SCFE is the separation of proximal femoral capital epiphysis (head) at growth plate.
- SCFE occurs due to weakness of growth plate and occurs during adolescent period (11-15 years) when the growth plate is weak due to accelerated growth.
- Males are affected more frequently than females.
- Movements are restricted particularly abduction and internal rotation.
- Flexion is also restricted and extension is increased. And this clinical feature differentiates SCFE with all other hip pathologies because most of the hip pathologies have opposite deformity, i.e. flexion deformity with restricted extension.
- Varus, adduction and external rotation deformities are present.
- External rotation is increased along with extension.
- When hip is flexed it goes into external rotation, i.e. obligatory external rotation. It is a very important sign of SCFE.
- Waddling gait is present.
- Trendelenburg's test is positive.

255. Genu recurvatum is seen in -

a) Rheumatoid arthritis

b) Poliomyelitis

c) Rickets

d) All the above

Correct Answer - D

Answer- D. All the above

a) Congenital recurvatum

- This may be due to abnormal intra-uterine posture; it usually recovers spontaneously. Rarely, gross hyperextension is the precursor of true congenital dislocation of the knee.

b) Lax ligaments

- Normal people with generalized joint laxity tend to stand with their knees backset. Prolonged traction, especially on a frame, or holding the knee hyperextended in plaster, may overstretch ligaments, leading to permanent hyperextension deformity. Ligaments may also become overstretched following chronic or recurrent synovitis (especially in rheumatoid arthritis), the hypotonia of rickets, the flailness of poliomyelitis or the insensitivity of Charcot's disease.

256. Calcification in osteosarcoma is due to presence of

- a) Osteoid matrix
- b) Osteoblasts
- c) High calcium levels in serum
- d) High calcitonin

Correct Answer - A

Answer- A. Osteoid matrix

The pattern of mineralization (calcification) on radiograph may be helpful in identifying tumor matrix.

Dense, homogenous mineralization (calcification) is typical of osteoid matrix, formed by benign and malignant bone-forming lesions

Calcified rings and arcs, dense punctate calcification, and flocculent calcification (small, loosely aggregated masses) are pattern of mineralization of chondroid matrix, formed by benign and malignant cartilage forming tumors.

257. Osteoclasts have all of the following except -

- a) Bone resorption
- b) Receptor for parathormone
- c) Ruffledborder
- d) RANK ligand

Correct Answer - B

Answer- B. Receptor for parathormone

Osteoclasts are found in sites in which bone is being remodeled

These cells are the principal mediator of bone resorption

The characteristic feature is the area of infolded plasma membrane known as ruffled border which is surrounded by an organelle free clear zone through which osteoclast attaches to bone & which is the site of bone resorption.

RANK binds to RANK Ligand which stimulates bone resorption.

Parathormone are present on osteoblasts (not on osteoclasts).

258. PTH acts directly on which cells ?

a) Osteoclasts

b) Osteocytes

c) Osteoblasts

d) Macrophages

Correct Answer - C

Answer- C. Osteoblasts

Parathormone activates osteoblasts which then secrete mediators of osteoclastogenesis that stimulate osteoclasts for bone resorption.

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259. Most vascular zone of the bone is -

a) Metaphysis

b) Diaphysis

c) Epiphysis

d) Medullary Cavity

Correct Answer - A

Answer- A. Metaphysis

Metaphysis is the most vascular zone of the bone especially in children as it has long hairpin loop arranged arterioles and venules running through it.

260. Snapping knee syndrome is due to involvement of -

- a) Pes Anserinus
- b) Quadrieps Tendon
- c) Gastrocnemius origin
- d) lateral collateral ligament

Correct Answer - A

Answer- A. Pes Anserinus

Snapping knee syndrome is characterized by painful clicks/ catching sensations experienced during every movement of flexion and extension. It is experienced usually at the posteromedial corner of the knee and ususally is due to involvement of semitendinosus and gracilis tendons.

261. Flexor Digitorum Profundus tendon avulsion injury leads to -

- a) Jersey Finger
- b) Mallet Finger
- c) Gamekeepers Thumb
- d) Boutonniere Deformity

Correct Answer - A

Answer- A. Jersey Finger

Jersey Finger - Flexor digitorum profundus Injury

Mallet Finger -Avulsion injury of extensor digitorum tendon

Gamekeepers Thumb - chronic injury to ulnar collateral ligament of thumb

Bennets Fracture- Intra articular fracture at the base of 1st metacarpal

262. K nail can be used for all of the following fractures excePt -

a) Isthmic femur shaft fractures

b) Intertrochanteric fractures

c) Low subtrochanteric fractures

d) Distal femur shaft fractures

Correct Answer - B

Answer- B. Intertrochanteric fractures

K nail is a clover leaf shaped nail that relies on the principle of three point fixation

K nail can never be used for intertrochanteric fractures as it cannot provide stability in this fracture.

263. Extensor Carpi Radialis Longus is -

- a) Extensor and ulnar deviator of the wrist
- b) Extensor and radial Deviator of the wrist
- c) Injured in Posterior interosseus nerve injury
- d) Weak extensor of the wrist

Correct Answer - B

Answer- B. Extensor and radial Deviator of the wrist

Extensor carpi Radialis Longus is a primary extensor and radial deviator of the wrist.

Loss of function causes wrist drop.

264. A child presented to an orthopaedic clinic with a limp. The surgeon suspected him to have a fixed flexion deformity of the hip. Which test should the surgeon perform to confirm his finding?

a) Thomas test

b) Trendelenburgs test

c) Nelatons test

d) Telescoping test

Correct Answer - A

Answer- A. Thomas test

Thomas test is done for flexion deformity of hip.

265. Trigger Finger Involves Which joint ?

a) Proximal Interphalngeal joint

b) Distal Interphalngeal joint

c) Metacarpophalangeal joint

d) Carpometacarpal joint

Correct Answer - C

Answer- C. Metacarpophalangeal joint

The mouth of the fibrous digital sheath is at the level of metacarpophalangeal joint.

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266. Effect of hypoparathyroidism on bones include -

- a) Brown tumours
- b) Subperiosteal Resorption of Bone
- c) Multiple Cysts in Bone
- d) None of the Above

Correct Answer - D

Answer- D. None of the Above

Features of Hypoparathyroidism

- Premature closure of epiphyses
- Generalized increase in bone density (Osteosclerosis)
- Calvarial thickening
- Sacroiliac sclerosis
- Bandlike density in metaphysis
- Thickened lamina dura + widened diploe
- Deformed hip (thickening & Sclerosis of femoral head & acetabulum)
- Intracranial calcification
- Calcification of spinal & Other ligaments
- Subcutaneous calcification
- Ectopic bone formation
- Ossification of muscle insertions

267. Bone transport can be used in the management of -

- a) Gap non union
- b) Deformity Correction
- c) Communitied shaft femur fracture
- d) Avascular Necrosis of Femoral Head

Correct Answer - A

Answer- A. Gap non union

Bone transport technique is primarily used in the management of gap non unions.

