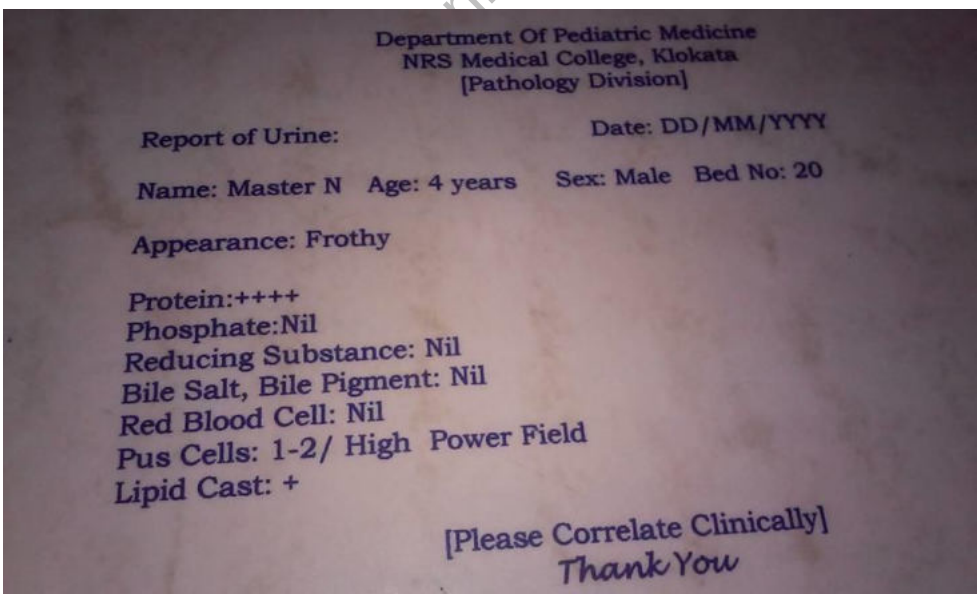
Pediatrics Problem Cards

Urinary investigations

Problem no. 1



Department Of Pediatric Medicine
NRS Medical College, Klokata
[Pathology Division]

Report of Urine: Date: DD/MM/YYYY

Name: Master N Age: 4 years Sex: Male Bed No: 20

Appearance: Frothy

Protein:++++
Phosphate:Nil
Reducing Substance: Nil
Bile Salt, Bile Pigment: Nil
Red Blood Cell: Nil
Pus Cells: 1-2/ High Power Field
Lipid Cast: +

[Please Correlate Clinically]
Thank You

What is your diagnosis?

My diagnosis is nephrotic syndrome.

What are the positive points behind your diagnosis?

1. Typical onset of nephrotic syndrome: 2-6 years of life
2. Nephrotic range of proteinuria (4+)
3. Presence of lipid cast suggests hyperlipidemia
4. Absence of hematuria (exclude nephritic syndrome).

What do you mean by nephrotic range of proteinuria?

Any 1 of the following:

1. 24 hour urinary protein excretion: >2 gm/ 24 hours
2. Spot urine protein: creatinine ratio: >2.0
3. Total urine protein (according to body surface area) : >40 mg/sq.mt/hr.

What are the further investigations you will prefer to order?

1. 24 hour urinary protein excretion
2. Spot urine protein: creatinine ratio
3. Blood examination:
   a. Hypercholesterolemia: >200 mg/dL
   b. Hypoalbuminemia: <2.5 mg/dL.
4. Renal function test: Usually renal function remains normal in minimal change NS, significant rise in serum urea-creatinine suggests a decrease in renal perfusion and hypovolemia.
5. Chest X Ray and Mantoux test (to exclude renal tuberculosis)
6. HIV/ HBV testing.

Outline the management of the case (1st episode of NS).

- General management:
  - ✓ High protein diet
  - ✓ Dietary salt and fluid restriction
  - ✓ Diuretics (Furosemide) should be used only in case of significant edema.
- Specific management:
  - ✓ Agent of choice: Corticosteroid (Prednisolone/ Prednisone)
  - ✓ *2 mg/kg/day* (maximum 60 mg/day) in 2-3 divided doses for a duration of 6 weeks.

    Followed by,

    1.5 mg/kg/day (maximum 40 mg/day) single dose on alternate days for a duration of 6 weeks.

    Then discontinued.

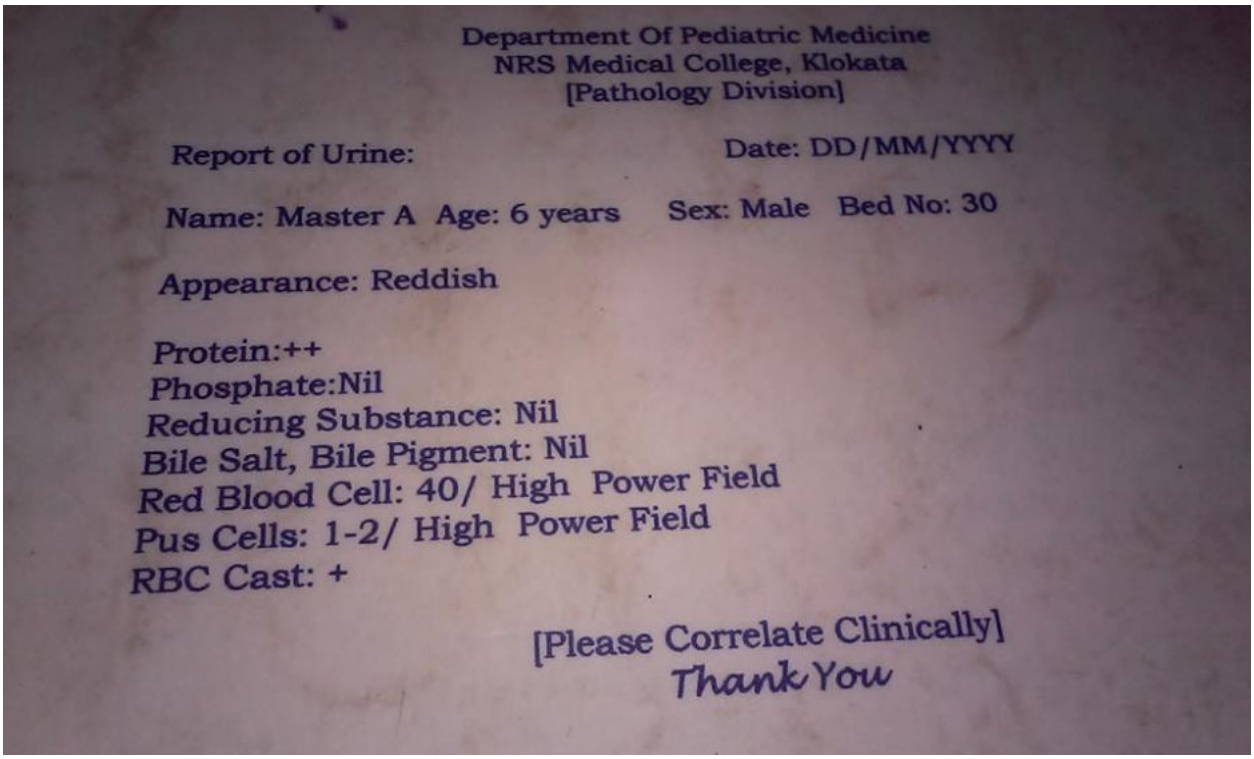
What are the complications of nephritic syndrome?

1. Spontaneous bacterial peritonitis (SBP)
2. Renal failure.

What about the prognosis of nephrotic syndrome?

Type of nephrotic syndrome	Remission
Minimal change nephrotic syndrome	80-85%
Focal segmental glomerulosclerosis (FSGS)	60%
Membranous nephropathy	40-50%

Problem no. 2


Department Of Pediatric Medicine
NRS Medical College, Klokata
[Pathology Division]

Report of Urine: Date: DD/MM/YYYY

Name: Master A Age: 6 years Sex: Male Bed No: 30

Appearance: Reddish

Protein:++
Phosphate:Nil
Reducing Substance: Nil
Bile Salt, Bile Pigment: Nil
Red Blood Cell: 40/ High Power Field
Pus Cells: 1-2/ High Power Field
RBC Cast: +

[Please Correlate Clinically]
Thank You

What is your diagnosis?

My diagnosis is nephritic syndrome.

What are the positive points behind your diagnosis?

1. Nephritic range of proteinuria (2+)
2. Presence of hematuria
3. Presence of RBC cast.

How can you roughly tell the origin of hematuria?

- If RBC in urine is <50/HPF, the hematuria is probably of glomerular origin, the common causes of which are post-streptococcal glomerulonephritis (PSGN) and IgA nephropathy.
- If RBC in urine is >50/HPF, the hematuria is probably of non-glomerular origin.

What is the age group predominantly affected in PSGN?

5-12 years.

What are the further investigations you will prefer to order?

1. Blood investigation
2. ASO titer
3. Anti-DNase B
4. USG abdomen (to detect any ascites/ pulmonary edema, which are features of acute left heart failure, a complication of PSGN).

Outline the management of the case?

- Supportive management:
  - ✓ Absolute bed rest
  - ✓ Restriction of fluid and electrolytes
  - ✓ If urea creatinine is high, then also restrict dietary protein.
- Specific treatment:
  - ✓ Treat oliguria: Diuretics (Furosemide)
  - ✓ Treat associated hypertension: Nifedipine/ Amlodipine.

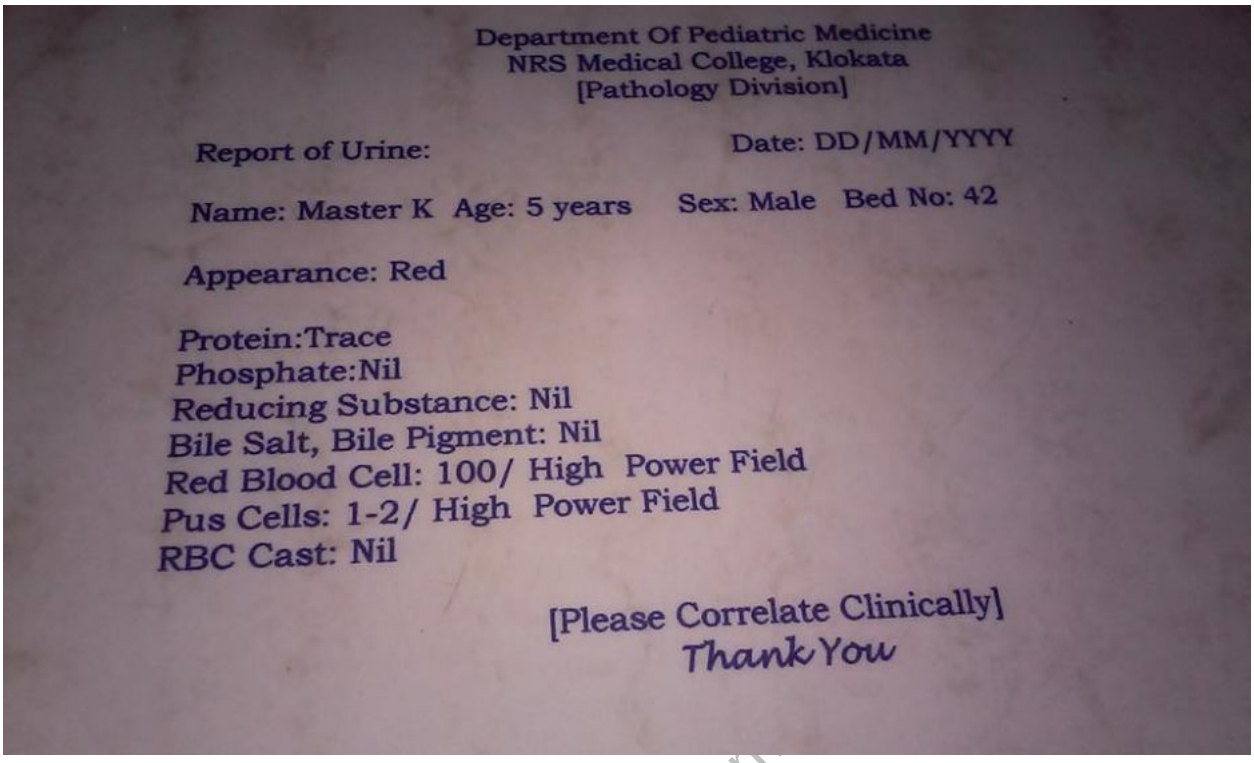
What about the prognosis?

