

SENSORY DISTURBANCES

Herpes Zoster (Shingles) :

- This disease results from reactivation of the varicella virus which has lain dormant in posterior root ganglia following chicken-pox infection earlier in life.
- **The first symptom** is severe continuous pain in the dermatomal distribution of the affected nerve root.
- After 3-4 days, the skin becomes red and vesicles appear in the affected area.
- These vesicles dry up in 5-6 days, and the pain subsides (ينخفض).
- Sometimes small scars and anesthesia remains in the affected segment.



Syringomyelia:

- This disease is due to presence of one or more cysts (fluid-filled cavities, called syrinx) near the central canal of the spinal cord.
- The expanding cysts damage the second-order spinothalamic fibers , which cross directly in front of the central canal ; at first affecting temperature fibers (why?)
- Because ; they are the first fibers to be cross in front of the central canal , then the pain fibers are the next to be affected .

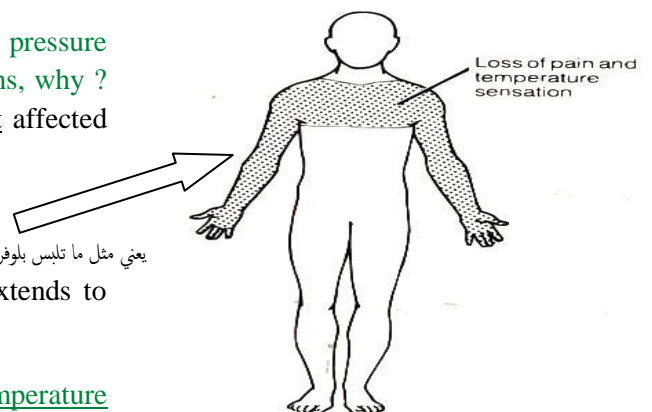
- ❖ However, the patient retains (يحفظ ب) touch and pressure sense as well as vibration and position sensations, why ?
Because ; the dorsal column sensation are not affected being far away from widening of central canal.

- So we will have (A jacket distribution)

يعني مثل ما تلبس بلوفر قصير !!!

- The loss of pain and temperature sensations extends to several segmental levels .

Therefore, we get Segmental Loss of pain and temperature sensations.



- This selective (انتقائي) loss of pain and temperature while sparing **touch** and **proprioception** is called Dissociated Sensory Loss (or Dissociated Anesthesia)

• Tabes Dorsalis:

- It occurs in late stage of neurosyphilis as a result of inflammation of dorsal nerve roots (commonly bilateral at lower thoracic & lumbosacral regions)

☒ Manifestations:

- Degeneration of gracile & cuneate tracts causes loss of:
 - Fine tactile sensation & vibration sense.
 - Position sense leading to sensory ataxia (incoordination of voluntary movements), confirmed by testing for positive Romberg' sign in which patient will be unable to stand steadily when closing his eyes + stamping(ختم) gait.
- Loss of pain & temp. sensation.
- Loss of tendon reflex.



✚ Hemisection of Spinal Cord (Brown Sequard Syndrome):

- This is unilateral transverse lesion in SC that interrupts the continuity of both ascending & descending tracts at only one half

E.g. due to tumor or trauma.

☒ Manifestations:

✓ Above the level of lesion

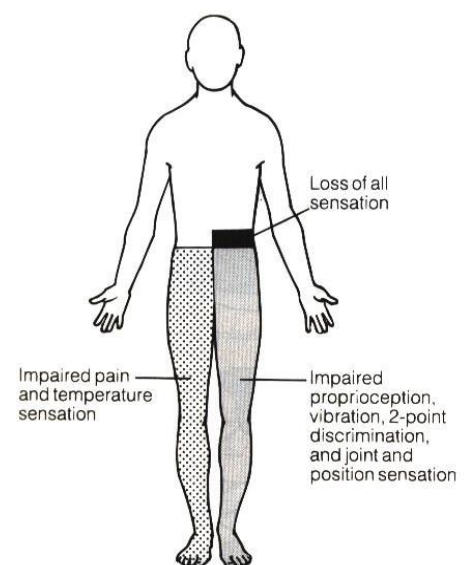
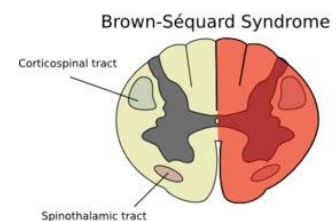
- Cutaneous hyperesthesia, i.e. increased sensibility to pain, touch & temp. Occurs in ipsilateral (same) dermatome.

✓ At the level of lesion

- Loss of all sensations in the area which is innervated by afferent nerves that enter the damaged segments.
- Paralysis of the muscles that are supplied by efferent nerves which arise from the damaged segments (LMNL).
- Loss of all reflexes mediated by the damaged segments.

✓ Below the level of lesion

- On the same side
- Paralysis of voluntary muscles (UMNL).
- Dorsal column sensations are lost .
- Crude touch is diminished (but not lost) on both sides.
- Preservation of pain and temp. .
 - On the opposite side
- Loss of pain & temp. sensation due to cutting of lateral spinothalamic tract coming from intact side.