An osteotomy is made in the normal bone and a segamnt of bone is transported to the non union site

268. All of the following are true regarding application of POP Cast except -

- a) Putting the Plaster roll in warm water hastens setting time
- b) It is anhydrous Calcium phosphate
- c) It can applied in presence of extreme swelling
- d) Gangrene is known complication of a tight plaster cast

Correct Answer - B

Answer B. It is anhydrous Calcium phosphate

POP is chemically hemihydrous calcium sulphate.

Warm water hastens while cold water slows the setting time.

Plaster cast should be avoided when there is extreme swelling.

Common complications of plaster casts include compartment syndrome, gangrene and plaster sores.

269. In uncemented arthroplasty of the hip , the stem remains attached to the bone by -

- a) Bone Ingrowth/ ongrowth over the surface of the stem
- b) Mechanical bonding between the stem and bone
- c) Press fitting of the stem in the tight canal
- d) Adhesion between the stem and bone due to adhesive properties of the stem

Correct Answer - A

Answer- A. Bone Ingrowth/ ongrowth over the surface of the stem

Bone in growth-

- Over porous surface.
- Optimal pore size should be 100 to 400 microns.
- Fiber mesh or beads are present over the stem surface.
- Stem created by sintering or diffusion bonding processes.

270. During performing a total hip replacement, the surgeon found destruction of the articular cartilage and multiple wedge shaped subchondral depressions. What is this called ?

a) Osteolysis

b) Osteomyelitis

c) Osteonecrosis

d) Osteogenesis

Correct Answer - C

Answer- C. Osteonecrosis

Presence of dense wedge shaped opacities in the anterolateral quadrant of the femoral head this is called sectoral involvement.

Presence of multiple cystic and sclerotic areas

Acetabular involvement leads to development of severe arthritis

271. Sudden dorsiflexion of foot may lead to which of the following injuries -

a) Anterior talofibular ligament injury

b) Tendo Achilles avulsion injury

c) Rupture of deltoid ligament

d) Tarsal tunnel syndrome

Correct Answer - B

Answer- B. Tendo Achilles avulsion injury

A rupture of the Achilles tendon occurs when the tendon is stretched outside beyond its capacity.

The most common site of rupture is the "watershed" less vascular area of tendon, which is 4 cm proximal to its insertion on calcaneum.

272. Salter Harris classification is used for -

- a) Supracondylar humerus fractures in children
- b) Estimation of growth of the physes
- c) Physeal injuries
- d) Severity of degloving injuries to the limb

Correct Answer - C

Answer- C. Physeal injuries

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273. Milwaukee Brace is used in -

- a) Congenital Kyphosis
- b) Scheurmanns Disease
- c) Adolescent Idiopathic Scoliosis
- d) Spondylolisthesis

Correct Answer - A

Answer- A. Congenital Kyphosis

The Milwaukee brace is a plastic body jacket used in the treatment of adolescents with idiopathic scoliosis and Scheuermann's disease. The Milwaukee brace, also referred to as a Cervico-Thoraco-Lumbo-Sacral-Orthosis brace, is similar to braces for the lower back, but also includes a neck ring held in place by vertical bars attached to the body of the brace.

274. Vertebra Plana is seen in all except -

- a) Histioctosis X
- b) Leukemia
- c) Excessive use of systemic steroids
- d) Scheurmanns Disease

Correct Answer - D

Answer- D. Scheurmanns Disease

Causes of Vertebra Plana

1. Histocytosis - X (Eosinophilic granuloma)
2. Leukemia
3. TB
4. Metastasis, Multiple myeloma, Ewing's sarcoma, lymphoma
5. Osteochondritis of vertebral body (Calve's disease)
6. Hemangioma
7. Trauma
8. Steroids

275. What is luxatio erecta ?

- a) Anterior Dislocation of the shoulder joint
- b) Inferior Dislocation of the shoulder joint
- c) Anterior Dislocation of the HIP joint
- d) Posterior Dislocation of Hip joint

Correct Answer - B

Answer- B. Inferior Dislocation of the shoulder joint

The head of the humerus is below the glenoid cavity and the humeral shaft is pointing overhead.

It is due to hyperabduction injury.

It is rare and also called luxatio erecta because the humeral head is subluxated (dislocated inferiorly) and humerus shaft points upwards (erected).

276. Which of the following casts/splints is used for fracture shaft humerus ?

a) Hanging casts

b) Knuckle bender splint

c) Aeroplane Splint

d) Above elbow cast

Correct Answer - A

Answer- A. Hanging casts

Hanging cast- Fracture of the humerus

Turn-buckle cast- Scoliosis

277. Three point bony relationship of the elbow is disturbed in -

- a) Supracondylar Fracture of the humerus
- b) Fracture lateral condyle of the humerus
- c) Monteggia Fracture dislocation
- d) Fracture of Proximal Radius

Correct Answer - B

Answer- B. Fracture lateral condyle of the humerus

Three prominent bony points around elbow are medial epicondyle, lateral epicondyle and tip of the olecranon.

In elbow injuries, following is seen in three bony relationship :

- 1. Maintained
- 2. Disturbed

278. Hamilton Ruler test sign is positive in which of the above mentioned conditions ?

- a) Anterior dislocation of shoulder
- b) Acromioclavicular joint dislocation
- c) Posterior dislocation of shoulder
- d) luxatio erecta

Correct Answer - A

Answer- A. Anterior dislocation of shoulder

Hamilton ruler test : Because of flattening of shoulder, it is possible to place a ruler on the lateral side of arm and it touches acromion & lateral condyle of humerus simultaneously (in normal it would not due to shoulder contour).

279. Cubitus Valgus Deformity is commonly seen in which of the following conditions

-

a) Malunited Lateral Condylar fracture of Humerus

b) Malunited Supracondylar Fracture of Humerus

c) Posterior dislocation of elbow

d) Fracture medial condyle of humerus

Correct Answer - A

Answer- A. Malunited Lateral Condylar fracture of Humerus
Fractures commonly showing cubitus valgus deformity due to malunion :

- Fracture lateral condyle humerus
- Monteggia Fracture Dislocation

280. AVN following transcervical neck femur fractures occurs due to damage to which of the following blood vessels ?

- a) Lateral retinacular branch of lateral circumflex femoral artery
- b) Lateral retinacular branch of medial circumflex femoral artery
- c) Medial retinacular branch of lateral circumflex femoral artery
- d) Obturator artery

Correct Answer - A

Answer- A. Lateral retinacular branch of lateral circumflex femoral artery

Lateral circumflex femoral artery It supplies through anterior retinacular artery.