PSGN usually does not recur.

When will you perform a renal biopsy in a suspected case of PSGN?

- ✓ Age of the patient <1 year or >9 years
- ✓ Massive proteinuria
- ✓ Persistent hematuria/ hypertension
- ✓ Persistent low level of complement beyond 6 weeks
- ✓ Before using immunosuppressive drugs.

Problem no. 3



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NRS Medical College, Klokata
[Pathology Division]

Report of Urine: Date: DD/MM/YYYY

Name: Master K Age: 5 years Sex: Male Bed No: 42

Appearance: Red

Protein:Trace
Phosphate:Nil
Reducing Substance: Nil
Bile Salt, Bile Pigment: Nil
Red Blood Cell: 100/ High Power Field
Pus Cells: 1-2/ High Power Field
RBC Cast: Nil

[Please Correlate Clinically]
Thank You

What is your diagnosis?

Hematuria of non-glomerular origin.

What are the positive points behind your diagnosis?

RBC in urine >50/ HPF.

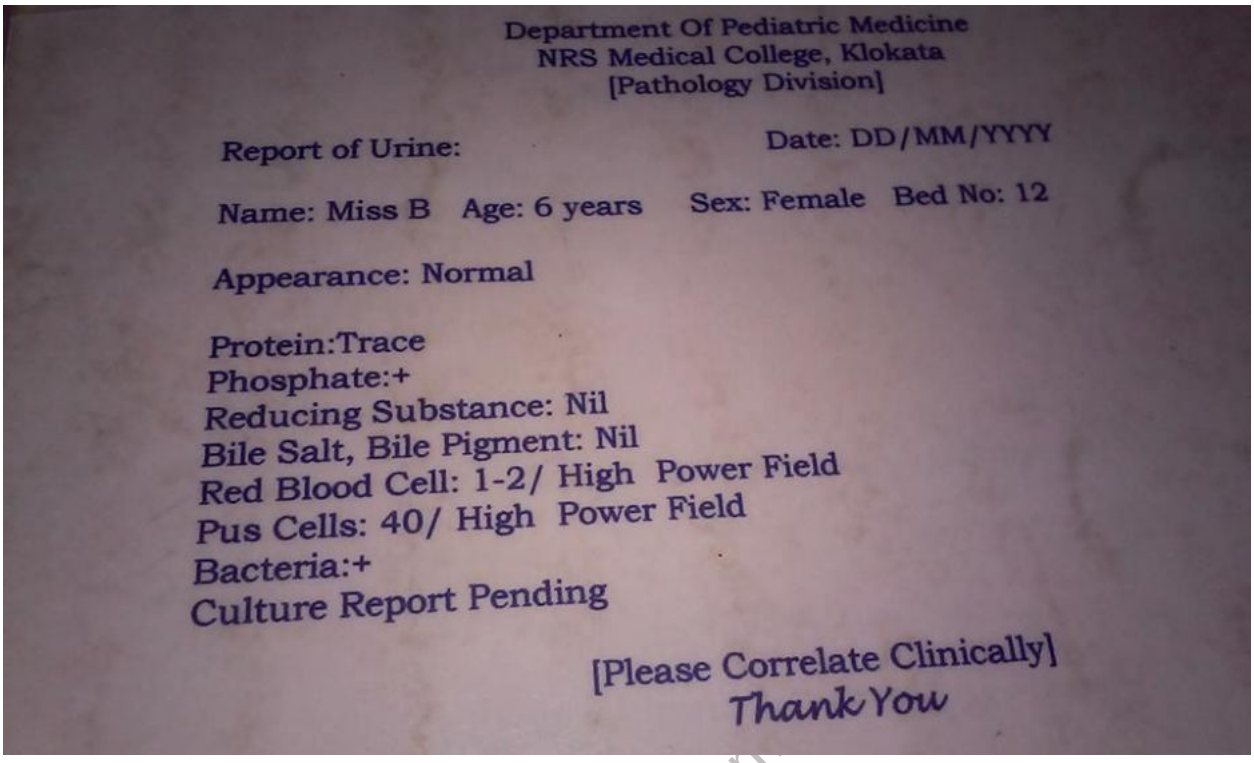
What are the common causes of non-glomerular hematuria?

1. Idiopathic hypercalciuria
2. Bladder stone/ trauma.

What are the further tests you would like to perform?

1. 24 hour urinary calcium excretion
2. Spot urine calcium: creatinine ratio
3. USG (to detect any stone).

Problem no. 4



Department Of Pediatric Medicine
NRS Medical College, Klokata
[Pathology Division]

Report of Urine: Date: DD/MM/YYYY

Name: Miss B Age: 6 years Sex: Female Bed No: 12

Appearance: Normal

Protein:Trace
Phosphate:+
Reducing Substance: Nil
Bile Salt, Bile Pigment: Nil
Red Blood Cell: 1-2/ High Power Field
Pus Cells: 40/ High Power Field
Bacteria:+
Culture Report Pending

[Please Correlate Clinically]
Thank You

What is your diagnosis?

Simple urinary tract infection (UTI)

What are the positive points behind your diagnosis?

1. Pus cells: 40/HPF
2. Bacteria: +ve

What investigations you would like to perform?

1. Urine sample collection and bacteriological analysis:
   Mid-stream thin catch early morning sample has to be collected and examined under microscope.
   Significant bacteriuria: $>10^5$/ml (single bacteria species)
2. USG
3. Voiding cysto-urethrogram (VCUG): To rule out vesico-ureteral reflex
4. USG + DMSA/MCU scan*
   [*DMSA: Di-mercapto-succinic acid, MCU: Micturating cysto-urethrogram]

When would you call an episode of UTI as a 'complicated' one/ pyelonephritis?

When infection is associated with any 1/ more of the following factors, which increase the chance of acquiring bacteria/ decrease efficacy of therapy:

1. Abnormal genitourinary tract (Ex: stone etc.)
2. Immunocompromised host
3. Multidrug resistant bacteria.

Usually complicated UTI presents with features like fever, loin pain etc.

How will you treat the patient?

Antibiotic therapy:

1. In case of simple UTI: Duration 7-10 days
2. In case of complicated UTI: 10-14 days.

Name some of the antibiotics commonly used in UTI.

Simple UTI:

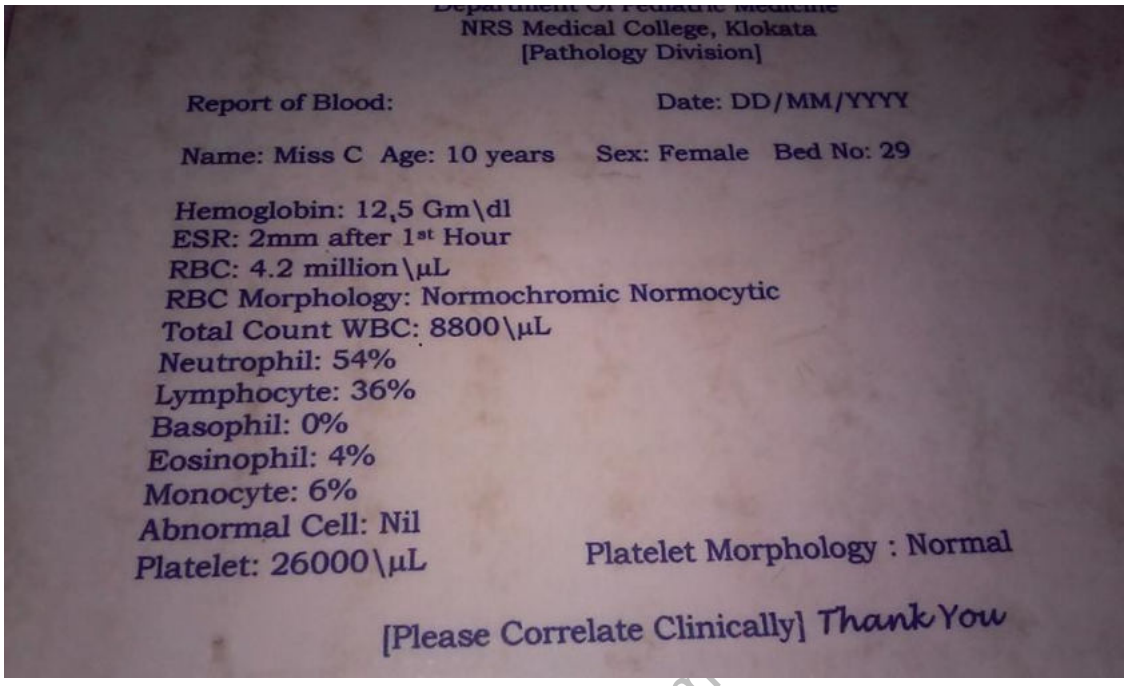
- Cotrimoxazole
- Nitrofurantoin
- Amoxicillin

Complicated UTI: (all drugs in IV route)

- Ceftriaxone
- Cefotaxime
- Ampicillin + Gentamicin.

Blood investigations

Problem no. 5



NRS Medical College, Klokata
[Pathology Division]

Report of Blood: Date: DD/MM/YYYY

Name: Miss C Age: 10 years Sex: Female Bed No: 29

Hemoglobin: 12,5 Gm\dl
ESR: 2mm after 1st Hour
RBC: 4.2 million\µL
RBC Morphology: Normochromic Normocytic
Total Count WBC: 8800\µL
Neutrophil: 54%
Lymphocyte: 36%
Basophil: 0%
Eosinophil: 4%
Monocyte: 6%
Abnormal Cell: Nil
Platelet: 26000\µL
Platelet Morphology : Normal

[Please Correlate Clinically] Thank You

What is your diagnosis?

My diagnosis is ITP.

What are the positive points behind your diagnosis?

The platelet count is below normal (1.5-4.5 lakhs/µL) with an otherwise normal blood picture.

What are the additional history you will ask for?

1. H/O a preceding viral fever
2. H/O episodes of epistaxis, petechiae, gum bleeding, bleeding from other mucosal surfaces etc.

What are the types of ITP?

ITP is of 2 types:

1. Acute ITP: Spontaneous resolution takes place within 6 months
2. Chronic ITP: Disease duration goes beyond 6 months and gets chronic.

