CRANIAL NERVES: COMMON LESIONS ALONG THEIR PERIPHERAL PATHWAYS

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Overview of Presentation

I. Facial Traumas

A. Between the supraorbital rim and the commisure of the lips (Facial Area 2)
   1. Maxillofacial trauma:
      (1) Anosmia (Olfactory n., CN I)
      (2) Facial paresthesia (Trigeminal n., CN V)
   2. Orbital fractures:
      (1) Unilateral blindness (Optic n., CN II)
      (2) Oculomotor ophthalmoplegia (Oculomotor n., CN III)
      (3) Extortion with diplopia and weakness of downward gaze (Trochlear n., CN IV)
      (4) Strabismus with diplopia (Abducens n., CN VI)
   3. Laceration to parotid gland or birth trauma: Facial paralysis (Facial n., CN VII)
   4. Transverse temporal fractures: Bell's palsy, hyperacusis (CN VII) and vestibulocochlear system

B. Between the commissure of the lips to the hyoid (Facial Area 3)
   1. Mandibular fractures: Paresthesia of teeth, gingiva, lower lip and chin (mental n.); paresthesia of anterior two-thirds of tongue (lingual n.) (CN V3)

II. Neck Traumas

A. Between base of skull and mandibular angle (Neck Zone 3)
   1. Glossopharyngeal, vagus, and accessory nerve (CN IX, X & XI) lesions
      (1) Sternocleidomastoid and trapezius mm. paralysis/weakness
      (2) Loss of gag reflex
      (3) Uvula deviates to unaffected side
      (4) Cadaveric vocal cord
   2. Hypoglossal nerve (CN XII) lesion– tongue deviates to affected side; tongue mm. atrophy

B. Between mandibular angle and cricoid cartilage (Neck Zone 2)
   1. Accessory nerve (CN XI) lesion – trapezius m. paralysis/weakness

C. Between cricoid cartilage and sternal notch (Neck Zone 1)
   1. Recurrent laryngeal nerve lesion – midline vocal cord

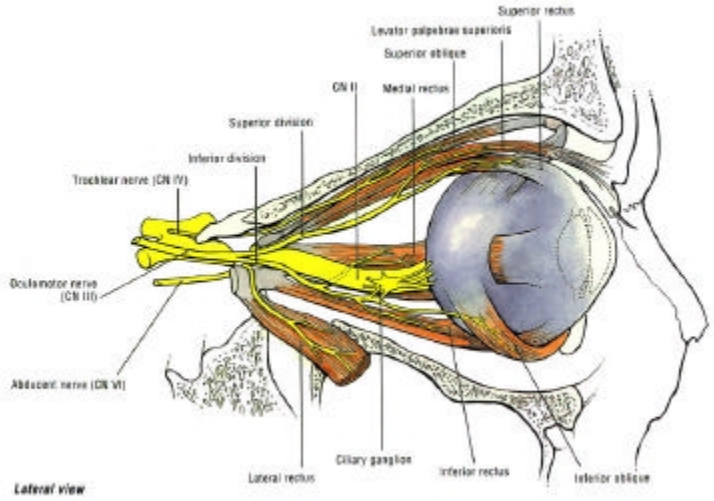
Selected References:

Berkovitz, B.K.B., and B.J. Moxham. 1988. *A Textbook of Head and Neck Anatomy*. Wolfe Publishing Ltd., Barcelona.

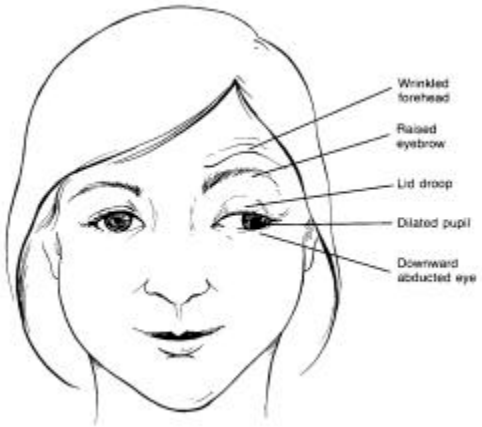
Heimer L. 1994. *The Human Brain and Spinal Cord – Functional Neuroanatomy and Dissection Guide.* Springer-Verlag, New York.