281. Locking of the knee involves -

- a) External rotation of femur with the foot off the ground
- b) Internal rotation of the tibia with the foot on the ground
- c) Contraction of popliteus
- d) Internal rotation of femur with foot on the ground

Correct Answer - D

Answer- D. Internal rotation of femur with foot on the ground

Physiological locking occurs in extension when the femur is internally (medially) rotated on a fixed tibia. Locking is a mechanism that allows the knee to remain in the position of full extension as in standing without much muscular efforts and is caused by quadriceps femoris.

282. Fracture neck of femur in 80 year old male sustained 1 week back The treatment of choice is -

a) Hemiarthroplasty

b) ExcisionarthroPlasty

c) Closed reduction and fixation with three cancellous screws

d) Longitudinal skin traction for 6 weeks

Correct Answer - A

Answer- A. Hemiarthroplasty

Closed reduction & screw fixation

If 2 attempts of closed reduction fail, hemiarthroplasty is done

283. Which of the following fractures of the neck of femur are associated with maximal compromise in blood supply ?

a) Intertrochanteric fractures

b) Basicervical fracture

c) Trans cervical fracture

d) Sub Capital fractures

Correct Answer - D

Answer- D. Sub Capital fractures

The non-union and AVN will be most common in subcapital fracture and least in basicervical fracture.

284. Tinel's sign is seen in -

- a) Avascular necrosis of scaphoid
- b) Kienbock's Disease
- c) 1st carpometacarpal joint arthritis
- d) Carpal tunnel syndrome

Correct Answer - D

Answer- D. Carpal tunnel syndrome

Median nerve percussion test (Tinel's sign) : - The median nerve is gently tapped at the wrist. The test is positive if there is tingling sensation

285. Which of the following is used as a substitute for wrist extensors in radial nerve Palsy?

a) Pronator Teres

b) Palmaris Longus

c) Flexor Digitorum Superficialis

d) Flexor Digitorum Profundus

Correct Answer - A

Answer- A. Pronator Teres

Pronator teres is a common muscle used as a substitute for wrist extensors in case of wrist drop occurring as a result of radial nerve palsy. Pronator teres is a pronator of the forearm supplied by Median nerve.

286. Most common cause of carpal tunnel syndrome is ?

- a) Pregnancy
- b) Idiopathic
- c) Alcoholism
- d) Occupational-Excessive use of vibratory instruments

Correct Answer - B

Answer- B. Idiopathic

Most common type of carpal tunnel syndrome is idiopathic → no known cause.

287. A 45 year old carpenter with a blunt trauma to his arm sustained a fracture following which he developed wrist drop, loss of extension at fingers and loss of sensations on the lateral aspect of the wrist joint. Which of the following is true ?

- a) Patient has an injury to the median nerve
- b) He should have also lost extension of the forearm
- c) Patient has injured the radial nerve in the spiral groove
- d) There is combined involvement of the radial nerve and median nerve

Correct Answer - C

Answer- C. Patient has injured the radial nerve in the spiral groove

Radial nerve injury may be high or low.

1) High radial nerve palsy

- Injury is before the spiral groove
- All muscles supplied by radial nerve are paralysed

2) If lesion is high

- Wrist drop, thumb drop and finger drop.
- Inability to extend elbow, wrist, thumb & fingers (MP joint)
- Patient can extend interphalangeal joints due to action of lumbricals and interossei.
- Sensory loss over posterior surface of arm & forearm and lower lateral half of forearm.

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288. In which of the following deformities is the distal interphalangeal joint extended ?

a) Boutonniere deformity

b) Swan neck deformity

c) Z deformity

d) Claw Hand

Correct Answer - A

Answer- A. Boutonniere deformity

Boutonniere deformity : Flexion contracture of PIP joint and extension of DIP joint.

289. Club foot clinically present as what deformity ?

- a) Calcaneovalgus
- b) Equinovarus
- c) Equino Cavovarus
- d) Calcaneovarus

Correct Answer - C

Answer- C. Equino Cavovarus

CTEV is the commonest and most important congenital deformity of the foot.

The deformity consists of following elements :

1. Equinus, i.e. Plantar flexion at ankle joint (tibiotalar joint)
2. Inversion of foot at subtalar joint (talocalcaneal joint)
3. Forefoot adduction, at mid-tarsal joints, especially at talo-navicular joint.
4. Sometimes forefoot cavus, i.e. excessive arching of the foot at mid-tarsal joints

290. 4 year old child presented to the clinic with a history of fall on outstretched hand. Radiographs revealed a broken anterior cortex with an intact posterior cortex Of the radius with an exaggerated bowing of the radius. The fracture sustained is known as -

a) Torus Fracture

b) Greenstick fracture

c) Galleazi Fracture

d) Monteggia Fracture Dislocation

Correct Answer - B

Answer- B. Greenstick fracture

Greenstick Fracture: Incomplete fracture of the bone with plastic deformation on the concave side of the bone. The fracture needs to be completed to obtain reduction.

291. Greenstick/ Nightstick fractures are seen in -

a) Children

b) Elderly

c) Youngadults

d) Common in all age groups

Correct Answer - A
Answer- A. Children

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292. Who devised correction of CTEV by serial casting -

a) Ignasio Ponseti

b) Gerhardt Kuntscher

c) Gavril Ilizarov

d) Hugh Owen Thomas

Correct Answer - A

Answer- A. Ignasio Ponseti

Ignasio Ponseti propounded the technique of serial weekly casts.

293. Osteosclerosis is a feature of which of the followinga -

a) Rickets

b) Hyperparathyroidism

c) Pagets Disease

d) Osteogenesis Imperfecta

Correct Answer - C

Answer- C. Pagets Disease

Paget's disease is characterized by increased bone turnover and enlargement and thickening of the bone, but the internal architecture is abnormal and the bone is usually brittle.

Primary defect is in osteoclasts with increased osteoclastic activity.

This results secondarily increase in osteoblastic activity (normal osteoclasts and osteoblasts act in a co-ordinated manner).