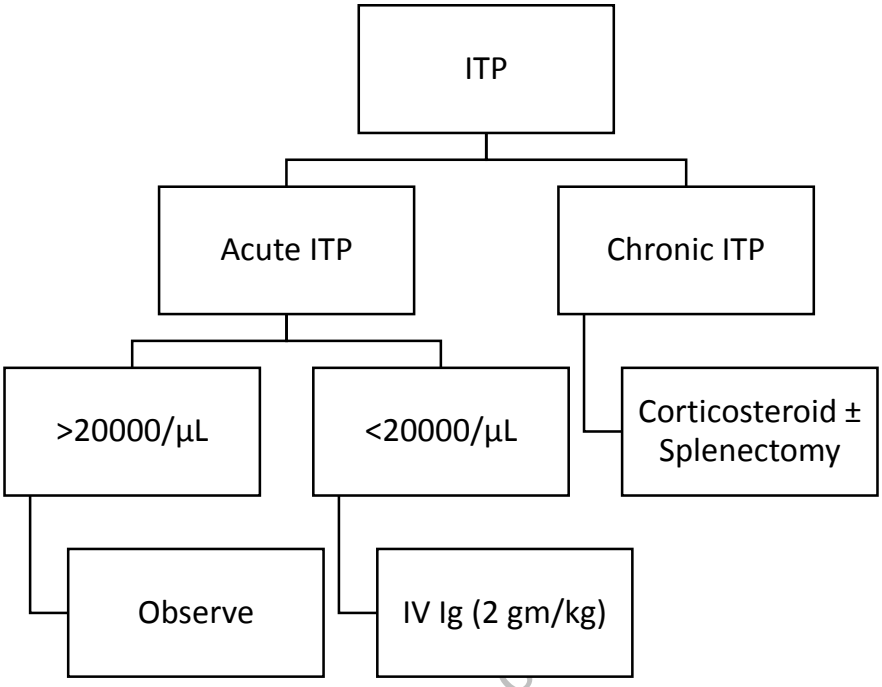
Which diseases you should exclude in a case of chronic ITP?

HIV and SLE.

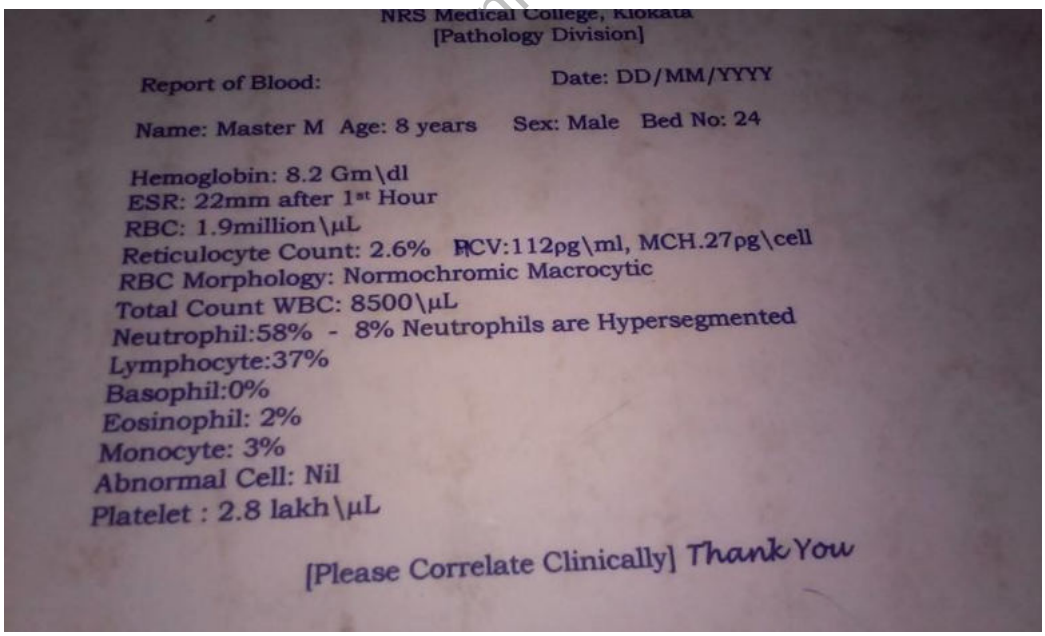
What further investigation you may order?

Bone marrow aspiration: Will show megakaryocytes.

Outline the treatment of the case.



Problem no. 6


NRS Medical College, Kolkata
[Pathology Division]

Report of Blood: Date: DD/MM/YYYY

Name: Master M Age: 8 years Sex: Male Bed No: 24

Hemoglobin: 8.2 Gm\dl
ESR: 22mm after 1st Hour
RBC: 1.9million\µL
Reticulocyte Count: 2.6% MCV:112pg\ml, MCH.27pg\cell
RBC Morphology: Normochromic Macrocytic
Total Count WBC: 8500\µL
Neutrophil:58% - 8% Neutrophils are Hypersegmented
Lymphocyte:37%
Basophil:0%
Eosinophil: 2%
Monocyte: 3%
Abnormal Cell: Nil
Platelet : 2.8 lakh\µL

[Please Correlate Clinically] Thank You

What is your diagnosis?

My diagnosis is Megaloblastic anemia.

What are the positive points behind your diagnosis?

1. Normochromic macrocytic anemia
2. Hypersegmented neutrophils
3. MCV: ↑ (Normal: 80-94)

What are the causes of Megaloblastic anemia?

1. Vitamin B12 deficiency
2. Folate deficiency.

What are the additional investigation(s) you will order?

1. Serum B12 level estimation
2. RBC Folate level estimation.

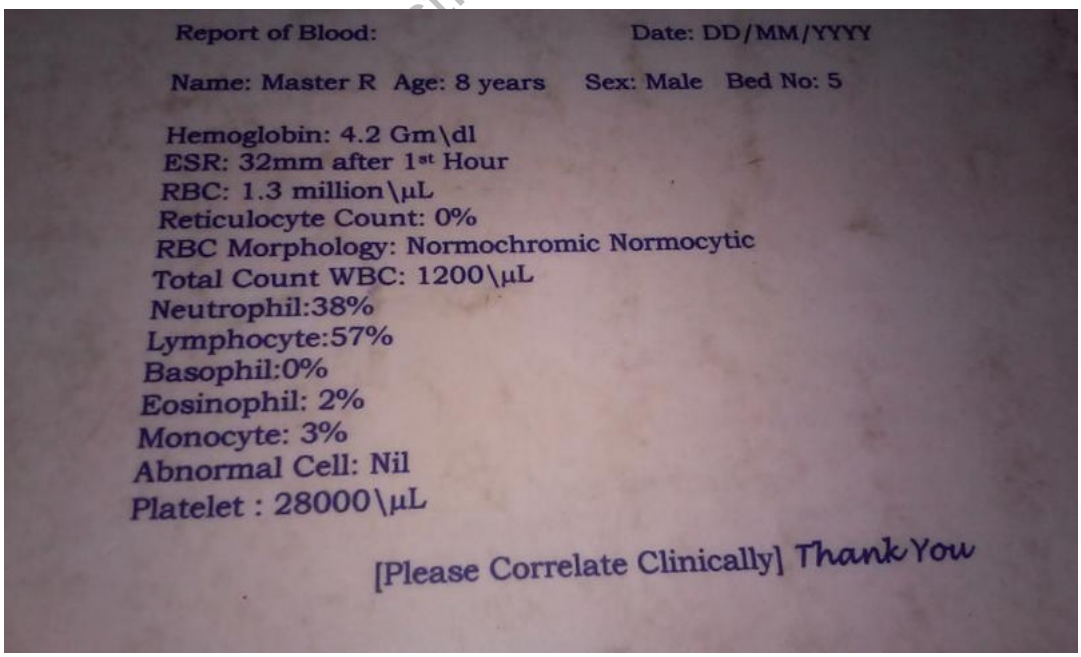
Outline the treatment of the case.

Vitamin B12 (1 gm/month IV) / Folate (500 µg/day) supplementation: Until a definite hematological response is obtained.

What are the first responses from supplementation therapy?

First subjective improvement	Improvement of lethargy
First objective improvement	Reticulocyte count↑

Problem no. 7



What is your diagnosis?

My diagnosis is pancytopenia.

What are the positive points behind your diagnosis?

1. RBC count: 1.3 million/ µL (Normal: 1.5-4 million/ µL)
2. TC: 1200/ µL (Normal: 7000-11000/ µL)
3. Platelet count: 28000/ µL (Normal: 1.5-4 million/ µL).

What is the most common cause of pancytopenia?

Aplastic anemia.

What are the other causes of pancytopenia?

- Pure red cell aplasia
- Falconi's anemia
- Paroxysmal nocturnal hemoglobinuria (PNH).

Name some common etiological factors behind aplastic anemia?

3I

1. ***Idiopathic***: Autoantibody mediated
2. ***Iatrogenic***: Many drugs may potentially cause aplastic anemia:
   - ✓ Anticancer drugs
   - ✓ Antibiotics: Chloramphenicol/ Sulfonamide
   - ✓ NSAIDs: Phenylbutazone
   - ✓ Anti-rheumatic drugs: Gold, Sulfasalazine.
3. ***Infections***:
   - ✓ HIV
   - ✓ HBV.

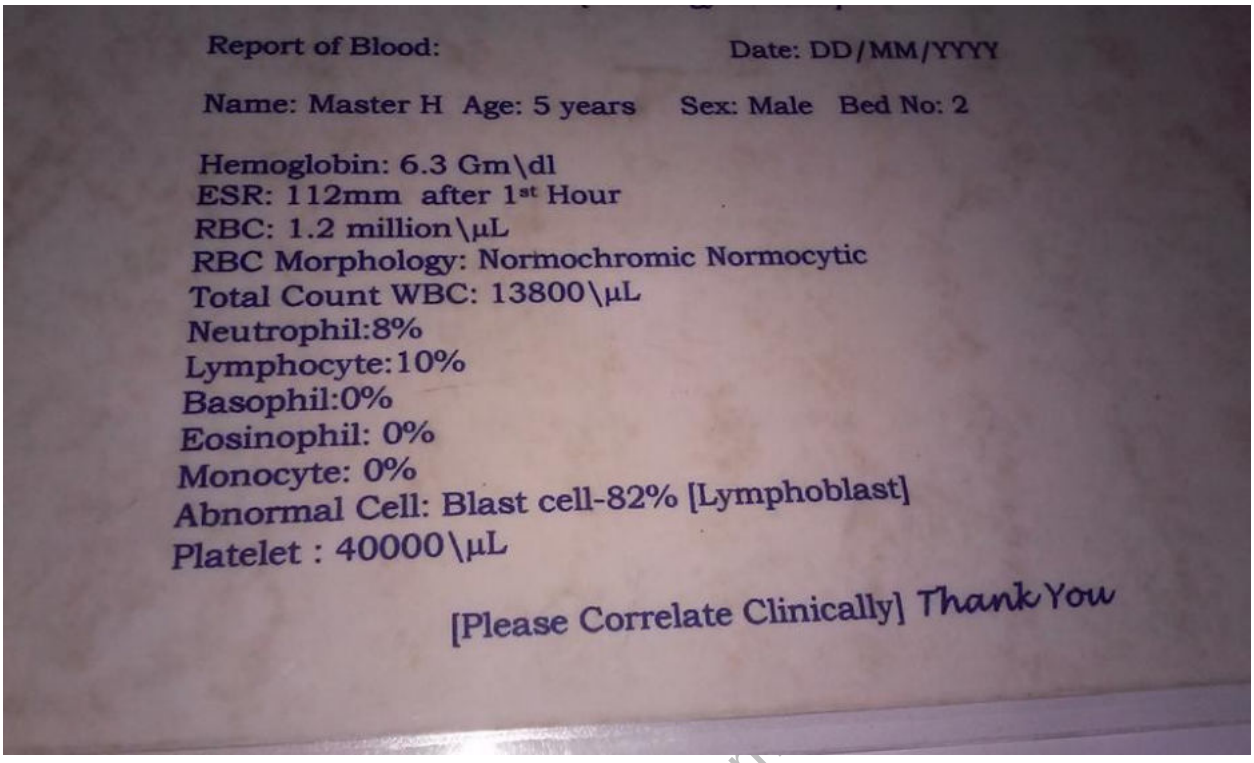
What further investigation will you order?