+ Polyneuritis (peripheral neuritis) :

- It is also called (poly or peripheral neuropathy).
- It is characterized by widespread bilateral & symmetrical degeneration of peripheral sensory & motor nerves in the limbs.
- Some cranial nerves may be affected.

❖ Causes of polyneuritis:

- Vitamin B deficiency particularly (vitamin B1).
- **Metabolic causes** e.g. diabetes mellitus.
- **Toxic causes:**
 - * Endogenous e.g. uremia
 - * Exogenous e.g. lead poisoning
- Nerve infection by viruses or bacteria.
- **Endocrine causes** e.g. hyperthyroidism
- **Vascular causes** e.g. atherosclerosis.
- Certain allergic conditions



☒ Manifestations of polyneuritis:

✓ Sensory disturbances:

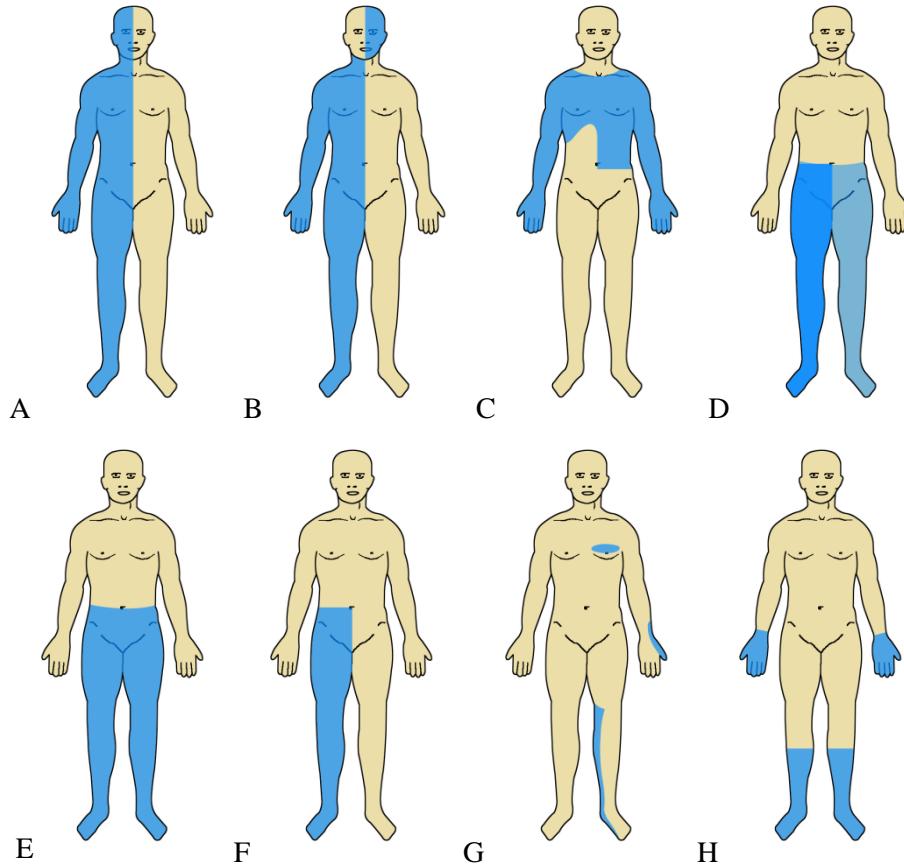
- At first, there is paraesthesia (sensation of pin-pricking, burning, numbness) in the fingers and toes that spread proximally.
- Later, hypoaesthesia (followed gradually by anesthesia) occurs in peripheral parts of the limbs, taking a glove & stocking distribution.

✓ Motor disturbances:

- Bilateral lower motor neuron lesion, mostly peripheral in the lower limbs.
- Loss of superficial & deep reflexes.

✓ Vasomotor (autonomic) disturbances:

- The affected parts are cold & cyanotic .
- Trophic ulcers may occur.



✚ According to the picture above (from A –H) :

- A. **Thalamic lesion**: sensory loss throughout opposite side.
- B. **Brainstem lesion (rare)**: contralateral sensory loss below face and ipsilateral loss on face.
- C. **Central cord lesion**, e.g. syrinx: ‘suspended’ areas of loss, often asymmetrical and ‘dissociated’, i.e. pain and temperature loss but light touch remaining intact.
- D. **‘Hemisection’ of cord or unilateral cord lesion=Brown-Sequard syndrome**: contralateral spinothalamic (pain and temperature) loss with ipsilateral weakness and dorsal column loss below lesion, UMN, upper motor neuron.
- E. **Transverse cord lesion**: loss of all modalities below lesion.
- F. **Isolated dorsal column lesion**, e.g. demyelization: loss of proprioception, vibration and light touch.
- G. **Individual sensory root lesions**, e.g. C6 (cervical root compression), T5 (shingles), L4 (lumbar root compression).
- H. **Polyneuropathy**: distal sensory loss.

DONE BY :

PSL TEAM 428