294. All of the following are true regarding Pagets Disease except -

- a) Pelvis is the most common site
- b) Cranial nerve involvement may be seen
- c) High output cardiac failure is one of the complications
- d) It may progress to a secondary chondrosarcoma

Correct Answer - D

Answer- D. It may progress to a secondary chondrosarcoma

Pagets disease may progress to a secondary osteosarcoma not chondrosarcoma

295. Commonest site of occurrence of chondrosarcoma is -

a) Pelvis

b) Ribs

c) Femur

d) Proximal tibia

Correct Answer - A

Answer- A. Pelvis

A chondrosarcoma is a malignant tumor derived from cartilage cells and it tends to maintain its cartilaginous character throughout its evolution

Most commonly involved bones are pelvis (most common), femur (2nd most common), humerus, ribs and shoulder girdles.

It may be at metaphysis or diaphysis.

296. Onion peel appearance on Xray is seen in which of the following conditions ?

a) Ewings Sarcoma

b) Osteosarcoma

c) Giant cell tumour

d) Eosinophilic granuloma

Correct Answer - A

Answer- A. Ewings Sarcoma

Onion Peel Appearance Ewings Sarcoma

Codmans Triangle Osteosarcoma

Sun Burst Appearance Osteosarcoma

Soap Bubble appearance GCT

297. Hammer toe deformity is seen in -

- a) Rheumatoid arthritis
- b) Fracture distal phalanx of great toe
- c) Bunion
- d) Osteochondritis

Correct Answer - A

Answer- A. Rheumatoid arthritis

Foot Hallux valgus, Hammer toe, etc.

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298. Pion fracture is

- a) Bimalleolar
- b) Trimalleolar
- c) Distal femur Intraarticular
- d) Distal tibia Intraarticular

Correct Answer - D

Answer- D. Distal tibia Intraarticular

Pilon fracture- Comminuted intra-articular fracture of distal tibial end

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299. Late complication of elbow dislocation

a) Median nerve injury

b) Brachial artery injury

c) Myositis ossificans

d) All of the above

Correct Answer - C

Answer- C. Myositis ossificans

Late complications

- Stiffness
- Myositis ossificans
- Unreduced dislocation
- Recurrent dislocation

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300. Which arthritis causes no periosteal reaction

- a) Psoriatic arthritis
- b) Reactive arthritis
- c) Neuropathic arthritis
- d) Rheumatoid arthritis

Correct Answer - D

Answer- D. Rheumatoid arthritis

Arthritis with Periosteal Reaction are Psoriatic arthritis, Reactive Arthritis And Neuropathic Arthropathy.

301. Proximal humerus fracture which has maximum chances of avascular necrosis

a) One part

b) Two part

c) Three part

d) Four part

Correct Answer - D

Answer- D. Four part

Neer's classified proximal humerus fracture into 4 types, based on these four segments :

1. One part fracture :-Fracture with minimal displacement.
2. Two part fracture :-One segment is displaced in relation to other.
Important two part fractures are :
(i) surgical neck fracture (most common) (ii) GT fracture, (iii) LT fracture, (iv) anatomical neck fracture .
3. Three part fracture :-Two segments are displaced in relation to other two.
4. Four part fracture :-All four major fragments are displaced.
Chances of AVN of humeral head are higher in four part fracture.

302. Most common muscle damaged in rotator cuff

a) Supraspinatus

b) Infraspinatus

c) Subscapularis

d) Teres minor

Correct Answer - A

Answer- A. Supraspinatus

During injury to rotator cuff, tendons are affected, not the muscle. Supraspinatus tendon is affected most frequently.

303. True about supracondylar fracture of humerus

- a) Common in adults
- b) Extension type most common
- c) Flexion type is most common
- d) None

Correct Answer - B

Answer- B. Extension type most common

Supracondylar humeral fractures are the most common elbow fractures in children. Most common age group affected is 5-8 years. Boys are affected more than girls. Left side is more common than right.

Extension type is most common

304. What is seen on x-ray with posterior elbow dislocation

- a) Coronoid process posterior to humerus
- b) Coronoid process anterior to humerus
- c) Coronoid process below humerus
- d) None

Correct Answer - A

Answer- A. Coronoid process posterior to humerus

AP view : Greater superimposition of distal humerus with proximal ulna and olecranon (normally, only terminal part of humerus is superimposed).

305.

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In posterior dislocation of elbow, most prominent part

a) Coronoid

b) Radial head

c) Olecranon

d) None

Correct Answer - C

Answer- C. Olecranon

There is exaggerated prominence of the Olecranon

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306. Most common complication of lateral condyle humerus fracture

- a) Malunion
- b) Nonunion
- c) VIC
- d) Median nerve injury

Correct Answer - B

Answer- B. Nonunion

Lateral spur (Lateral condylar spur or lateral condylar overgrowth) is one of the most common complication. Delayed union or non-union can occur if fracture is undetected or left untreated.

Cubitus valgus is a common complication

Tardy ulnar nerve palsy seen after several years.

Rarely avascular necrosis and myositis ossificans.

307. Most common complication of Cones

- a) Malunion
- b) Avascular necrosis
- c) Finger stiffness
- d) Rupture of EPL tendon

Correct Answer - C

Answer- C. Finger stiffness

The complication rate is 55%, with the most common complication being some degree of residual finger and wrist stiffness (39%).

Most common complication of colle's fracture- Finger stiffness

308. Most common complication of fracture neck of femur

a) Malunion

b) AVN

c) Nonunion

d) Arthritis

Correct Answer - B

Answer- B. AVN

AVN is the most common complication of femoral neck fracture. Non-union is the second most common complication of femoral neck fracture.

309. Which of the following describes grade 2 fracture neck femur?

- a) Incomplete fracture, medial trabeculae intact
- b) Complete fracture with undisplaced neck
- c) Complete fracture with ischemic head
- d) Moderate displacement of neck, vascularity damaged

Correct Answer - B

Answer- B. Complete fracture with undisplaced neck

Garden stage I: undisplaced incomplete, including valgus impacted fractures

medial group of femoral neck trabeculae may demonstrate a greenstick fracture

Garden stage II: undisplaced complete
no disturbance of the medial trabeculae

310. Treatment of choice for fracture neck femur in a 40 years old female

- a) Multiple screw fixation
- b) Bipolar hemiarthroplasty
- c) THR
- d) None

Correct Answer - A

Answer- A. Multiple screw fixation

Placement of multiple screws across the fractured femoral neck is the treatment of choice for femoral neck fractures, and may be performed following either closed or open reduction using a standard lateral approach or a more limited percutaneous technique.