Bone marrow aspiration: Marrow cells are replaced by fat cells.

What are the treatment options available?

- Treating the cause
- Bone marrow transplantation
- Anti-thymocyte globulin (ATG) + Cyclophosphamide.

Problem no. 8


Report of Blood: Date: DD/MM/YYYY

Name: Master H Age: 5 years Sex: Male Bed No: 2

Hemoglobin: 6.3 Gm\dl
ESR: 112mm after 1st Hour
RBC: 1.2 million\µL
RBC Morphology: Normochromic Normocytic
Total Count WBC: 13800\µL
Neutrophil:8%
Lymphocyte:10%
Basophil:0%
Eosinophil: 0%
Monocyte: 0%
Abnormal Cell: Blast cell-82% [Lymphoblast]
Platelet : 40000\µL

[Please Correlate Clinically] Thank You

What is your diagnosis?

My diagnosis is acute lymphoblastic leukemia (ALL).

What are the positive points behind your diagnosis?

1. Presence of lymphoblast in blood smear
2. Typical age of presentation of the patient:
    - ALL: 2-5 years
    - AML: Adolescence.

What other investigations you will prefer to order?

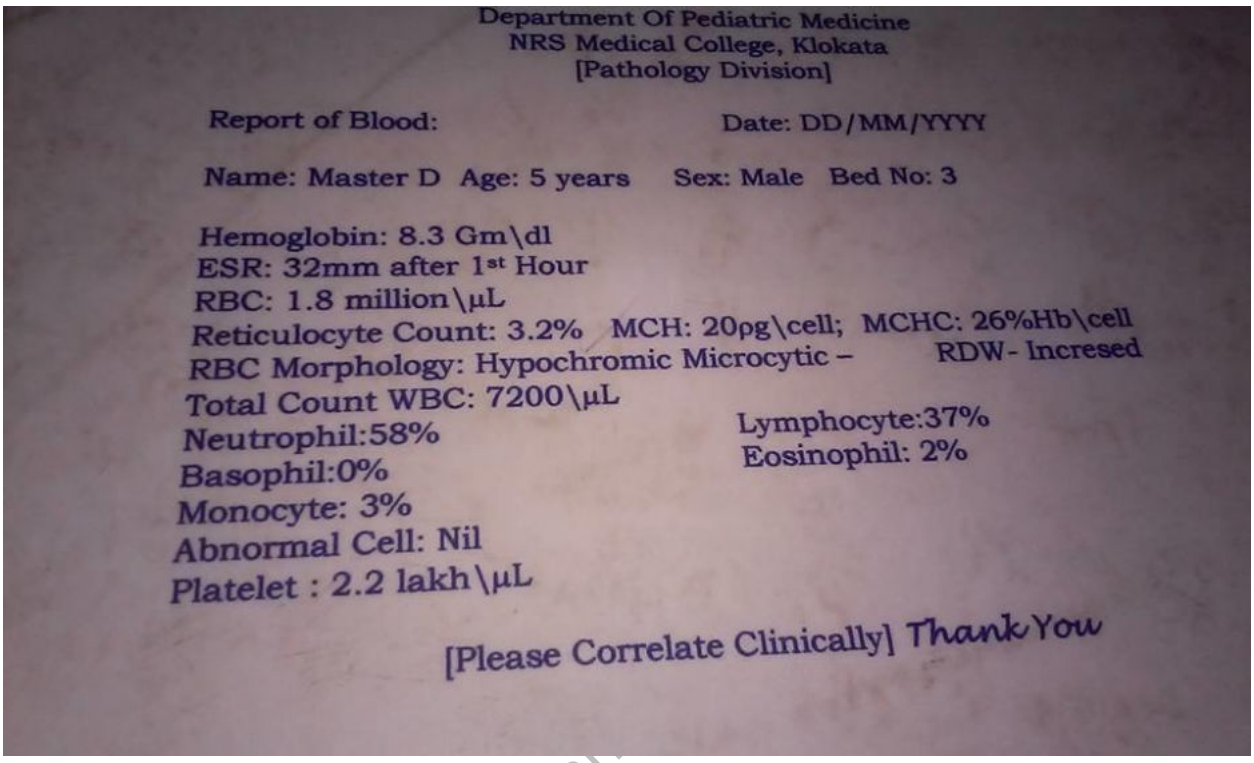
1. Bone marrow aspiration: Presence of >25% of blast cells is diagnostic
2. To detect metastasis:
    - Lumbar puncture
    - Testicular USG.

Outline the treatment of the case shortly (mention the options only).

1. Chemotherapy:
   It has 3 parts: induction of remission, intensification of remission and maintenance of remission.

2. Bone marrow transplantation
3. Post-remission prophylactic cranial radiotherapy (to treat any meningeal infiltration).

Problem no. 9



Department Of Pediatric Medicine
NRS Medical College, Klokata
[Pathology Division]

Report of Blood: Date: DD/MM/YYYY

Name: Master D Age: 5 years Sex: Male Bed No: 3

Hemoglobin: 8.3 Gm\dl
ESR: 32mm after 1st Hour
RBC: 1.8 million\µL
Reticulocyte Count: 3.2% MCH: 20pg\cell; MCHC: 26%Hb\cell
RBC Morphology: Hypochromic Microcytic – RDW- Incresed
Total Count WBC: 7200\µL
Neutrophil:58% Lymphocyte:37%
Basophil:0% Eosinophil: 2%
Monocyte: 3%
Abnormal Cell: Nil
Platelet : 2.2 lakh\µL

[Please Correlate Clinically] Thank You

What is your diagnosis?

Iron deficiency anemia.

What are the positive points behind your diagnosis?

1. Microcytic hypochromic anemia
2. RDW: ↑

What is the significance of RDW?

RDW is the objective measurement of subjective anisocytosis.

What are the further investigation you should order?

Serum iron studies:

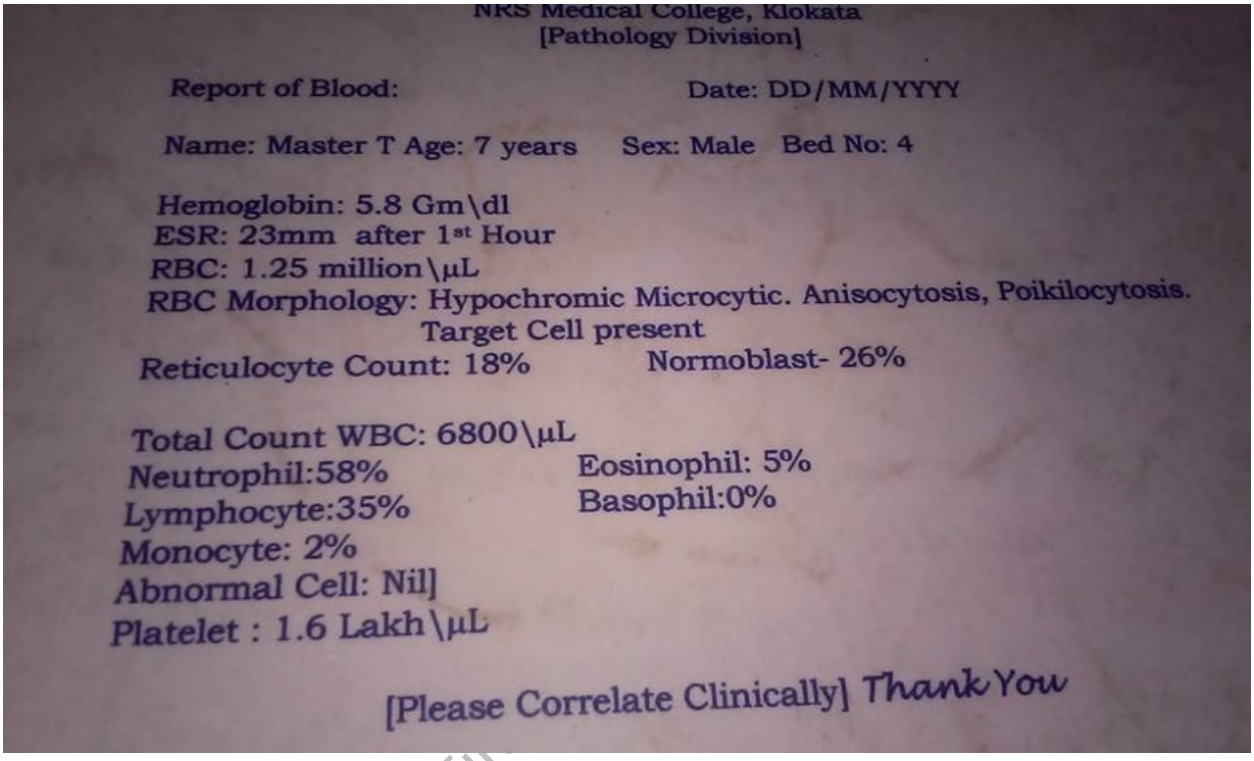
I. Serum iron: ↓
II. Serum ferritin: ↓
III. Serum transferrin saturation: ↓

IV. Total iron binding capacity (TIBC): ↑

Outline the treatment of the case.

Oral $FeSO_4$ (3-6 mg/kg) for 4-6 months.

Problem no. 10


NRS Medical College, Kolkata
[Pathology Division]

Report of Blood: Date: DD/MM/YYYY

Name: Master T Age: 7 years Sex: Male Bed No: 4

Hemoglobin: 5.8 Gm\dl
ESR: 23mm after 1st Hour
RBC: 1.25 million\µL
RBC Morphology: Hypochromic Microcytic. Anisocytosis, Poikilocytosis.
Target Cell present
Reticulocyte Count: 18% Normoblast- 26%

Total Count WBC: 6800\µL
Neutrophil:58% Eosinophil: 5%
Lymphocyte:35% Basophil:0%
Monocyte: 2%
Abnormal Cell: Nil]
Platelet : 1.6 Lakh\µL

[Please Correlate Clinically] Thank You

What is your diagnosis?

Chronic hemolytic anemia.

What are the positive points behind your diagnosis?

1. Hypochromic microcytic anemia
2. Reticulocyte count: ↑ (Normal: 2-6% in infant and 1-2% beyond this age group) It is an evidence of hemolysis.
3. Anisopoikilocytosis and presence of target cells (evidence of hemolysis).

What is the most common cause of chronic hemolytic anemia in pediatric age group?

Thalassemia.

How will you confirm the diagnosis?

HPLC (High performance liquid chromatography).

What are the treatment options available?

Blood transfusion + Iron chelating agent.

