



## **CENTRAL NERVOUS SYSTEM**

### **INTRODUCTION**

1. Name
2. Age
3. Sex
4. Handedness
5. Resident of
6. Education
7. Occupation
8. Informant
9. Reliability

### **CHIEF COMPLAINTS**

1. Xxxxxx – Onset and course
2. Yyyyyy – onset and course
3. Zzzzzzz – onset and course

### **H/O PRESENT ILLNESS**

1. LOC/Seizure
  - a. Onset
  - b. Activity at the time of incident
  - c. Preceded by
    - i. Chest pain/Palpitationsweating/nausea/ vomiting/
    - ii. headache/giddiness/presyncope/visual disturbance.
  - d. Associated with
    - i. Involuntary movt/Tonic/clonic/focal/generalized

- ii. Rolling up of eyes/stare/tongue bite/grunting noise
- iii. Sphincter incontinence/abnormal breathing pattern
- e. Lasted for (Duration)
- f. Recovered after – Spont/treatment
- g. Post recovery – drowsiness/confusion/weakness
- h. Number of episodes
- i. Sensorium in between episodes
- j. Last episode
- k. Any injury sustained.

## 2. Disorientation

- a. To T/P/P
- b. Episodic or continuous
- c. Orientation between the episodes
- d. Any abnormal behavior
- e. Recovery

## 3. Speech disturbance

- a. Onset
- b. Comprehension
- c. Any spontaneous speech/word outflow
- d. Slurring
- e. Reading/writing/repetition
- f. Progression
- g. Any stress during speaking
- h. Tightness/looseness in tongue
- i. Paraphasias

## 4. Cranial Nerves

- I. Smell to commonly used items

soap/shampoo/toothpaste

II. Decreased visual acuity

Color vision

Color desaturation

Scotoma/Field defect

III. IV and VI

i. Double vision

1. Monocular/binocular
2. On primary gaze or evoked gaze
3. Horizontal/vertical
4. Disappears by (Closing eye)

ii. Pain in eyes on movements

iii. Ptosis – Fatiguability/diurnal variation

iv. Features of Horner's syndrome

IV. Same as above

V. Decreased/abnormal sensations over face, difficulty in mastication.

VI. Same as above

VII. Deviation of angle of mouth

Facial asymmetry

Drooling of saliva

Difficulty in closing eyes

Difficulty in speaking

Taste impairment

VIII. Hearing impairment

Giddiness

Vertigo

Tinnitus

H/O CSOM

IX. And X

Dysphagia – solid/liquid/both

- Dysphonia
- Dysarthria
- Nasal regurgitation
- Hoarseness of voice/Nasal twang
- X. Same as above
- XI. Neck movements
  - Shrugging of shoulders
- XII. Ability to make the bolus of food
  - Ability to maneuver the food bolus inside the mouth
  - Tongue deviation
  - Dysarthria

## 5. Motor

### a. Weakness (UMN)

- i. Reaching overhead objects/taking comb to the head
- ii. Lifting a bucket of water/breaking the chapaties
- iii. Holding a glass of water/writing task in detail
- iv. Holding the pen/grasping the comb
- v. Difficulty in getting up from a chair/squatting position
- vi. Climbing up/down the stairs/gripping the chappals
- vii. Chappals slips away with/without the knowledge
- viii. Getting up from lying down position/Turns in the bed
- ix. Lifting the head off the bed
- x. Breathlessness/ptosis/facial weakness/chewing

### b. Dexterity

- i. Buttoning/unbuttoning the shirt/ Breaking the chapaties
- ii. Tie the nada of payjama/shoe lace
- iii. Negotiating the foot into the chappal
- iv. Also ask about

1. Proximal/distal
2. Symmetrical/asymmetrical
3. Spasticity/wasting – which is more?
4. Onset and progression of the weakness
5. Present status.

c. Weakness (LMN)