311. Talus is supplied by

a) Anterior tibial artery

b) Posterior tibial artery

c) Dorsal pedis artery

d) All

Correct Answer - D

Answer- D. All

Extraosseous blood supply

1. Posterior tibial artery:- Deltoid branch, artery of the tarsal canal.
2. Anterior tibial artery:- Superior neck branch from Dorsal pedis artery, Artery of tarsal canal.
3. Paroneal artery:- Artery of tarsal sinus.

312. Posterior scalloping of vertebrae is not seen

a) Neurofibromatosis

b) Astrocytoma

c) Aortic aneurysm

d) Ependymoma

Correct Answer - C

Answer- C. Aortic aneurysm

Posterior scalloping is the concavity to the posterior aspect of the vertebral body.

Anterior Scalloping is the concavity to the anterior aspect of the vertebral body.

313. In cervical spine injury, first to be done

- a) Trun head
- b) Maintain airway
- c) Immobilization of spine
- d) None

Correct Answer - B

Answer- B. Maintain airway

"Initial care at the accident scene may be critical to survival. The first steps are to establish an airway, maintain oxygenation and immobilize the cervical spine".

314. In scoliosis degree of deformity is calculated by

- a) Cobbs method
- b) Hamburger method
- c) Haldane method
- d) Milwaukee method

Correct Answer - A

Answer- A. Cobbs method

Cobb angle is a measurement of the degree of side-to-side spinal curvature, which is a deformity you may know as scoliosis.

315. Partial anterior dislocation of one segment of the spine over another is

a) Spondylosis

b) Spondylolisthesis

c) Kyphosis

d) Scoliosis

Correct Answer - B

Answer- B. Spondylolisthesis

Displacement (partial) of one vertebrae over other is called Spondylolisthesis.

Spondylolisthesis is a defect in the pars interarticularis.

316. In EMG/NCV study, H. reflex correlates with

a) L3 radiculopathy

b) L4 radiculopathy

c) L5 radiculopathy

d) S1 radiculopathy

Correct Answer - D

Answer- D. S1 radiculopathy

H-Reflex has its utility in investigating patients with S1 radiculopathy.

317. In axillary nerve paralysis, all the following are true except

- a) Deltoid muscle is wasted
- b) Extension of shoulder with arm abducted to 90 degrees is impossible
- c) Small area of numbness is present over the shoulder region
- d) Patient cannot initiate abduction

Correct Answer - D

Answer- D. Patient cannot initiate abduction

Initial 15° of abduction is caused by supraspinatus which is supplied by suprascapular nerve (not axillary nerve).

"At the initiation of abduction from neutral position, the supraspinatus is more important than deltoid, whereas deltoid (middle portion) is of greater importance for elevation of arm at the higher angle of abduction, such as 60°".

318. Carpal tunnel syndrome all are present except

- a) Ulnar nerve dysfunction
- b) Tinel sign
- c) Phalens sign
- d) Pain & paraesthesia of wrist

Correct Answer - A

Answer- A. Ulnar nerve dysfunction

The symptoms often first appear during night, since many people sleep with flexed wrists. (Flexion decreases the space in carpal tunnel which results in increased pressure over median nerve).

Sensory symptoms can often be reproduced by percussing over median nerve (Tina's sign) or by holding the wrist fully flexed for a minute (Phalen's test).

As the disease progresses, clumsiness of hand and impairment of digital function develop.

319. Fairbank triangle is seen in

- a) CDH
- b) Congenital coxa vara
- c) Perthe's disease
- d) SCFE

Correct Answer - B

Answer- B. Congenital coxa vara

The epiphyseal plate may be too vertical.

There may be a separate triangle of bone in the inferior portion of the metaphysis, called Fairbank's triangle

[Ref Ebnezar 4th/e p. 410]

320. Dysplastic hip in a child, investigation of choice

a) X-ray

b) MRI

c) USG

d) CT Scan

Correct Answer - C

Answer- C. USG

Ultrasonography is the investigation of choice for DDH.

It visualizes the cartilage and allows dynamic testing of the hip joint.

321. Primary pathology in CDH

- a) Large head of femur
- b) Shallow acetabulum
- c) Excessive retroversion
- d) Everted limbus

Correct Answer - B

Answer- B. Shallow acetabulum

Following changes are seen in dislocated hip :

1. The femoral head is dislocated upward and laterally. Its bony nucleus appears late and its development is retarded, therefore head is small.
2. Femoral neck is excessively anteverted.
3. Acetabulum is shallow, with a steep sloping roof (This is considered to be the primary pathology).

322. In neglected cases of CTEV, joint fused are

- a) Calcaneocuboid, talonavicular and talocalcaneal
- b) Tibiotalar, calcaneocuboid and talonavicular
- c) Ankle joint, calcaneocuboid and talonavicular
- d) None of the above

Correct Answer - A

Answer- A. Calcaneocuboid, talonavicular and talocalcaneal

Joints fused in triple arthrodesis for CTEV are i) Subtalar (talocalcaneal) joint, ii) Calcaneocuboid joint, iii) Talonavicular joint.

323. Osteonerosis is seen in all except

a) Fracture neck femur

b) Sickle cell anemia

c) Perthe's disease

d) Paget's disease

Correct Answer - D

Answer- D. Paget's disease

Storage disorders : - Gaucher's disease

Caisson disease : - Dysbaric osteonecrosis

Hemoglobinopathy & Coagulation disorder: - Sickel cell disease, Familial thrombophilia, Hypofibrinolysis, Hypolipoproteinemia.

Congenital disorders : - Perthe's disease, Slipped capital femoral epiphysis.

Hematological malignancies : - Leukemia, lymphoma, Polycythemia.

Hyperlipedemia : - Nephrotic syndrome

324. After chronic use of steroids severe pain in right hip with immobility is due to

a) Avascular necrosis

b) Perthes disease

c) Hip dislocation

d) Osteoarthritis

Correct Answer - A

Answer- A. Avascular necrosis

Pain in hip and limitation of movement (immobility) after chronic use of steroids suggest the diagnosis of AVN of femoral head.

325. In elbow, osteochondritis usually involves

a) Olecranon

b) Trochlea

c) Radial head

d) Capitulum

Correct Answer - D

Answer- D. Capitulum

Knee- Lateral surface of the medial femoral condyle

Elbow- Capitulum of humerus

Hip- Femoral head

Ankle- Talus

326. Most common organism causing infection after open fracture

- a) Pseudomonas
- b) Staphylococcus aureus
- c) Klebsiella
- d) Gonococcus

Correct Answer - A

Answer- A. Pseudomonas

staphylococcus aureus was the most common organism causing infection in open fractures. More recent studies have shown that gram negative organisms such as pseudomonas aeruginosa and E.coli are becoming more common

327. Septic arthritis is diagnosed by

a) X-ray

b) Joint aspiration

c) USG

d) MRI

Correct Answer - B

Answer- B. Joint aspiration

Quickest and best method of diagnosis of septic arthritis is aspiration of joint.

