QUESTION 36 Facial weakness/Neuro

In a patient with unilateral facial weakness, which one of the following findings on physical examination most strongly suggests a peripheral cause for the facial weakness?
A. Frontalis weakness.
B. Associated lateral rectus weakness.
C. Loss of taste.
D. Facial numbness.
E. Nystagmus.

1 Facial nerve (mixed nerve)
   1. Fibers for motor output to facial muscles
   2. Parasympathetic fibers to lacrimal, submandibular and sublingual salivary glands
   3. Afferent fibers for taste from anterior 2/3 of tongue
   4. Somatic afferents from external auditory canal and pinna

Refer to diagram from neurology illustrated:

2 Route taken by Facial nerve:
   1. Motor nucleus lies in the lower pons medial to the descending nucleus and tract of the Vth cranial nerve. (Figure 1)
   2. Axons from the motor nucleus wind around the nucleus of the Vth cranial nerve. (Figure 1)
   3. Facial nerve and its visceral roots (nervus intermedius) exit from the lateral aspect of the brain stem and cross the cerebropontine angle immediately adj to the VIII cranial nerve. (Figure 4)
   4. Enter the internal auditory meatus and pass through the facial canal of the temporal bone. (Figure 2)
   5. Facial nerve gives off several branches before exiting from the skill through the stylomastoid foramen. (Figure 2)

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1 Up to date, Anatomy of facial nerve
2 Neurology and neurosurgery illustrated by Lindsay & Bone, Facial weakness
What can go wrong?

- Lesion interrupting nerve to stapedius - hyperacusis
- Interruption of facial nerve at stylomastoid foramen paralyzes all muscles of facial expression

**a. Frontalis weakness**
Muscles in the upper face receive control from both hemispheres (bilateral representation)
Lower motor neuron lesion paralyzes all facial muscles on that side
Upper motor neuron (supranuclear) lesion paralyzes only the muscles in the lower half of the face on the opposite side

**b. Lateral rectus weakness**
Intrapontine lesion that paralyze the face usually affect the abducens nucleus as well and often the corticospinal and sensory tracts

**c. Loss of taste**
Lesion in the middle ear portion - taste is lost over anterior 2/3 of tongue on the ipsilateral side

**d. Facial numbness**
Trigeminal (V) nerve supplies sensation to skin of the face and anterior half of the head. Motor part innervates the masseter and pterygoid masticatory muscles.

**e. Nystagmus**
Lesion in internal **auditory meatus** affect adjacent auditory and vestibular nerves causing deafness, tinnitus or dizziness

Answer is C as the lesion is most peripheral compared to the others.

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3 Harrison’s Principle of Internal Medicine Chapter XV Pg 2435 Facial weakness