- i. Looseness/fasciculations/wasting
- ii. Which is earlier – weakness or wasting
- iii. Proximal/distal
- iv. Symmetrical/asymmetrical
- v. Periodicity/diurnal variation, fatiguability
- vi. Selectivity of muscles
- vii. Onset/course/progression

d. Cerebellar

- i. Smearing of face/target oriented activities
- ii. Tremors/Gait/Speech/Vertigo/Looseness of limbs
- iii. Difficulty in reaching the objects
- iv. Incoordination during picking up water/during drinking.

e. EPS

- i. Tremors at rest/Stiffness/expressionless face
- ii. Bradykinesia – during bath/dressing etc.
- iii. Sleep/Memory/Handwriting/Hypophonia/Gait
- iv. Difficulty in walking narrow paths (Pedestrian strip)

f. Gait

- i. Broad based/Narrow base
- ii. Speed/Antalgic gait/Freezing/Parkinsons gait features
- iii. Recurrent falls/Buckling...../Climbing up/down
- iv. Difficulty in walking in dark/Pain while walking
- v. Stiffness/crossing of legs

6. Sensory

a. Onset/progression/present status

b. Posterior column

- i. Unable to feel clothes over the body
- ii. Difficulty in walking in the dark/wash basin (Sink) sign
- iii. Slipping of slippers without knowledge
- iv. Cotton wool sensations over the feet
- v. Band like sensation/Encasement of limbs
- vi. Pins and needles/numbness/tingling/paraesthesias
- vii. Lhermitte's phenomenon/water flowing underneath the feet

c. Spinothalamic

- i. Hot and cold water during bath
- ii. Burning/shooting/pricking pain
- iii. Funicular pain/sensory level
- iv. Root pain is a sharp shooting pain in a particular dermatomal pattern which increases on coughing/sneezing. It is recurrent and more severe.

d. Cortical sensations

- i. Ability to feel the coins in the pocket
- ii. Feel wallet in the pocket

7. Autonomic

a. Bladder

- i. Urgency/urge incontinence/frequency/hesitancy
- ii. Precipitancy/Retention (Painful/less & aware/unaware)
- iii. Overflow incontinence/incomplete evacuation
- iv. Dribbling of urine/loss of social inhibition
- v. Postural giddiness/presyncope/erectile dysfunction

b. Bowel – Frequency/consistency/continence

c. Faintness/palpitations

d. Abnormal sweating/Decreased lacrimation

e. Horner's syndrome

f. Gastroparesis/nausea/vomiting/diarrhea





## **ETIOLOGICAL HISTORY**

1. Headache (Mnemonic – OLD CAARTS)
  - a. Onset/location/duration/diurnal variation/Ch.....
  - b. Associated with(Nausea/vomiting/photophobia/phonophobia/ abnormal behavior/LOC/blurring of vision
  - c. Red flag signs
  - d. Preceded by aura
  - e. Aggravated by/relieved by/timing/severity/
  - f. Frequency (No of episodes in a day)/abnormal sweating
  - g. Pain anywhere in the body
2. Injury/RTA/Trauma to the neck
3. Abnormal behavior/nausea/vomiting
4. Fever/chest pain/palpitations/cough/dyspnea/hemoptysis
5. Bowel symptoms/Jaundice
6. Oliguria/dysuria/hematuria/high colored urine
7. Joint pain/rash/photosensitivity/oral ulcers/hair fall/seizures
8. Dog bite/animal bite/vaccination/injection
9. Alternative drugs/well water drinking/insecticides exposure
10. Carrying weight in head for long/neck pain for long
11. Skin lesions/Nodules
12. Hypo/hyper thyroidism symptoms
13. Blood transfusion

## **PAST HISTORY**

1. DM/TB/HTN/Hansens/CAD/BA



2. Similar illness in the past
3. Animal bite/vaccination/injection in the past
4. Blood transfusion/jaundice
5. Major surgery

### **PERSONAL HISTORY**

1. Veg/Non veg/Well water drinking/food habits
2. Smoking/Tobacco/Alcohol/Substance abuse
3. Marriage/Children
4. High Risk behavior

### **MENSTRUAL HISTORY**

1. Menarche/Cycles/Menopause
2. LMP/Post menopausal bleed
3. any surgery

### **OCCUPATIONAL HISTORY**

1. Nature/duration/intensity of exposure
2. H/O exposure to dye/paint/glasswares/med eqpts/jewellery
3. Plumbing/farming/insecticides
4. Vibrating eqpts/repeated trauma