What are the different regimens of blood transfusion in thalassemia patients?

Regimen name	Set to control blood Hb to which level?
Palliative transfusion	8.5 gm %
Normo-transfusion*	9.0 – 11.5 gm %
Hyper-transfusion	12 gm %
Super-transfusion	14 gm %

*Preferred in India.

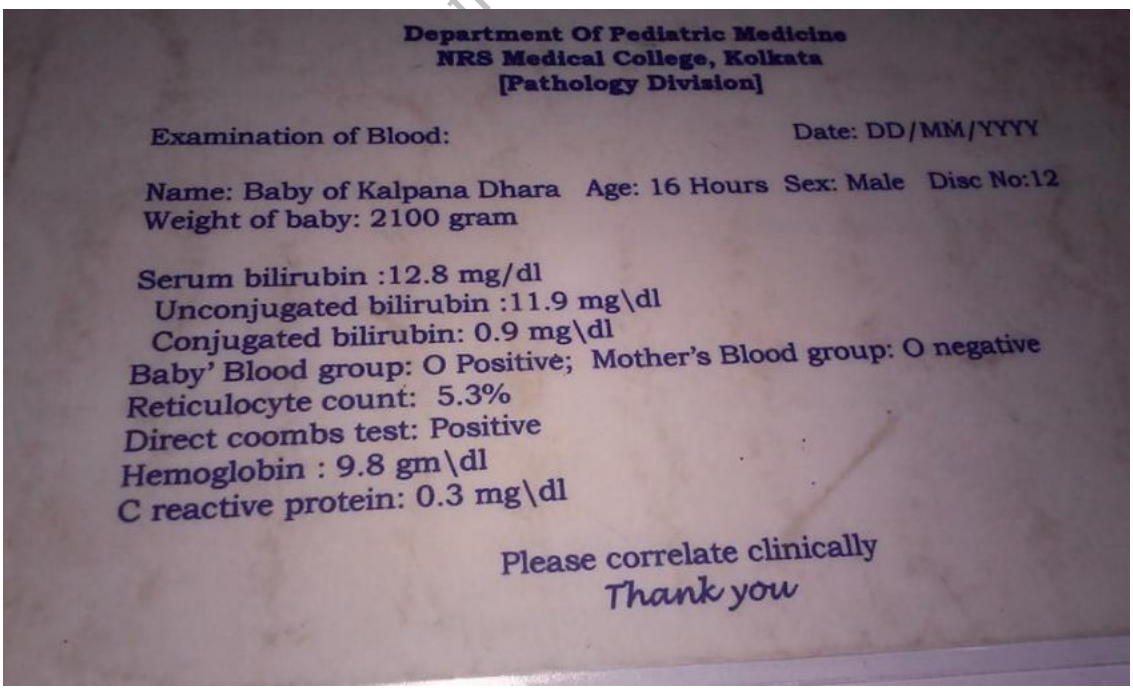
Name some common iron chelating agents.

1. *Desferoxamine*: Parenteral route, removes iron from the blood
2. *Deferiprone*: Oral route, removes iron from the tissue
3. *Deferasirox*: Oral route, removes iron from both blood and tissue.

What is the indication of splenectomy in thalassemia?

When blood required for transfusion is >240 ml/kg/year.

Problem no. 11



Department Of Pediatric Medicine
NRS Medical College, Kolkata
[Pathology Division]

Examination of Blood: Date: DD/MM/YYYY

Name: Baby of Kalpana Dhara Age: 16 Hours Sex: Male Disc No:12
Weight of baby: 2100 gram

Serum bilirubin :12.8 mg/dl
Unconjugated bilirubin :11.9 mg\dl
Conjugated bilirubin: 0.9 mg\dl
Baby' Blood group: O Positive; Mother's Blood group: O negative
Reticulocyte count: 5.3%
Direct coombs test: Positive
Hemoglobin : 9.8 gm\dl
C reactive protein: 0.3 mg\dl

Please correlate clinically
Thank you

What is your diagnosis?

Neonatal jaundice due to Rh incompatibility.

What are the positive points behind your diagnosis?

1. Mother's blood group O- and baby's blood group O+
2. Direct Coomb's test: +Ve (which detects antibody coated RBCs).

When will you start phototherapy in this case?

Weight of the baby (kg.)	Total serum bilirubin (TSB) level to start phototherapy (mg/dL)
1-1.5	12-14
1.5-2	16-18
2-2.5	20-22

What is the indication of starting exchange transfusion in a case of Rh incompatibility?

1. Cord bilirubin ≥ 5 mg/dL
2. Cord hemoglobin ≤10 gm/dL.

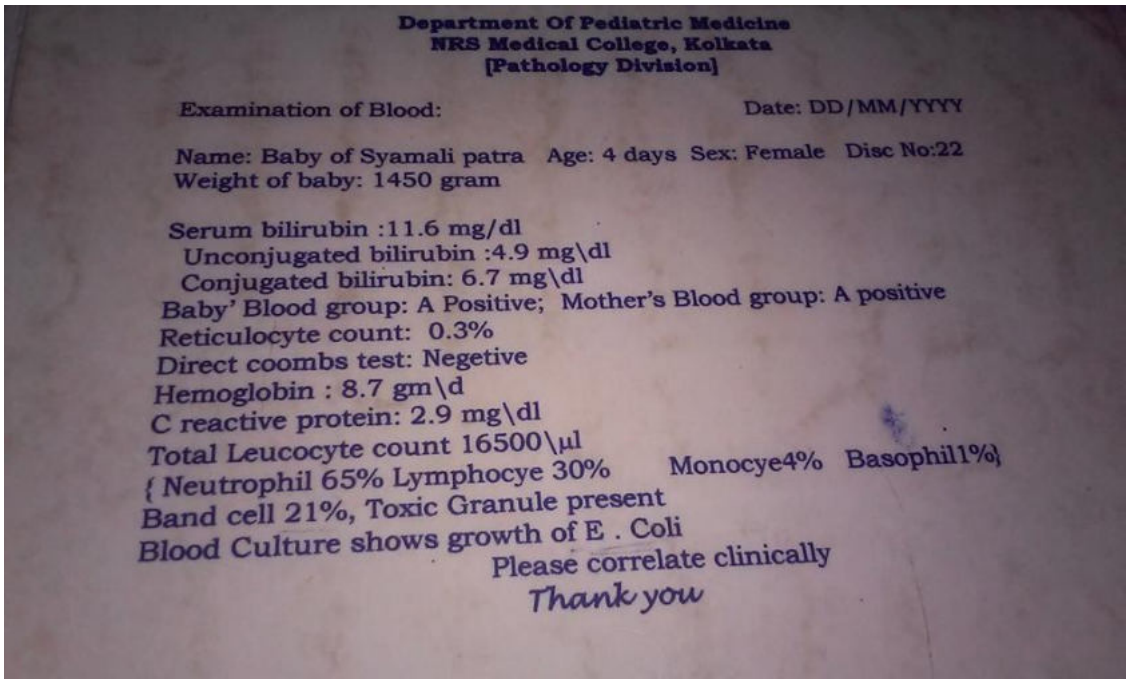
What are the differences between physiological and pathological jaundice?

Physiological jaundice	Pathological jaundice
Appears after 24 hours of age	Appears within 24 hours of age
Serum bilirubin level <15 mg/dL	Serum bilirubin level >15 mg/dL
Increase of bilirubin <5 mg/dL/day	Increase of bilirubin >5 mg/dL/day
Clinically not detectable after 14 days	Jaundice persisting after 14 days
Disappears without any treatment	Needs treatment according to the cause

What is the most common ABO incompatibility?

Mother	O
Baby	A/B/AB

Problem no. 12



Department Of Pediatric Medicine
NRS Medical College, Kolkata
[Pathology Division]

Examination of Blood: Date: DD/MM/YYYY

Name: Baby of Syamali patra Age: 4 days Sex: Female Disc No:22
Weight of baby: 1450 gram

Serum bilirubin :11.6 mg/dl
Unconjugated bilirubin :4.9 mg\dl
Conjugated bilirubin: 6.7 mg\dl
Baby' Blood group: A Positive; Mother's Blood group: A positive
Reticulocyte count: 0.3%
Direct coombs test: Negetive
Hemoglobin : 8.7 gm\d
C reactive protein: 2.9 mg\dl
Total Leucocyte count 16500\µl
{ Neutrophil 65% Lymphocye 30% Monocye4% Basophil1%}
Band cell 21%, Toxic Granule present
Blood Culture shows growth of E . Coli
Please correlate clinically
Thank you

What is your diagnosis?

Neonatal sepsis.

What are the positive points behind your diagnosis?

There are 5 criteria of diagnosing neonatal sepsis (≥2 should be +Ve):

1. Leukopenia (TLC < 5000/cu.mm)
2. Neutropenia (ANC < 1800/cu.mm)
3. Immature neutrophil to total neutrophil (I/T) ratio (> 0.2)
4. Micro-ESR (> 15mm 1st hour)
5. CRP +ve.

In the problem above, 2 criteria are +Ve:

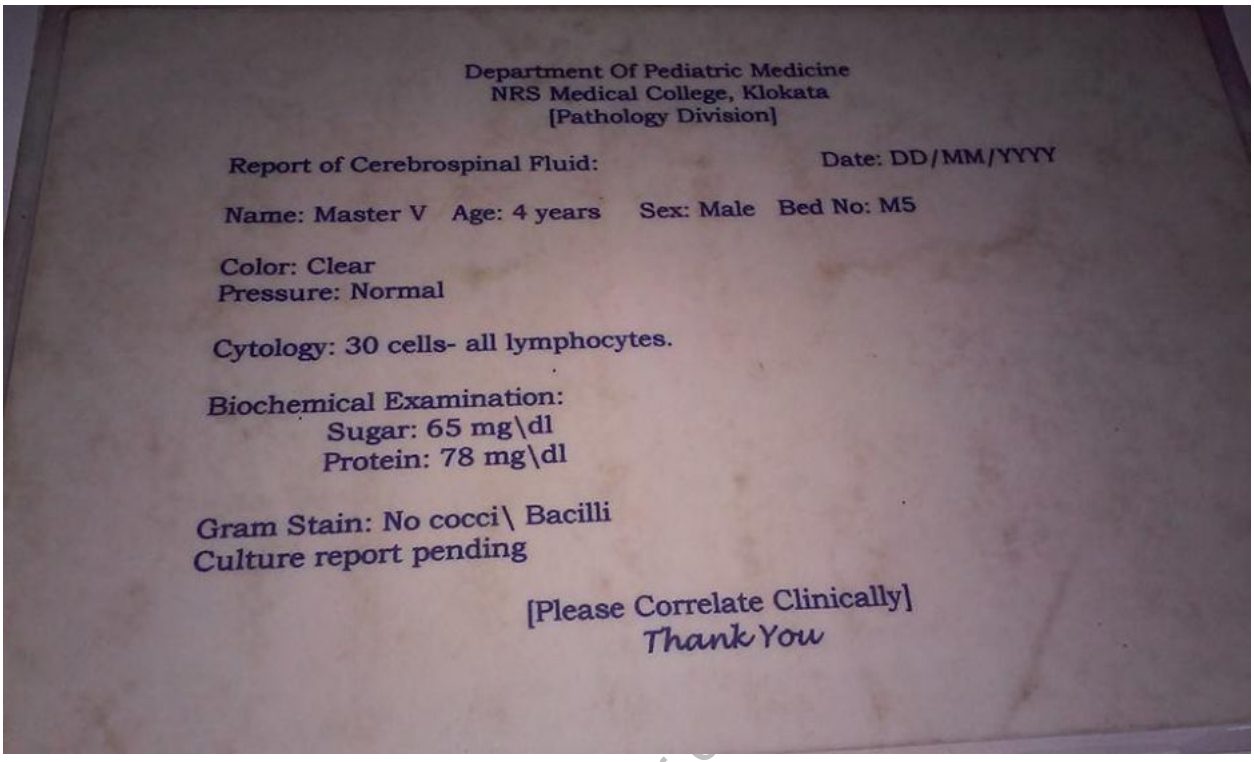
1. I:T ratio= 0.21 (>0.2) [As band form is 21% of total neutrophils]
2. CRP: +Ve.

