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On Palpation in Neurological Cases

Palpate the supraclavicular fossae and look for enlarged lymph nodes or cervical ribs.

Inpect the several individual muscles to see for muscle wasting, hypertrophy, or fasciculations and in cases f suspected myositis just palpate the affected site of the muscles to see if there is tenderness.

Tenderness is graded as:

1. *Severe:* If patient shows grimace on face with touch
2. *Moderate*: If patient shows grimace on face to HOLD
3. *Mild*: If patient shows grimace on face to PRESS.

Note: The examiner should never ask the patient about the experience of pain during checking of tenderness, but should identify by facial expressions of the patient.

ASSESSMENT OF EDEMA

Edema

Technique for evaluation of edema

1. Examiner impresses thumb into skin over bony surface:
   - Tibia
   - Fibula
   - Sacrum
2. Withdraw thumb
3. Measure depth of pit and record in millimeters check for the edema and report it as follows:
   - *Location of edema*: Precisely locate the anatomical position of the edema, e.g. *a localized edema on the dorsum of right forearm.*

Indurated edema

- *Indurated or non-indurated*: Indurated edema will be hard and firm and non movable, i.e. it will not be able to drain physically by maneuvers like effleurage
  - Non-indurated edema will be movable and could be drained by physical maneuvers like effleurage.
  - Indurated edema can be due to local trauma, inflammation or infection
  - It can be seen bilaterally in cases of heart diseases, renal dysfunction, abdominal mass, lung dysfunctions.
- *Pitting or non-pitting*: If there is a observable swelling over the body tissues due to fluid accumulation and when a pressure is applied over the area, if

- Observe and palpate the bulk of the masseter and temporalis muscles.
- Now ask the patient to open the mouth and you resist it.

Jaw Jerk

- Place your non-dominant index finger on the patient chin.
- Strike your finger over the patient chin by a tendon hammer.
- The response is slight protrusion of the jaw.

Corneal Reflex

- Ask the patient to sit with open eyes and look straight.
- Lightly touch the cornea with a sterile cotton wool.
- The response will be shutting of the patient's eyelids.

Trigeminal neuralgia is also known as Prosopalgia characterized by episodes of intense pain in the face

FACIAL NERVE

The facial nerve is the 7th cranial nerve and supplies motor branches to the muscles of facial expression.

It also supplies anterior two-thirds of the tongue by its cauda tympanic branch which is sensory.

This nerve is tested by asking the patient to perform certain expressions on the face as follows:

- Make crease on the forehead.
- Close the eyes tightly.
- Puff out the cheeks.
- Smile by showing the teeth.

In UMN lesion of the facial nerve, there will be contralateral lower quadrant of the face affected and is termed as facial palsy.

In LMN lesion, there will be complete half of the face affected on the same side and is known as Bell's palsy.

VESTIBULOCOCHLEAR NERVE

It is the eighth cranial nerve and provides innervations to the hearing apparatus of the ear and also transmits information about balance and equilibrium to brain.

The vestibular and cochlear parts of this nerve are tested separately.

Cochlear part is involed in hearing, several tests are present to test this nerve.

Crude Tests of Hearing

Make the patient relax and rub your fingers next to either ear or wisper some words and ask the patient to repeat.

Pediatric Assessment

HISTORY FROM MOTHER

Take the prenatal, natal and post natal hisotry from the mother and identify any causes.

Prenatal	• TORCH infections [toxoplasmosis, rubella, cytomegalovirus, herpes simplex virus • Smoking/alcoholism • Diabetes/hypertension • Fall • Consanginous marriages • Rh incompatibily • Drug addicted mother
Perinatal	• Forceps delivery • Breech presentation • Premature delivery • Entangling of placenta around the neck
Postnatal	• Jaundice • Fall from height • Neonatal infections, e.g. meningitis

Take the Apgar score history from the case file.

APGAR SCORING

It is a quantitative method for assessing infants respiratory, circulatory, and neurological status immediately after the birth.

- *Timing:* 1 min, 5 min, 10–20 min after the birth.