### **FAMILY HISTORY**

1. Pedigree charting of possible genetic disease
2. h/O similar illness in the family





## **TREATMENT HISTORY**

**SUMMARY** at the end of history and four tier diagnosis

1. Functional
2. Physiological
3. Anatomical
4. Etiological 1, 2, 3, 4.....

## **GENERAL EXAMINATION**

1. Conscious/oriented/cooperative/comfortably lying.....
2. Ht/Wt/BMI/Arm length/upper segment/lower segment/neck:ht ratio.
3. Pulse  
Rate/rhythm/volume/character/peripheral pulses/R-R & R-F  
Delay/pulse deficit/vessel wall/carotid bruit/shudder
4. BP  
mm Hg/Rt Arm supine/No significant postural fall
5. RR – rate/rhythm/type
6. P/I/C/C/L/E/JVP
7. Neurocutaneous markers
8. Nerve thickening
9. Vitamin deficiencies
10. Xanthoma/xanthelasma/arcus senilis
11. Congenital anomalies – arms/foot/chest/gums/teeth/hair change
12. acanthoma nigricans/scars/sinus
13. Features of hypo/hyper thyroidism
14. acromegaly/marfans features
15. Angioma/cutaneous  
angiomata/rash/petechiae/purpurae/ecchym.
16. Bed sores/genital ulcers
17. Peripheral stigmata of TB/HIV



## **SYSTEMIC EXAMINATION**

### **1. CVS**

- a. Apical Impulse/chest wall symmetry/anomalies
- b. S1/S2/S3/S4/murmur/pericardial rub/knock

### **2. RS**

- a. Chest wall symmetry
- b. Air entry/Breath sounds/adventitious sounds/pleural rub

### **3. P/A**

- a. Distended/all quadrants moves equally with the respiration
- b. Soft/Non tender/organomegaly/free fluid/bowel sounds
- c. Hernial sites/peripheral signs of liver failure

## **CNS EXAMINATION**

### **1. HME**

- a. consciousness
- b. oriented to T/P/P
- c. Registration
- d. attention/calculation
- e. Recall
- f. Language-Speech (Mnemonic – CNS R3)
  - i. Comprehension
  - ii. Naming
  - iii. Spontaneous speech
  - iv. Reading
  - v. Writing
  - vi. Repetition
- g. Language – Dysarthria
  - i. UMN/Pseudobulbar – “British constitution”
  - ii. Bulbar – Pa Ta Ka
  - iii. Cerebellar – Rashtrapaty Amritsar se Hyderabad gaye

Ask to repeat "Yellow Lorry".

iv. Tongue muscles fasciculations/flaccidity.

v. NMJ – Fatiguability/Nasal voice.

## 2. Cranial Nerves

I - Coffee powder/soap/shampoo/tooth paste

II - Acuity/Color/field/pupils/RAPD/Fundus.

### III/IV & VI

- Position of the eye at primary gaze

- Conjugate eye movements

a. convergence/divergence/saccades/pursuits

- Individual eye movements

- Nystagmus

### V

- Facial sensations touch/pain/temp/vibration

- Muscles of mastication- clench the teeth

- Movements of mandible

- Corneal reflex

- Jaw reflex

### VII

- Wrinkling of forehead

- Frowning of eyebrows/eyelid closure

- Bells phenomenon/facial expression/nasolabial fold

- Angle of mouth deviation/buccinators

- Taste sensation ant 2/3<sup>rd</sup> – sugar/vinegar/salt

- Parotid swelling/tenderness

- Herpes zoster in EAM

### VIII

- Rinnes/webbers/ABC/Ear examination

### IX & X

- Uvular position

- On saying "AH" uvula/palatal/post phar. wall movement

- Gag reflex



- Taste on post 1/3<sup>rd</sup> of tongue
- Dysphonia/dysphagia testing (?????)