Wilson-Pauwels, L., E.J. Akesson, and P.A. Stewart. 1998. *Cranial Nerves – Anatomy and Clinical Comments.* B.C. Decker, Inc., Philadelphia.

ORBITAL CONTENTS

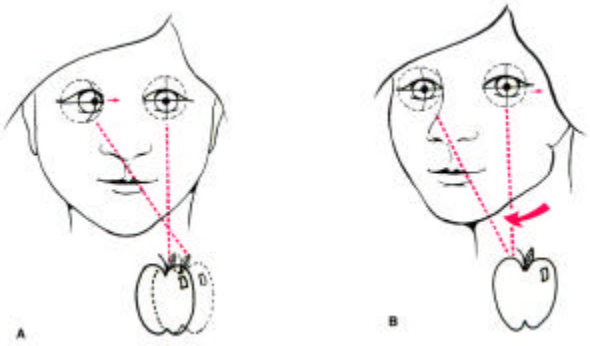


Oculomotor Ophthalmoplegia

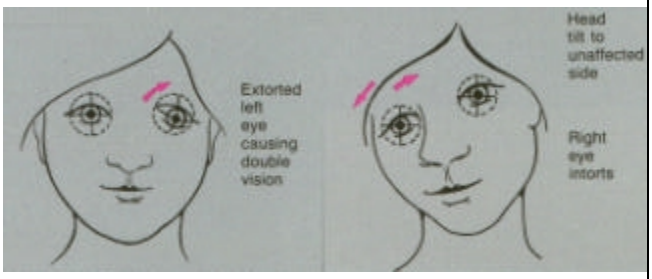


- Strabismus and diplopia
- Downward, adbucted eye
- Ptosis
- Mydriasis (dilation of pupil)
- Paralysis of accommodation

