CN11-12 Disorders

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Damage Site | CN 11, 12 Findings | Other Findings
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Supranuclear CEREBRAL HEMISPHERE | Neck weakness, tongue deviation; head deviates away from hemiparesis ("toward lesion") | Contralateral hemiparesis, pseudobulbar palsy, personality changes, etc.
Supranuclear PONTINE | Dissociated weakness (contralateral sternocleidomastoid and ipsilateral trapezius); deviation of head & eyes toward hemiparesis ("away from lesion") | Contralateral hemiparesis; *before 2nd decussation of fibers for sternocleidomastoidus

Nuclear CN11
Bilateral lesions may result in diminished ability to rotate neck, inability to protrude tongue, slurred and indistinct speech, impaired swallowing, and possibly some respiratory difficulty.

Nuclear CN12
Medial medullary syndrome - ipsilateral tongue weakness, contralateral hemiparesis & contralateral tactile and proprioceptive loss (medial lemniscus)

Intracranial | Neck and tongue weakness | CN 9, 10 may be involved

Jugular foramen VERNET syndrome (ipsilateral lesion of CN 9-11)

Extracranial COLLET-SICARD syndrome (Vernet syndrome + ipsilateral lesion of CN12)

CN11 lesions

Paralysis of STERNOCLEIDOMASTOID muscle.
- UNILATERAL - no change in head position while in resting state.
- BILATERAL - diminished ability to rotate neck, neck falls backward. H: cervical orthotic device.

N.B. intact other cervical muscles (scaleni, splenii) prevent complete paralysis of neck even with bilateral CN11 lesions!

Paralysis of upper TRAPEZIUS muscle.
altered scapula position - winged scapula (upper scapula part falls laterally away from shoulder and vertebral column, and interior part is drawn inward).

Scapular winging | m. trapezius | m. serratus anterior
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rest | present | moderate
at rest | present | negligible
Neck comes worse on | shoulder abduction | shoulder flexion

- BILATERAL - neck falls forward.

CN12 lesions

UNILATERAL lesion
1) protruding tongue deviates toward lesion side (unopposed normal genioglossus muscle).
2) when tongue lies on mouth floor, it deviates slightly toward healthy side (unopposed normal styloglossus muscle).
3) ipsilateral tongue side atrophic and fasciculates (peripheral lesion)

Left CN12 lesion

BILATERAL lesions
1) unable to protrude tongue at all
2) lingual dysarthria (cannot pronounce “Yellow Lorry”)
3) swallowing and respiration may be impaired as tongue falls back into pharynx. H: swallowing therapy (oral exercises, methods of postural facilitation).

- moderate tongue weakness may accompany pseudobulbar palsy, but is never as severe as weakness with destruction of both nuclei.
- TONGUE APRAXIA may accompany motor aphasia (e.g. inability to protrude tongue on command, but presentation of associated movements in eating or licking lips).

BIBLIOGRAPHY for ch. “Cranial Neuropathies” → follow this LINK >>

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