What are the choice of antibiotics in this case?

Ampicillin + Gentamicin.

CSF investigations

Problem no. 13



Department Of Pediatric Medicine
NRS Medical College, Kolkata
[Pathology Division]

Report of Cerebrospinal Fluid: Date: DD/MM/YYYY

Name: Master V Age: 4 years Sex: Male Bed No: M5

Color: Clear
Pressure: Normal

Cytology: 30 cells- all lymphocytes.

Biochemical Examination:
Sugar: 65 mg\dl
Protein: 78 mg\dl

Gram Stain: No cocci\ Bacilli
Culture report pending

[Please Correlate Clinically]
Thank You

What is your inference?

Differential diagnosis:

1. Viral meningitis
2. Normal CSF.

What are the positive points behind your diagnosis?

Parameters	***Normal***	***Viral meningitis***	***Value in problem***
Cell count	0-6 (lymphocyte)	100-500 (predominantly lymphocytic)	30 (lymphocytes)
Glucose (mg/dl)	40-80	Unaltered	65
Protein (mg/dl)	20-40	50-100	78

What are the changes in appearances of CSF you know about?

- Turbid: Suggests bacterial meningitis
- Cobweb: Suggests tubercular meningitis
- Red: Suggests trauma/ subarachnoid hemorrhage.

What is the virus most commonly causing viral meningitis?

Echovirus.

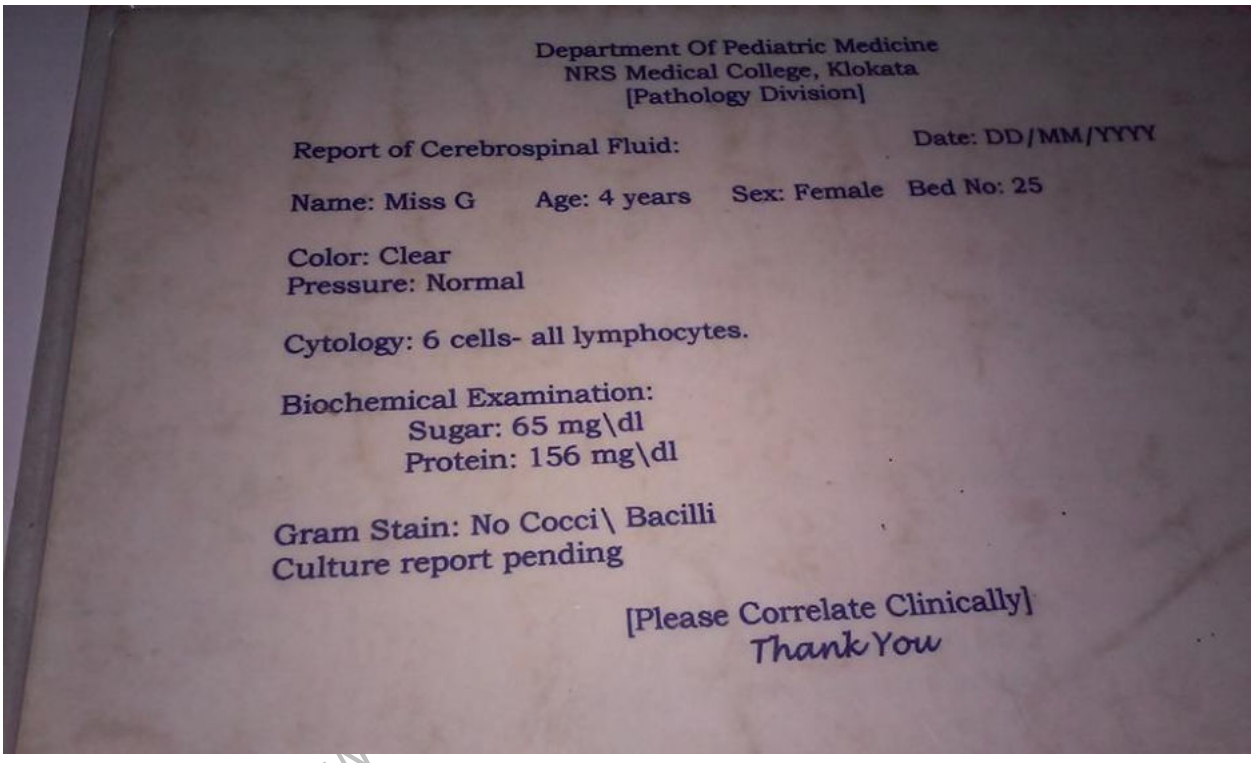
What further investigation you may order?

CT scan of brain.

What is the mainstay of treatment?

Supportive.

Problem no. 14



Department Of Pediatric Medicine
NRS Medical College, Klokata
[Pathology Division]

Report of Cerebrospinal Fluid: Date: DD/MM/YYYY

Name: Miss G Age: 4 years Sex: Female Bed No: 25

Color: Clear
Pressure: Normal

Cytology: 6 cells- all lymphocytes.

Biochemical Examination:
Sugar: 65 mg\dl
Protein: 156 mg\dl

Gram Stain: No Cocci\ Bacilli
Culture report pending

[Please Correlate Clinically]
Thank You

What is your inference?

It is a case of albumin-cytological dissociation; the common causes of which are:

- Guillain-Barre syndrome
- Subarachnoid hemorrhage
- Froin syndrome (blockage in CSF flow).

What additional investigation(s) you will want to perform?

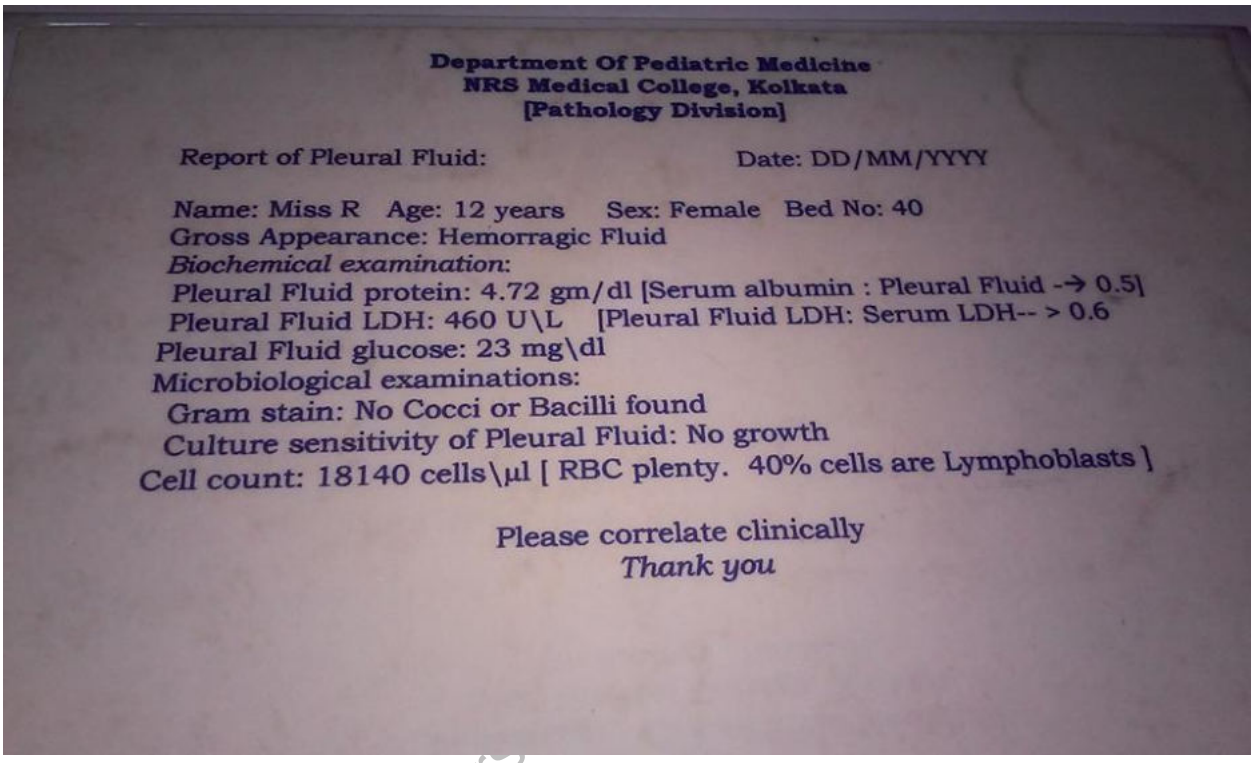
1. Electromyography (EMG)
2. Nerve conduction velocity (NCV) study.

What are the treatment options of GB syndrome?

- Acute GB syndrome: IV IgG (2 gm/kg) + Supportive treatment
- Chronic GB syndrome: Corticosteroid + Plasmapheresis.

Examination of pleural fluid

Problem no. 15



Department Of Pediatric Medicine
NRS Medical College, Kolkata
[Pathology Division]

Report of Pleural Fluid: Date: DD/MM/YYYY

Name: Miss R Age: 12 years Sex: Female Bed No: 40
Gross Appearance: Hemorragic Fluid
Biochemical examination:
Pleural Fluid protein: 4.72 gm/dl [Serum albumin : Pleural Fluid -→ 0.5]
Pleural Fluid LDH: 460 U\L [Pleural Fluid LDH: Serum LDH-- > 0.6
Pleural Fluid glucose: 23 mg\dl
Microbiological examinations:
Gram stain: No Cocci or Bacilli found
Culture sensitivity of Pleural Fluid: No growth
Cell count: 18140 cells\µl [RBC plenty. 40% cells are Lymphoblasts]

Please correlate clinically
Thank you

What is your inference?

Malignant pleural effusion.

What are the positive points behind your diagnosis?

- There are mainly 3 causes of hemorrhagic pleural effusion:
  1. Trauma
  2. TB
  3. Malignancy
- As in the question there are plenty of lymphoblasts; it is better to say that it is a case of malignant pleural effusion.

Can you say if the effusion is exudative or transudative?