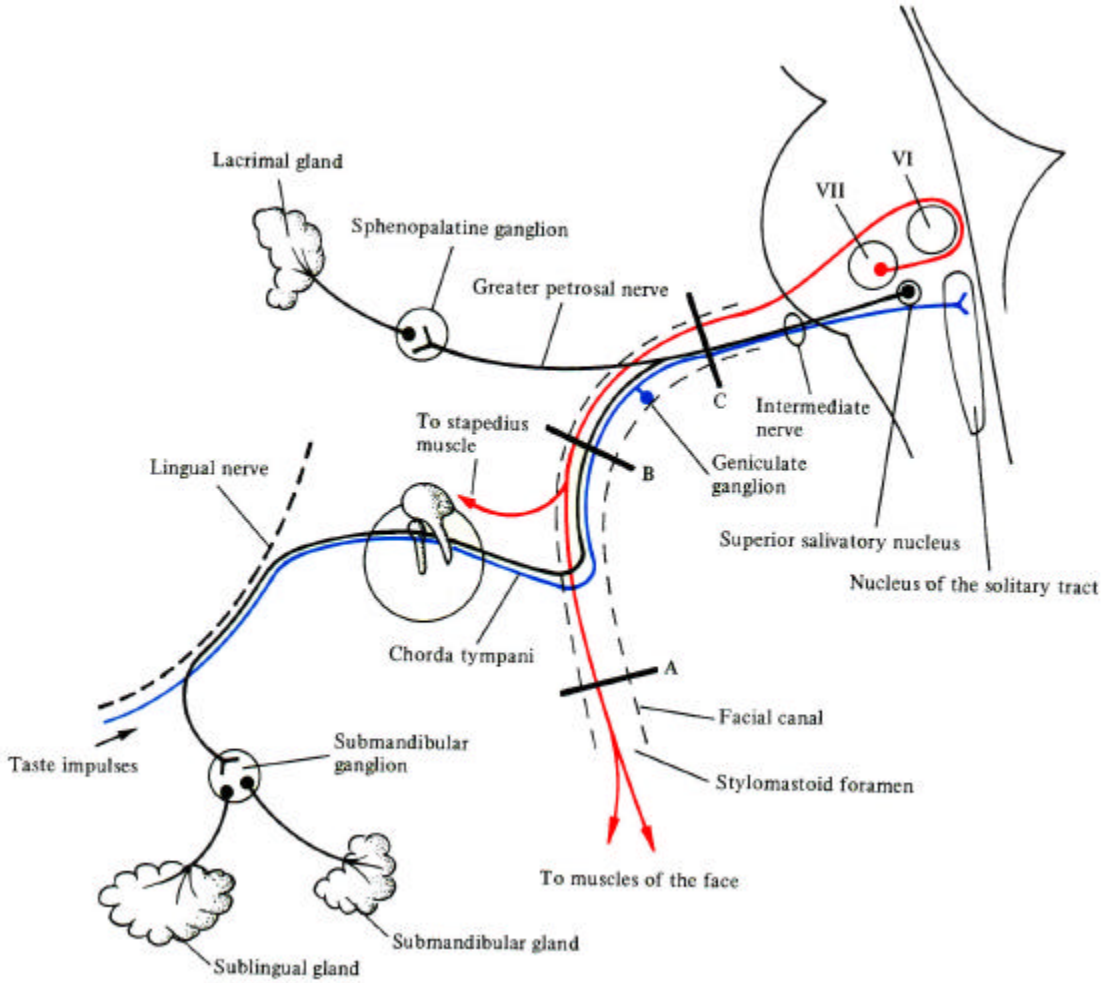
Lesion of Abducens Nerve

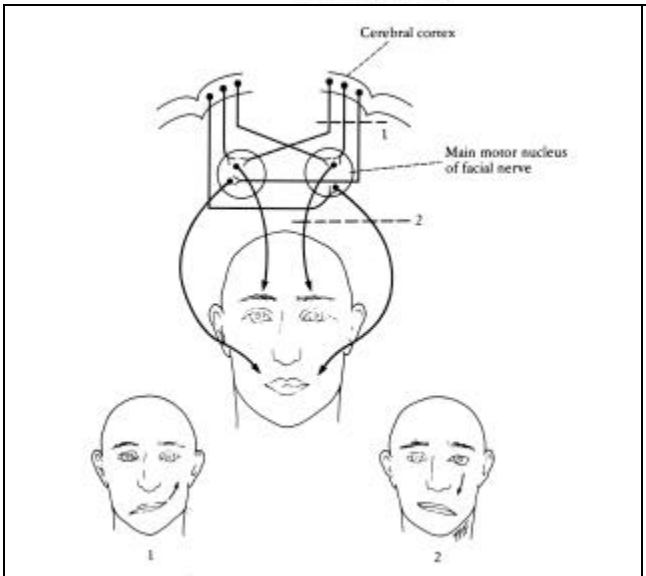


Lesion of Trochlear Nerve

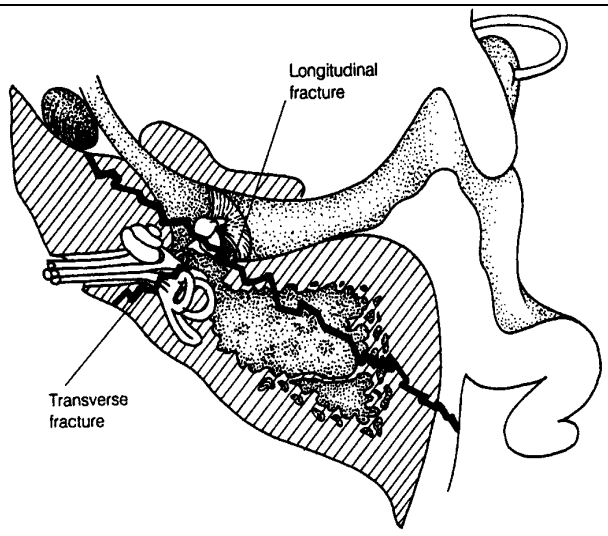


FACIAL NERVE (CN VII)





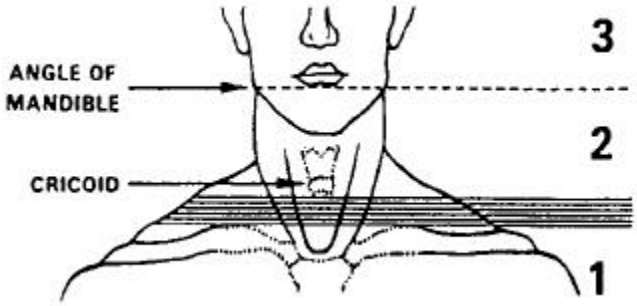
Facial expression defects: (1) upper motor vs. (2) lower motor lesions