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328. Sequestrum is best defined as

- a) A piece of dead bone
- b) A piece of dead bone surrounded by infected tissue
- c) A piece of bone with poor vascularity
- d) None

Correct Answer - B

Answer- B. A piece of dead bone surrounded by infected tissue

Sequestrum is a piece of dead bone, surrounded by infected granulation tissue.

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329. Cloacae are present in

a) Sequestrum

b) Involucrum

c) Normal bone

d) Myositis

Correct Answer - B

Answer- B. Involucrum

Involucrum is reactive new bone overlying a sequestrum. There may be some holes in the involucrum for pus to drain out. These holes are called cloaca.

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330. Complication of joint TB

a) Fibrous ankylosis

b) Bony ankylosis

c) Normal healing

d) None

Correct Answer - A

Answer- A. Fibrous ankylosis

The outcome of tubercular arthritis is fibrous ankylosis, except in spine. Spine is the only site where tuberculosis heals with bony ankylosis.

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331. False about Pott's spine

- a) Commonest at dorsolumbar junction
- b) Always heals by chemotherapy
- c) Back pain is an early symptom
- d) There is disc space narrowing on x-ray

Correct Answer - B

Answer- B. Always heals by chemotherapy

Chemotherapy is the mainstay of treatment. But it is not effective always, surgery is often required in some cases.

Commonest site of pott's spine is dorsolumbar junction.

Back pain is the earliest symptom and narrowing of disc space is the earliest radiological sign.

332. Apparent lengthening is seen in which stage of TB Hip

a) Stage I

b) Stage II

c) Stage III

d) None

Correct Answer - A

Answer- A. Stage I

Stage of synovitis (Stage 1) : - There is effusion in the hip joint which demands the hip to be in a position of maximum capacity. This position is acquired by flexion, abduction and external rotation. Because of abduction deformity, there is apparent lengthening.

333. Tuberculosis spine; most common site is

a) Sacral

b) Cervical

c) Dorsolumbar

d) Lumbosacral

Correct Answer - C

Answer- C. Dorsolumbar

The most common site is Dorsolumbar region. Lower dorsal (thoracic) region is the most common segment involved followed by lumbar segment. The tuberculosis of spine is also called pott's disease or tubercular spondylitis.

334. Anterolateral decompression is done for

a) Spinal tuberculosis

b) Chest TB

c) Hand TB

d) Foot TB

Correct Answer - A

Answer- A. Spinal tuberculosis

Anterior decompression can be caused by : -

1. Anterior approach : - Called anterior decompression. It is the most preferred procedure.
2. Anterolateral approach : - Called anterolateral decompression.

335. Tumor with maximum bone matrix

a) Osteoid osteoma

b) Chondrosarcoma

c) Enchondroma

d) None

Correct Answer - A

Answer- A. Osteoid osteoma

Dense, homogenous mineralization (calcification) is typical of osteoid matrix, formed by benign and malignant bone forming lesions.

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336. Which of the following is true about Giant cell tumor

- a) Usually presents as a lytic lesion with sclerotic rim
- b) Always benign
- c) Epiphyseal origin
- d) Seen in age less than 15 years

Correct Answer - C

Answer- C. Epiphyseal origin

GCT is an osteolytic tumor arising from the epiphysis and is common between the age of 20-40 years.

The commonest sites are lower end of femur and upper end of tibia.

Other common sites are lower end radius and upper end of humerus. It may also occur in the spine and sacrum.

The radiological features are : -

- 1. A solitary may be loculated, lytic lesion.
- 2. Eccentric location, often subchondral.
- 3. Expansion of the overlying cortex (expansile lesion).
- 4. Soap-bubble' appearance

337. Striated vertebra is seen in

a) TB spine

b) Haemangioma

c) Chordoma

d) Metastasis

Correct Answer - B

Answer- B. Haemangioma

Haemangioma of the vertebra has a typical radiographic picture in the form of loss of horizontal striations and prominence of vertebral striations. There is Polka dot appearance on CT.

In the skull, hemangioma generally affects the calvarium and is seen as an expansile lytic lesion which has a sunburst appearance with striation radiating from the centre.

A hemangioma may be identified due to associated phlebolith and it may cause local gigantism of the involved area.

338. Metastasis not found in

a) Femur

b) Humerus

c) Fibula

d) Spine

Correct Answer - C

Answer- C. Fibula

Metastatic bone disease is the commonest malignancy of bones and is much more common than primary bone tumors.

The commonest sites for bone metastases are vertebrae (most common), pelvis, the proximal half of the femur and the humerus. Extremities distal to elbow and knee are least commonly involved sites.

Spread is usually via the blood stream; occasionally, visceral tumors spread directly into adjacent bones e.g., the pelvis and ribs.

339. Periosteal reactions is seen in

a) Osteomyelitis

b) Syphilis

c) Tumor

d) All

Correct Answer - D

Answer- D. All

Infection :- Osteomyelitis, Brodie's abscess, syphilis

Neoplasms

Benign : Osteoid osteoma

Malignant : Ewing's sarcoma, osteosarcoma

Eosinophilic granuloma

Healed stress fracture

Hypertrophic pulmonary osteoarthropathy

340. Volkmanns contracture, which artery is involved

a) Radial

b) Brachial

c) Ulnar

d) Interosseus

Correct Answer - B

Answer- B. Brachial

Injury to brachial artery may cause nerve and muscle ischemia (Volkmann's ischemia of flexor compartment) or may result in postischemic swelling due to edema or hemorrhage, thereby causing compartment syndrome, which can cause, if not treated immediately, Volkmann's ischaemic contracture later on.

341. Cast syndrome is due to

a) Above elbow cast

b) Below elbow cast

c) Hip Spica

d) Above knee cast

Correct Answer - C

Answer- C. Hip Spica

Cast syndrome (Superior mesenteric artery syndrome) is gastric dilatation with partial or complete obstruction of the duodenum. It is most frequently seen in orthopaedics patients who have had spinal surgery or who are in hip spica or body casts.

342. Heterotopic ossification occurs in

a) Bone

b) Joint

c) Soft tissue

d) None

Correct Answer - C

Answer- C. Soft tissue

Heterotopic ossification is the process by which bone tissue is formed in soft tissue outside the skeleton.