XI

- Shrugging of shoulders
- Left/right turn of neck (SCM)

XII

- Tongue position in resting state/on protrusion
- Flaccidity/fasciculations/tremors/spasticity
- Myotonia/movements/Deviation of tongue

### 3. Motor system examination

a. Position/attitude of limbs

b. Bulk (wasting/hypertrophy)

c. Tone

- Spasticity – clasp knife
- Rigidity – cog wheel/lead pipe
- Flaccidity
- Fasciculations

d. Power

- Shoulder – Abduction/adduction/flexion/extension (5/5)
- Elbow – Flexion/extension (5/5)
- Wrist – Dorsiflexion/Palmar flexion (5/5)
- Hand grip – Percentage (25/50/75), Myotonia (+/-)
- Individual muscles of hand – Normal or weak.
- 
- Hip - Abduction/adduction/flexion/extension (5/5)
- Knee - Flexion/extension (5/5)
- Ankle – Dorsiflexion/Plantar flexion (5/5)
- EDP muscle wasting – Present/not
- Truncal weakness – Percentage (25/50/75)
- Neck muscle weakness - Percentage (25/50/75)  
(Flexion/extension/lateral flexion)

e. DTR

- i. Biceps/triceps/supinator/knee/ankle
- ii. Clonus (+/-)
- iii. Myotonia (+/-)
- iv. Pseudomyotonic reflex

**f. Superficial Reflexes**

- i. Plantar
- ii. Abdominal
- iii. Cremastic
- iv. Perianal reflex

**g. Whartenburg sign**

**h. Koffman sign**

**j. Release reflexes**

- i. palmo mental
- ii. Glabellar tap
- iii. Rooting reflex
- iv. Suckling reflex
- v. Grasping reflex

**k. Coordination – UL/LL**

**4. Sensory System Examination**

**a. Superficial sensations**

- i. First test pin prick sensation
- ii. Touch

**b. Deep sensations**

- i. Pain
- ii. Temperature – Cold (Tuning fork) and warm

**c. Combined**

- i. Vibration
  - Forehead/Mastoid/Sternum/Vertebral spine
  - Clavicle/Elbow/wrist
  - ASIS/PSIS/Tibial tuberosity/ankle

- ii Joint position
  - Great toe/index finger
- d. Cortical sensations
  - I all the peripheral sensations are intact, then, check for cortical sensations.
- e. Lhermittes phenomenon
- f. Rhombergs sign
- g. determine pattern of sensory loss
  - i. Symmetrical/asymmetrical
  - ii. Glove stocking/Patchy
  - iii. Root level

## 5. Cerebellum

- a. Nystagmus
  - i. Primary gaze
  - ii. evoked gaze
  - iii. Horizontal/vertical/torsional
  - iv. Fatiguable/not
- b. Intention tremor
- c. Rebound phenomenon (Holmes)
- d. Dysmetria
  - (these tests to be done with eyes open and then eyes Closed and initially slow & then rapid)
  - i. Finger nose test
  - ii. Finger nose finger
  - iii. Knee shin dragging test
    - First tap the knee with heel to r/o sensory loss
    - Then excursion along skin of the tibia  
(Cerebellar – broken movements)  
(Sensory – waving of heel here & there)
  - iv. Finger toe test
- e. Past pointing



f. Alternating movements

- i. Draw a circle in air with finger/toe
- ii. Alternatively pat the foot steadily on the ground
- iii. Pronation – supination (Disdiadochokinesia)
- iv. Alternating opening and fisting of both hands
- v. Screwing like movements
- vi. Door knob opening like movements
- vii. Opposition of thumb and fingers
- viii. Tap out simple rhythm with finger.

g. Speech

h. Hypotonia

j. Pendular knee jerk

k. Titubation

l. Gait and how the patient stands

m. Drift

- i. Cerebellar – Upward
- ii. Pyramidal – Down and pronated
- iii. Parietal lesion – Upward and wavy

6. Gait

7. EPS

- a. Rigidity
- b. Tremor
- c. Mask like face
- d. Gait
- e. Micrographia
- f. Hypophonia
- g. Hypomimia

8. ANS

- a. Postural hypotension
- b. Sweating

**SUMMARY** At the end of examination

**FOUR TIER DIAGNOSIS**

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