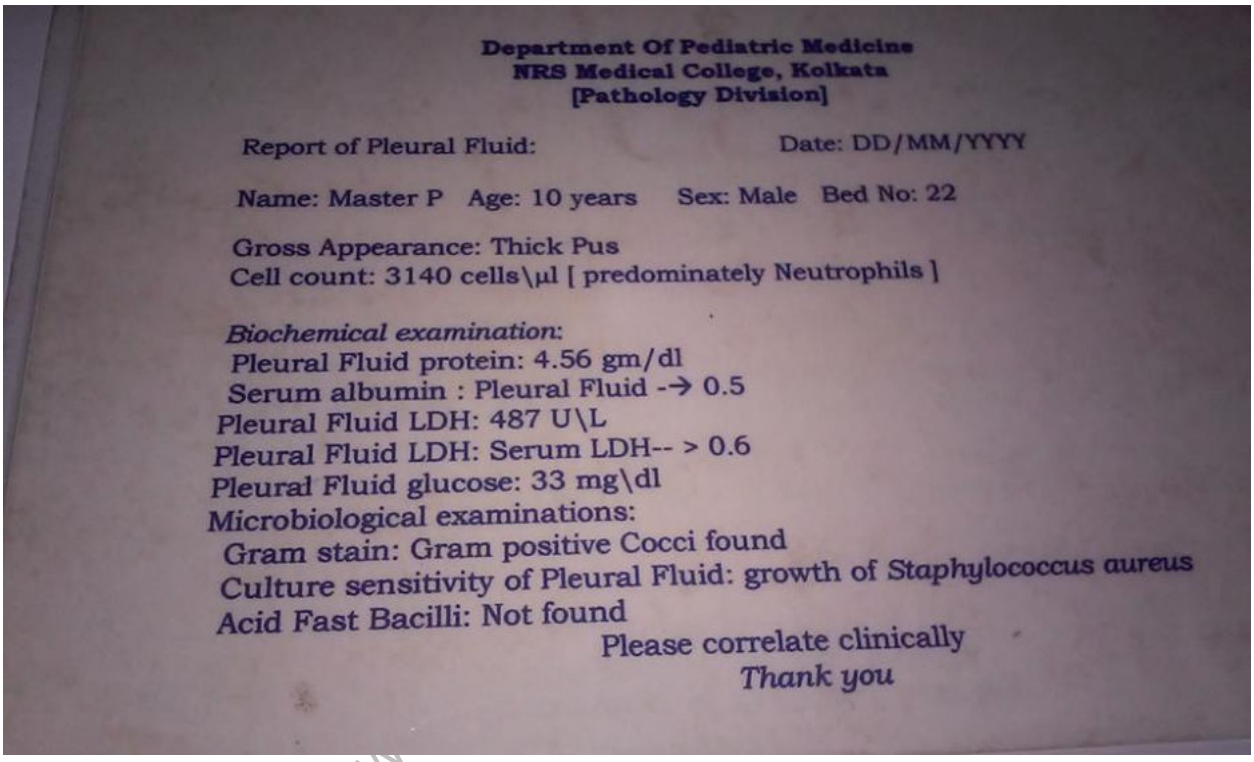
$$\frac{Pleural\ fluid\ albumin}{Serum\ albumin} = \frac{1}{0.5} = 2\ (> 0.5)$$

- This suggests an exudative effusion.

Outline the management of this case.

Supportive: water-seal drainage.

Problem no. 16



Department Of Pediatric Medicine
NRS Medical College, Kolkata
[Pathology Division]

Report of Pleural Fluid: Date: DD/MM/YYYY

Name: Master P Age: 10 years Sex: Male Bed No: 22

Gross Appearance: Thick Pus
Cell count: 3140 cells\µl [predominately Neutrophils]

Biochemical examination:
Pleural Fluid protein: 4.56 gm/dl
Serum albumin : Pleural Fluid -→ 0.5
Pleural Fluid LDH: 487 U\L
Pleural Fluid LDH: Serum LDH-- > 0.6
Pleural Fluid glucose: 33 mg\dl
Microbiological examinations:
Gram stain: Gram positive Cocci found
Culture sensitivity of Pleural Fluid: growth of *Staphylococcus aureus*
Acid Fast Bacilli: Not found

Please correlate clinically
Thank you

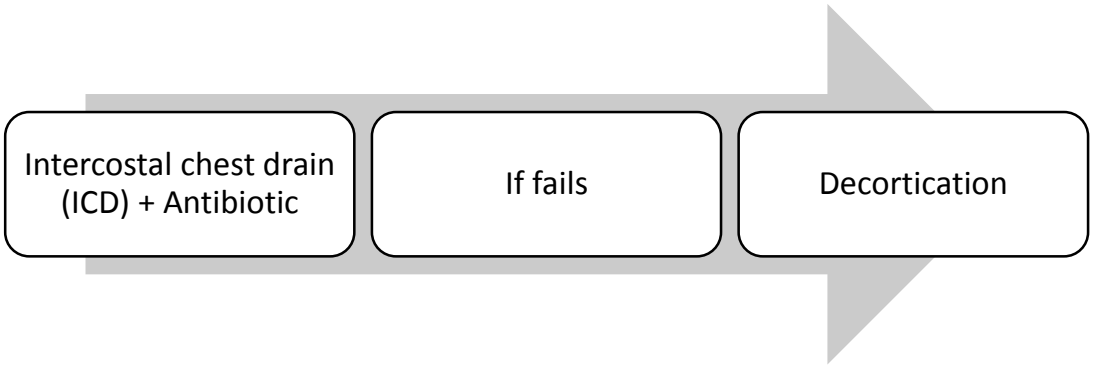
What is your diagnosis?

Empyema thoracis.

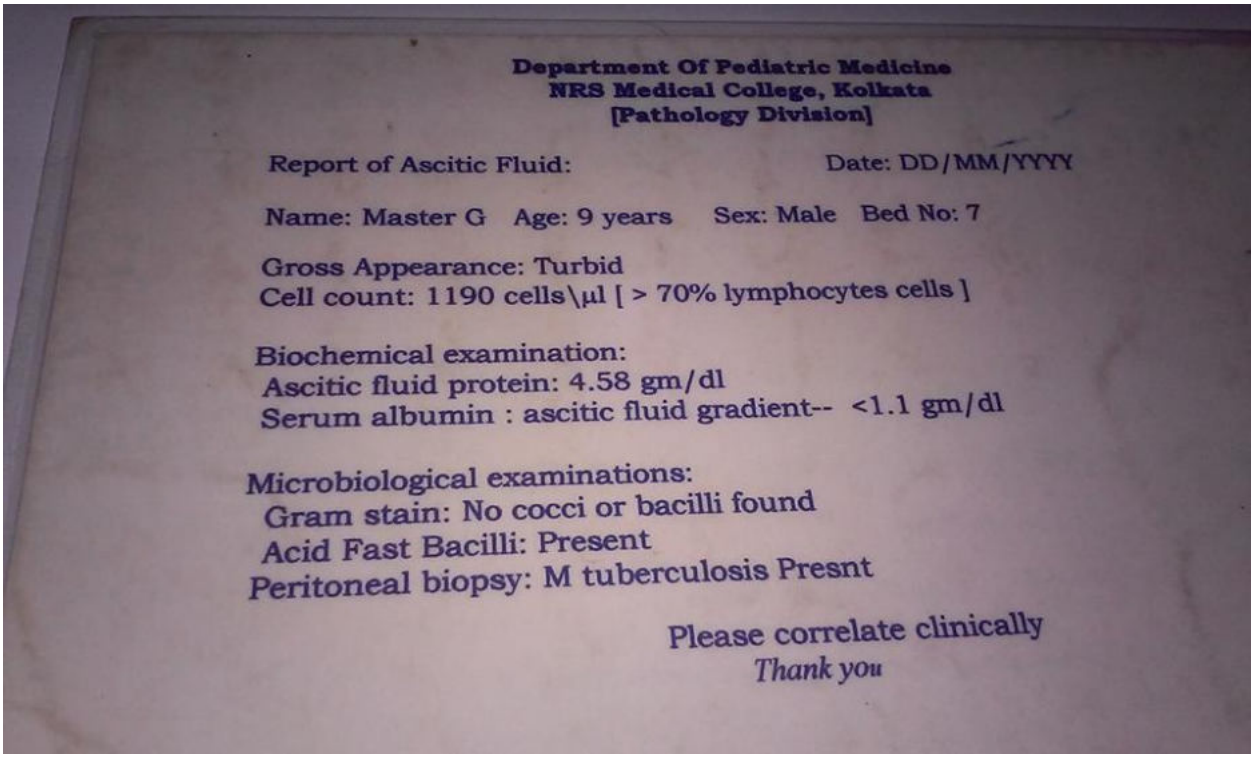
What are the positive points behind your diagnosis?

1. Exudative pleural effusion (Pleural fluid albumin: serum albumin= 2 [>0.5])
2. Gross appearance of pleural fluid is thick pus
3. Predominantly neutrophilic effusion
4. Culture sensitivity of the pleural fluid reveals growth of *Staph.aureus*.

What is the management?



Problem no. 17



Department Of Pediatric Medicine
NRS Medical College, Kolkata
[Pathology Division]

Report of Ascitic Fluid: Date: DD/MM/YYYY

Name: Master G Age: 9 years Sex: Male Bed No: 7

Gross Appearance: Turbid
Cell count: 1190 cells\µl [> 70% lymphocytes cells]

Biochemical examination:
Ascitic fluid protein: 4.58 gm/dl
Serum albumin : ascitic fluid gradient-- <1.1 gm/dl

Microbiological examinations:
Gram stain: No cocci or bacilli found
Acid Fast Bacilli: Present
Peritoneal biopsy: M tuberculosis Presnt

Please correlate clinically
Thank you

What is your diagnosis?

Tubercular peritonitis.

What are the positive points behind your diagnosis?

1. Cell count in ascitic fluid shows predominant lymphocytosis
2. AFB: +Ve
3. SAAG <1.1 suggests a cause other than portal hypertension (SAAG>1.1 suggests that the cause of ascites is portal hypertension)
4. Peritoneal biopsy: *M.tuberculosis +Ve*.

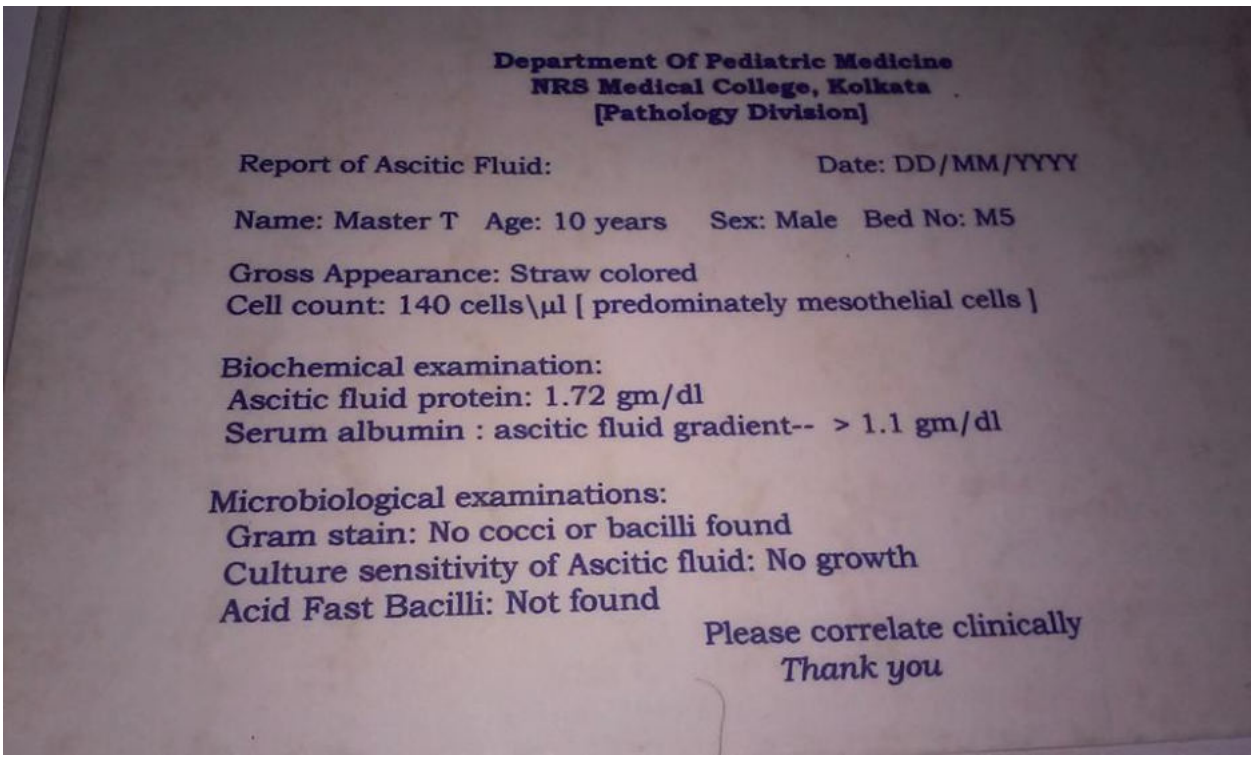
What do you know about the appearance of ascitic fluid and its relevant cause?