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343. Felon most common complication

- a) Osteomyelitis
- b) Subungual hematoma
- c) Infective arthritis
- d) None

Correct Answer - A

Answer- A. Osteomyelitis

Felon is the infection of distal pulp space. Next to acute paronychia, this is the most common hand infection. It usually follows a pinprick, with index finger and thumb being the common unfortunate victim. The patient initially complains of dull pain and swelling. Complications are osteomyelitis (most common), skin necrosis, osteonecrosis of digits and rarely tenosynovitis or infective arthritis of DIP joint.

344. Most common bone for which nailing is done

a) Radius

b) Ulna

c) Tibia

d) Humerus

Correct Answer - C

Answer- C. Tibia

Most common bones for which intramedullary nailing is done are Tibia and femur.

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345. Why fracture shaft femur is early stabilised

- a) To prevent blood loss
- b) ARDS
- c) Non union
- d) Compartment syndrome

Correct Answer - A

Answer- A. To prevent blood loss

Fracture shaft femur can cause upto 2L of blood loss and severe hypotension, if not immobilized early.

the fracture shaft femur should be immobilized early. This can be temporary immobilization by TT splint followed by surgery or can be by immediate surgery.

346. Drug used in osteoarthritis

a) Methotrexate

b) Glucosamine

c) Sulfasalazine

d) All

Correct Answer - B

Answer- B. Glucosamine

Chondroitin sulfate

Disease modifying anti-osteoarthritis drugs (DMAOAD) Diacerin (IL-1 antagonist), Licofelone (combined COX-LOX inhibitors)

Steroids (in acute exacerbations).

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347. Pannus is seen in

a) OA

b) RA

c) Gout

d) None

Correct Answer - B

Answer- B. RA

Pannus is seen in rheumatoid arthritis.

It is neoplasm-like growth of inflamed synovial tissue that leads to destruction of joint structures.

The articular cartilage at pannus interface appear to undergo chondrolysis.

Pannus appear to develop within and around the synovium, subsequently creeping into and over the articular cartilage and enveloping it and the underlying bone in a deathlike grasp.

348. Sausage digits is seen in

a) Lyme arthritis

b) Osteoarthritis

c) Psoriatic arthritis

d) None

Correct Answer - C

Answer- C. Psoriatic arthritis

Sausage digit refers to diffuse fusiform swelling of the digit due to soft tissue inflammation from underlying arthritis or dactylitis.

Causes are :-

- Psoriatic arthritis
- Osteomyelitis
- Sickle cell anemia
- Sarcoidosis
- Tubercular dactylitis (spina ventosa)

349. Green stick fracture is

- a) Fracture in adults
- b) Complete fracture
- c) Incomplete fracture
- d) Fracture spine

Correct Answer - C

Answer- C. Incomplete fracture

A greenstick fracture is an incomplete transverse fracture pattern seen in children.

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350. Resorption of distal phalanx is seen in

a) Scleroderma

b) Hyperparathyroidism

c) Reiter's syndrome

d) All

Correct Answer - D

Answer- D. All

Acro-osteolysis is the term used to describe resorption of the distal phalangeal tufts. Causes are : -

1. Scleroderma
2. Trauma & thermal injury
3. Hyperparathyroidism
4. Epidermolysis bullosa
5. Arthropathy (RA, Psoriasis)
6. Neuropathy (diabetes, syringomyelia)
7. Raynaud's disease
8. Reiter's syndrome

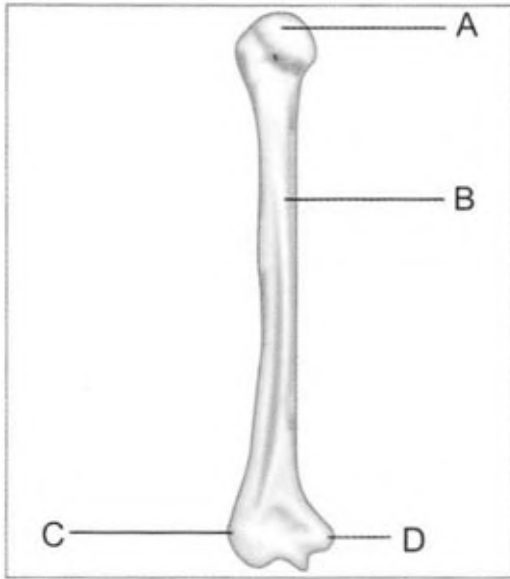
351. Foot drop is caused by injury to which nerve involvement:

- a) Femoral nerve
- b) Tibial nerve
- c) Common peroneal nerve
- d) Sciatic nerve

Correct Answer - C

Answer C) Common Peroneal Nerve

- **Foot drop**, sometimes called drop foot, is a general term for difficulty lifting the front part of the foot.
- **Causes**
 - Foot drop is caused by weakness or paralysis of the muscles involved in lifting the front part of the foot.
 - **Causes of foot drop might include:**
 1. **Nerve injury.** The most common cause of foot drop is compression of a nerve in your leg that controls the muscles involved in lifting the foot (**peroneal nerve**). This nerve can also be injured during hip or knee replacement surgery, which may cause foot drop.
 2. A **nerve root injury** — "pinched nerve" — in the spine can also cause foot drop. People who have diabetes are more susceptible to nerve disorders, which are associated with foot drop.
 3. **Muscle or nerve disorders.** Various forms of muscular dystrophy, an inherited disease that causes progressive muscle weakness, can contribute to foot drop. So can other disorders, such as polio or Charcot-Marie-Tooth disease.
 4. **Brain and spinal cord disorders.** Disorders that affect the spinal cord or brain — such as amyotrophic lateral sclerosis (ALS), multiple sclerosis or stroke — may cause foot drop.



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352. Muscles affected in De quervain tenosynovitis -

- a) Abductor pollicis longus and extensor pollicis brevis
- b) Adductor pollicis longus and extensor pollicis brevis
- c) Abductor pollicis longus and Flexor pollicis brevis
- d) Adductor pollicis longus and Flexor pollicis brevis

Correct Answer - A

Ans. A. Abductor pollicis longus and extensor pollicis brevis

De Quervain syndrome, is a tenosynovitis of the sheath or tunnel that surrounds two tendons that control movement of the thumb.

De Quervain syndrome involves non-inflammatory thickening of the tendons and the synovial sheaths that the tendons run through.

The two tendons concerned are those of the extensor pollicis brevis and abductor pollicis longus muscles.