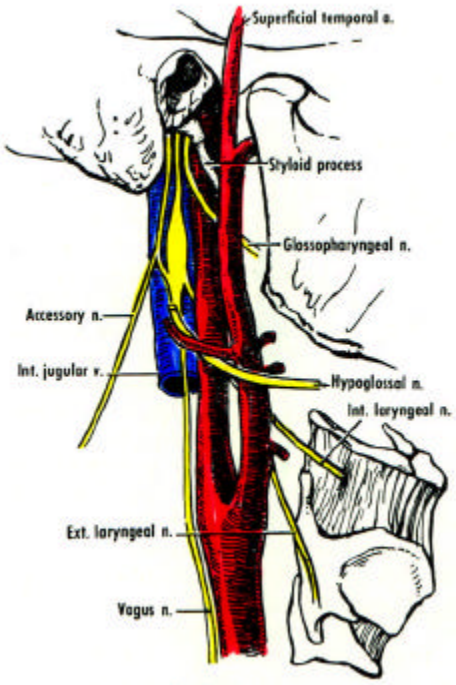


Temporal bone fractures: longitudinal versus transverse

Penetrating Trauma to the Neck

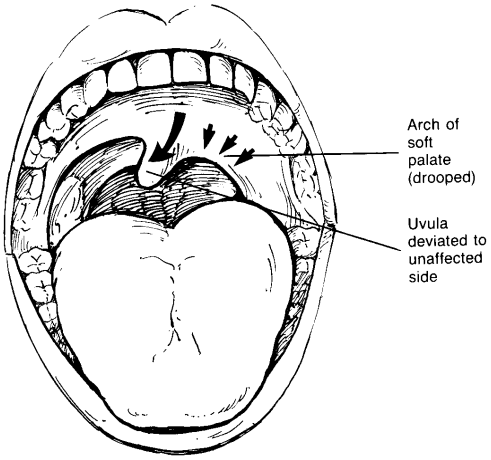
Zones of the Neck



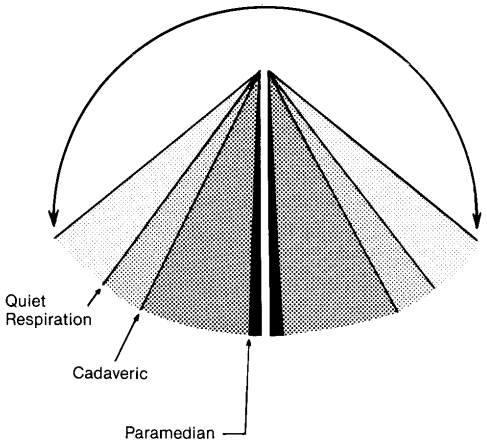


Vagus Nerve

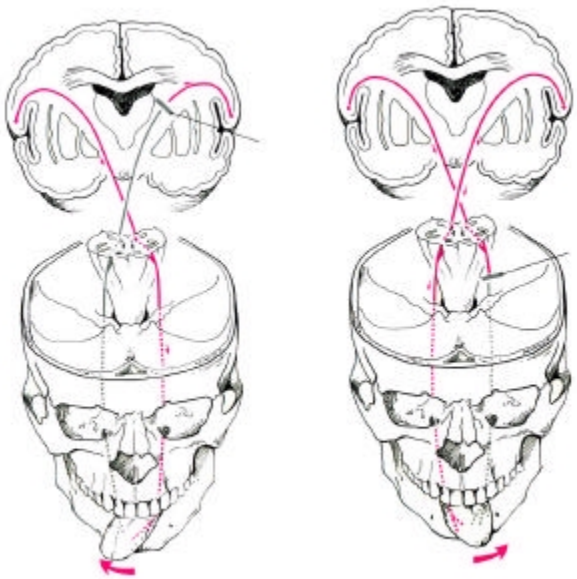
Uvular Deviation



Vocal Fold Orientation

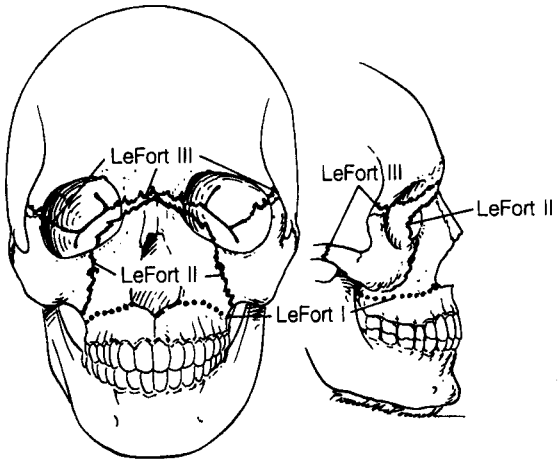


Hyploglossal Nerve



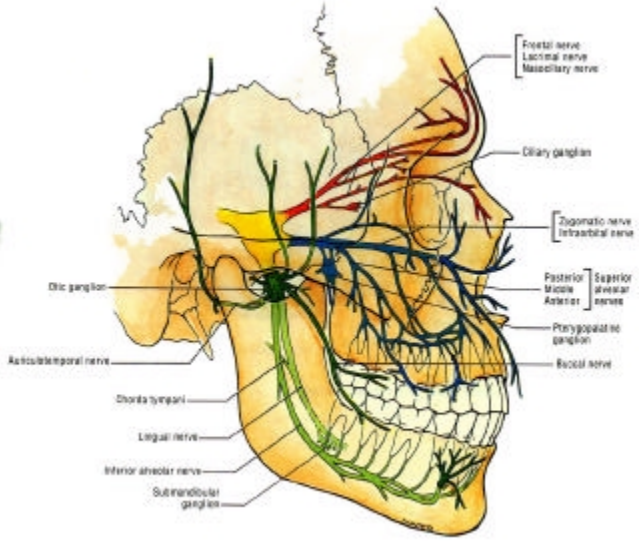
Upper Motor Neuron Lesion:	Lower Motor Neuron Lesion:
Tongue deviates to opposite side; Tongue muscles do not atrophy	Tongue deviates to same side; Tongue muscles atrophy on affected side

Maxillofacial trauma

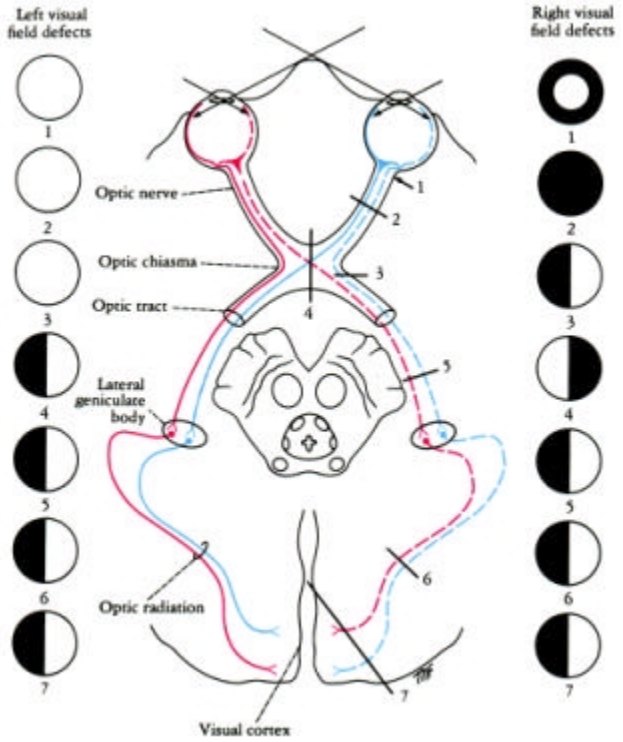


LeFort fractures

Trigeminal nerve (CN V)



Visual Field Defects Associated With Lesions Of The Optic Pathway



1. Right-sided circumferential blindness due to retrobulbar neuritis.
2. Total blindness of the right eye due to lesion of right optic nerve.
3. Right nasal hemianopia due to partial lesion of right optic chiasm.
4. Bitemporal hemianopia due to a complete lesion of the optic chiasm.
5. Left temporal and right nasal hemianopias due to a lesion of the right optic tract.
6. Left temporal and right nasal hemianopia due to a lesion of the right optic radiation.
7. Left temporal and right nasal hemianopia due to a lesion of the right visual cortex.