- ✓ Clear/ straw colored appearance: Transudative cause (Heart failure/ cirrhosis/ nephrotic syndrome)
- ✓ Turbid appearance: Suggestive of spontaneous bacterial peritonitis (SBP)
- ✓ Hemorrhagic appearance: TB/ Malignancy/ Intra-abdominal bleeding
- ✓ Greenish appearance: Ruptured gall bladder/ acute pancreatitis/ peroration.

What additional investigations you would like to perform?

1. Chest X Ray
2. Mantoux test.

Problem no. 18



Department Of Pediatric Medicine
NRS Medical College, Kolkata
[Pathology Division]

Report of Ascitic Fluid: Date: DD/MM/YYYY

Name: Master T Age: 10 years Sex: Male Bed No: M5

Gross Appearance: Straw colored
Cell count: 140 cells\µl [predominately mesothelial cells]

Biochemical examination:
Ascitic fluid protein: 1.72 gm/dl
Serum albumin : ascitic fluid gradient-- > 1.1 gm/dl

Microbiological examinations:
Gram stain: No cocci or bacilli found
Culture sensitivity of Ascitic fluid: No growth
Acid Fast Bacilli: Not found

Please correlate clinically
Thank you

What is your diagnosis?

Cirrhosis with ascites.

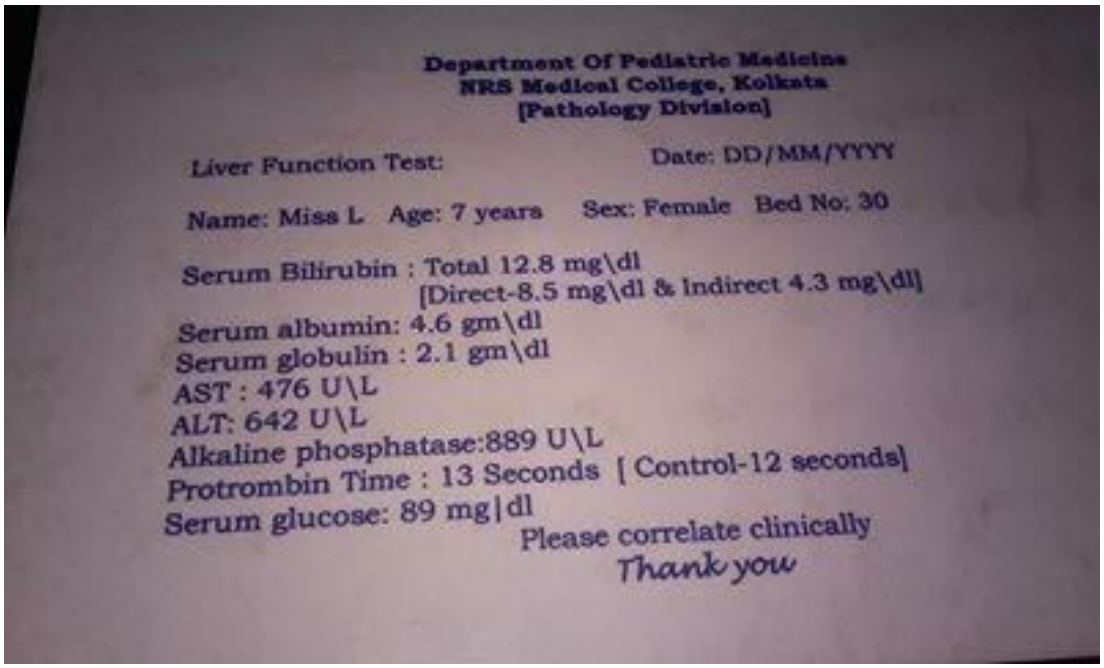
What are the positive points behind your diagnosis?

SAAG >1.1 is suggestive of ascites caused by portal hypertension (cirrhosis).

What is the most common cause of cirrhosis in pediatric age group in India?

Hepatitis B.

Problem no. 19



Department Of Pediatric Medicine
NRS Medical College, Kolkata
[Pathology Division]

Liver Function Test: Date: DD/MM/YYYY

Name: Miss L Age: 7 years Sex: Female Bed No: 30

Serum Bilirubin : Total 12.8 mg\dl
[Direct-8.5 mg\dl & Indirect 4.3 mg\dl]
Serum albumin: 4.6 gm\dl
Serum globulin : 2.1 gm\dl
AST : 476 U\L
ALT: 642 U\L
Alkaline phosphatase:889 U\L
Protrombin Time : 13 Seconds [Control-12 seconds]
Serum glucose: 89 mg|dl

Please correlate clinically
Thank you

What is your diagnosis?

Acute hepatitis.

What are the positive points behind your diagnosis?

1. Total serum bilirubin (TSB): ↑ (Normal: <1 mg/dL: 80%: direct and 20%: indirect)
2. Direct bilirubin: ↑
3. Indirect bilirubin: ↑
4. AST: ↑↑ (Normal: 5-35 U/L): Suggestive of acute inflammation of hepatocytes
5. ALT: ↑↑ (Normal: 5-35 U/L): Suggestive of acute inflammation of hepatocytes
6. Rise of ALT > Rise of AST
7. ALP: ↑ (Normal: 21-100 U/L): Suggestive of intrahepatic cholestasis.

[Source of the normal values: IAP textbook of Pediatrics, 4th edition, Page no. 649]

What is the most common causative agent of acute hepatitis?

Hepatitis A virus (HAV).

What additional investigation you would like to perform?

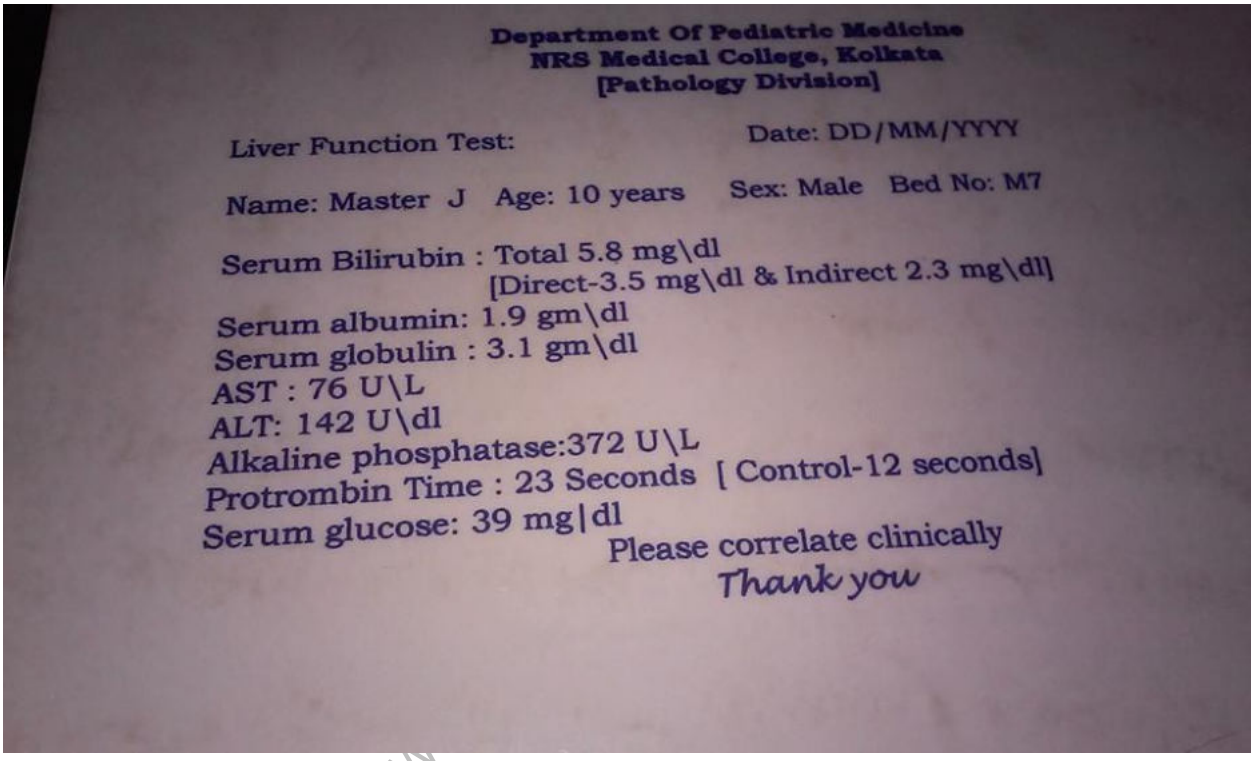
IgM-HAV.

Outline the management of the case?

Symptomatic management:

A. Absolute bed rest
B. Bowel clearance: Lactulose
C. Circulatory support: Usually by dextrose containing fluid
D. Drugs: Avoid drugs that have a hepatic metabolism.

Problem no. 20



Department Of Pediatric Medicine
NRS Medical College, Kolkata
[Pathology Division]

Liver Function Test: Date: DD/MM/YYYY

Name: Master J Age: 10 years Sex: Male Bed No: M7

Serum Bilirubin : Total 5.8 mg\dl
[Direct-3.5 mg\dl & Indirect 2.3 mg\dl]
Serum albumin: 1.9 gm\dl
Serum globulin : 3.1 gm\dl
AST : 76 U\L
ALT: 142 U\dl
Alkaline phosphatase:372 U\L
Protrombin Time : 23 Seconds [Control-12 seconds]
Serum glucose: 39 mg|dl

Please correlate clinically
Thank you

What is your diagnosis?

Chronic hepatitis with hepatocellular failure.

What are the positive points behind your diagnosis?

1. AST: ↑ (Mild)
2. ALT: ↑ (Mild)
3. ALP: ↑ (suggestive of cholestasis)
4. Rise of ALT> Rise of AST
5. PT: ↑; It is suggestive of hepatocellular failure and deficiency of extrinsic pathway coagulation factors.

Which is the commonest cause of chronic hepatitis in pediatric age group in India?

Hepatitis B

Outline the treatment of the case.

Management consists of supportive treatment of complications:

A. Ascites
B. Bleeding varices
C. Coagulopathy.