353. What is meant by Perilunate dislocations ?

- a) Lower radius,scaphoid and lunate and capitate all in same plane
- b) Lower radius,scaphoid and capitate in alignment,lunate alone out of plane
- c) Lower radius,scaphoid and Lunate in alignment ,capitate alone is out of plane
- d) Both lunate and capitate are out of plane

Correct Answer - B

Ans. B.Lower radius,scaphoid and capitate in alignment,lunate alone out of plane

Perilunate dislocation and perilunate fracture dislocation are injuries that involve traumatic rupture of the radioscapnocapitate (RSC) ligament, the scapholunate interosseous ligament, and the lunotriquetral interosseous ligament.

Lateral radiographs will reveal loss of collinearity between the capitate, lunate, and radius

Typically the capitate is located dorsal to the lunate and is aligned with the radius

354. Fallen fragment sign -

- a) Simple bone cyst
- b) Osteosarcoma
- c) Adamantinoma
- d) Aneurysmal bone cyst

Correct Answer - A

Ans. A. Simple bone cyst

The fallen fragment sign refers to the presence of a bone fracture fragment resting dependently in a cystic bone lesion. This finding is said to be pathognomonic for a simple (unicameral) bone cyst following a pathological fracture.

Although it has occasionally been reported with other cystic lesions, e.g. eosinophilic granuloma



355. You are posted as an intern in casualty. Which among the following patients with fracture will be your 1st priority to call ortho PG and inform?

- a) Patient's finger is blackening
- b) Patient can't extend his arm
- c) A 10 cm abrasion
- d) Intra articular fracture of Elbow Joint

Correct Answer - A

Ans. A. Patient's finger is blackening

Blackening of finger after Fracture is an indication of cut of blood supply that may lead to severe complication like gangrene. So this should be the first Priority to treat among all the above options

356. In Rheumatoid arthritis, which type of cells are prominently present ?

a) B cells

b) T cells

c) Macrophages

d) Dendritic cells

Correct Answer - C

Ans. C. Macrophages

Synovial lining or intimal layer: Normally, this layer is only 1-3 cells thick. In RA, this lining is greatly hypertrophied (8-10 cells thick). Primary cell populations in this layer are fibroblasts and macrophages.

357. 8th and 9th rib costal cartilage forms which type of joint?

a) Costochondral joint

b) Interchondral joint

c) Synovial joint

d) Costovertebral joint

Correct Answer - C

Ans. C. Synovial joint

The sixth, seventh, eighth, ninth and tenth costal cartilages are jointed with each other along the borders by synovial joints.

Costochondral joint means the joint between the rib and its costal cartilage.

The first costal cartilage of both sides attach to the manubrium sterni. At this joint, no movement is possible.

The second costal cartilage articulates with the body of sternum and the manubrium sterni by a synovial joint where movement is possible.

The third to seventh costal cartilages articulate with lateral border of the body of sternum at mobile synovial joints.

358. Tom smith septic arthritis is-

- a) Acute Gonococcal arthritis
- b) Smallpox arthritis
- c) Septic arthritis of infancy
- d) Chronic pyogenic arthritis

Correct Answer - C

Ans. C. Septic arthritis of infancy

Septic arthritis of infancy (Tom smith septic arthritis)

It is a septic arthritis of hip seen in infants

The onset is acute with rapid abscess formation, which may burst out or be incised and heals rapidly.

Telescope test is positive

Clinically this condition resembles a congenital dislocation of hip

359. A woman developed pain and crawling sensation on her legs at night. Clinical history of restless leg syndrome. Drug of choice?.

a) Pramipexole

b) Gabapentin

c) Vitamin B12

d) Iron tablets

Correct Answer - A

Ans.a pramipexole

Restless leg syndrome :

- Subjective sensation "creepy-crawly" feeling in the limbs, and irresistible urge to move the legs when at rest or while trying to fall asleep.
- When the individual is lying in bed and relaxing, he or she is disturbed by these sensations.
- Then he or she moves the legs and again tries to fall asleep.
- This cycle sometimes continues for hours and results in profound insomnia.

Treatment:

- The dopaminergic agonists' pramipexole and ropinirole are FDA approved and represent the treatments of choice.

Ref. Kaplan and Sadock's Synopsis of Psychiatry - 11th Edition (Page no 559)

360. History of Arthritis involving 1st MCP joint, other PIP & DIP joints, spares wrist and ankle. What could be the diagnosis

a) Osteoarthritis

b) Rheumatoid arthritis

c) Psoriatic arthritis

d) Gout

Correct Answer - A

Ans: a.Osteoarthritis

>The distal interphalangeal (DIP) joint is actually the most common location on the body for osteoarthritis (OA).

>The frequency of hand arthritis, OA at the DIP joint occurs in approximately 58% of individuals.

>The symptoms of OA at the DIP joint commonly include pain and changes to the size and shape of the joint.

<https://www.3pointproducts.com/blog/health-arthritis-finger-and-toe-conditions/dip-joint-osteoarthritis-how-to-treat-this-common-form-of-arthritis>

361. 12 yr old Child admitted to ICU with blunt trauma and femur fracture- Pao2 60% despite 100%o2 and rebreather mask, CXR shows lung fields clear but the patient remains confused. What is most likely the diagnosis -

a) Pulmonary contusion.

b) Fat embolism syndrome.

c) Hypovolaemic shock.

d) Pulmonary embolism.

Correct Answer - B

Ans: b. Fat embolism.

In this patient, based on the case presentation there is Respiratory System involved as pao2 is 60, and CNS involvement as he is in a confused state.

>So, the diagnosis here is Fat embolism syndrome.

>Embolized fat within capillary beds cause direct tissue damage as well as induce a systemic inflammatory response resulting in pulmonary, cutaneous, neurological, and retinal symptoms.

>Gurd's clinical description of the FES renewed interest in studying this syndrome

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3665122/>

362. A 4 yr old child while playing suddenly spun around his elbow from her servant maid's hand and now continuously crying not allowing anyone to touch his elbow. He is keeping his elbow extended .what is most likely the diagnosis -

- a) Radial head fracture
- b) Pulled elbow
- c) supra condylar fracture
- d) Elbow dislocation

Correct Answer - B

Ans: b. Pulled elbow

>Pulled elbow, also called nursemaid's elbow, is a radial head subluxation caused by axial traction or a sudden pull of the extended pronated arm, and it is a very common phenomenon.

>In this case of pulled elbow, the child usually avoids moving the affected arm, holding it close to his or her body, without considerable pain, and no obvious swelling or deformity can be seen.

>While a fracture should be excluded, the pulled elbow can usually be identified based on this presentation.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5999240/>