Score	*Effect*
8–10	Normal
5–7	Moderate asphyxia
Less than 4	Severe distress

S. no.	*Factor*	*Score=0*	*Score=1*	*Score = 2*
1.	Heart rate	Absent	Less than 100 beats/min	More than 100 beats/min
2.	Respiratory effort	Absent	Slow, irregular cry	Good cry
3.	Muscle tone	Limp	Some flexion in extremities	Active good flexor tone
4.	Response to catheter	No response	Grimace	Cough/sneeze
5.	Colour of baby	Blue/Raif	Body pink and extremities blue	Completely pink

- As in newborn, extremities are always blue immediately after birth, ideal score is never 10 at 1 min but 9.

Check for the associated symptoms:

- Mental retardation
- Convulsions
- Visual deficits
- Hearing defects
- Perceptual problems
- Learning disabilities
- Feeding problem
- Emotional and behavioural problems
- Speech and language disorders

ON OBSERVATION

Observe for any dysmorphic features of the child:

- Low set eyes and ears
- Frontal bossing
- Delayed closure of anterior fontanelle
- Cleft lip/cleft palate
- Excessive drooling of saliva
- Irregular dentition

Other factors to be assessed:

S. no.	*Effect*	*Value*
1	Height of the baby	50 cm
2.	Head circumference	34–35 cm
3.	Chest circumference	Usually 3–4 cm less than head circumference
4.	Respiratory status	30–40 min
5.	Heart rate	120–140 beats/min
6.	Birth weight	2.5–3.5 kg

S. No.	Reflex	Age of normal presence	Stimulus	Response
4.	Positive supporting reactions	Birth–6 months	Patient upright standing firm contact on ball of foot to floor	Rigid extension of lower limbs resulting from co-contraction of flexors and extensors

Midbrain Reactions

S. No.	Reflex	Age of normal presence	Stimulus	Response
1.	Neck righting reflex	Birth–3 months	In supine position, turn the baby's head to one side and hold it in that position	Body rotates on the same side as a whole (log rolling)
2.	Labyrinthine righting	2 months–lifelong	Baby is blind folded, suspended in space by holding at pelvis. The baby is tipped sideways so that head is laterally flexed	Head brought into horizontal position
3.	Body righting on head	6 months–5 years	Baby is blind folded and first placed in supine then in prone	The head is brought back to vertical position
4.	Body on body righting	6 months–4–5 years	Baby in supine, passively turn the head to one side	Segmental rolling on turned side
5.	Parachute reaction	6 months–lifelong	Baby is held in prone suspension at pelvis, push baby to the side with sufficient surprise and force that he/she believes his head will contact the supporting surface	Extension of all the four limbs

CORTICAL REACTIONS

Equilibrium is tested on equilibrium board in all the functional positions or by pushing the baby from static posture.

S. no.	Equilibrium	Age attained
1.	Prone	6 months
2.	Supine	8 months
3.	Quadriped	8–10 months
4.	Sitting	8–10 months
5.	Kneeling	15 months
6.	Standing	15–18 months

DEVELOPMENT OF MILESTONES

Try to record the age at which a milestone is obtained from the mother or the caretaker. Milestone development is very important tool for identifying the risk babies from full term babies.

Development is a concept which implies both growth and maturation.

Definition: Growth is not just an increase in size but the development increasingly more complex interconnections within the brain.

Principles of Normal Development

1. Development is a continuous process, rate of development in each field is different though sequence is same.
2. Development is related to maturation of nervous system which is cephalocaudal in direction and proximal to distal.
3. General mass activity is replaced by specific individual response.
4. Primitive reflexes should be lost before the corresponding voluntary control is achieved.
5. At first, brainstem, thalamus and basal ganglia are dominent in development. The rapid growth of cerebral cortex and cerebellum taking place later.
6. The blood supply during development from subependymal plate to the cerebral cortex. During 3rd trimester, circulation shifts from central to cortical and white matter orientation.
7. Early development is directed towards decrease of flexor tone.

Note: In full term newborn baby, there is pre-dominance of extensor tone in neck and flexor tone in limbs.