Question 26

Which one of the following is the least consistent with trigeminal neuralgia?

A. Normal brain magnetic resonance imaging (MRI) scan
B. Absent corneal reflex
C. Onset of facial pain after the age of 60 years
D. Spontaneous remission of facial pain
E. Response to carbamazepine

Answer:

Refer to 2005 P1Q26 (I Lynn’s) answer for detailed description of trigeminal neuralgia

Quick Summary: Trigeminal Neuralgia (Tic Douloureux)
- Commonest cause of facial pain: paroxysms, sharp and stabbing
- Usually affects V2, V3 (more than V1) and usually unilateral
- **OBJECTIVE SIGNS OF SENSORY LOSS CANNOT BE DEMONSTRATED** thus corneal reflex should be preserved (Sensory afferent via V1)
- Occurs spontaneously, secondary trigger zones or actions eg chewing/ talking
- Ectopic generation of action potentials in pain-sensitive afferents
- Usually secondary compression of trigeminal nerve root by superior cerebellar artery or tortuous vein -> demyelinated large fibres
- 60% cases in women; **middle-aged to elderly** population
- Lasts for weeks to months, may **remit spontaneously**, often recurs
- **Ix:**
  - MRI to exclude mass lesions or multiple sclerosis – often normal
  - ESR to exclude temporal arteritis
- **Carbamazepine effective in 50%-75%**; second-line agents include baclofen, phenytoin and other anti-convulsants
- Heat rhizotomy, glycerol injection and surgical decompression (suboccipital craniotomy) if drug treatment fails

Trigeminal nerve (CN V): mixed nerve
- Motor: muscles of mastication (temporalis, masseters, int. and ext. pterygoids)
- Sensory: V1, V2, V3 of the face
Note:
- Proprioception (mesencephalic) nucleus in the midbrain
- Motor nucleus and sensory nucleus (for touch) in the pons
- Pain/temperature nucleus in medulla extending into upper cervical cord

Due to this segregation in the brain stem, lesions of the medulla or upper cervical cord can lead to dissociative sensory loss of the face (loss of pain/temperature but retention of touch and proprioception)

**Course of CN V**
Leaves the pons at the cerebellar-pontine angle
Enters middle cranial fossa, over the temporal lobe
At the petrous temporal bone -> forms trigeminal ganglion (Gasserian ganglion)

Forms 3 sensory divisions:
V1 ophthalmic: runs in cavernous sinus with CN III -> exits via superior orbital fissure
  - Supplies skin of forehead, cornea and conjunctiva
V2 maxillary: exits via inferior orbital fissure
  - Supplies skin of middle of face, mucous membranes of upper part of mouth, palate and nasopharynx
V3 mandibular: runs with motor nerve -> exits via foramen ovale
  - Supplies skin of lower jaw and mucous membranes of lower part of mouth

Touch and proprioceptive fibres terminate in pons at the main sensory and mesencephalic nuclei respectively -> forms the dorsal and ventral mesencephalic tracts -> somatosensory cortex

Pain and temperature fibres from the face run from the pons through the medulla/upper cervical cord -> terminates at the spinal tract nucleus -> 2\textsuperscript{nd} order neurons arise from here -> ascend again as the ventral spinothalamic tract -> somatosensory cortex

**Trigeminal neuropathy**
- Mostly presenting as sensory loss of the face and jaw muscle weakness
- Deviation of jaw due to weakness of pterygoids -> deviates towards the weak side
- Isolated loss of sensation (no weakness) of the chin (mental neuropathy) can be the sole manifestation of malignancy
- Tonic spasm of the muscles of mastication (trismus) is a symptom of tetanus or drug effect (phenothiazine)

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<thead>
<tr>
<th>Lesions</th>
<th>Vascular eg stroke</th>
<th>Demyelination eg MS</th>
<th>Syringobulbia</th>
<th>Space occupying lesion eg glioma/lymphoma</th>
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<td>Brain stem (nuclear) lesions</td>
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<td>Middle cranial fossa</td>
<td>Space occupying lesion eg tumour/aneurysm</td>
<td>Chronic meningitis</td>
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<td>Space occupying lesion eg acoustic neuroma/meningioma</td>
<td>Fracture of middle fossa</td>
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<td>* Tumour of cerebellar pontine angle will affect CN V, VII, VIII</td>
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<td>Cavernous sinus lesion</td>
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