Multiple Cranial Nerve Lesions

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Syndrome	Cranial nerves												Associated lesions
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
EXTRAPARENCHYMAL													
Foix (superior orbital fissure)			+	+	V_1	+							
Tolosa-Hunt (lateral wall of cavernous sinus)			+	+	V_1	+							
Jacod (retro-sphenoid space)		+	+	+	+	+							
Marcus Gunn			+		+								
Gradenigo (apex of petrous bone)					+	+	±	±					
internal auditory meatus							+	+					
pontocerebellar angle					+		+	+	±	±			ataxia
Vernet (jugular foramen)									+	+	+		
Collet-Sicard (retropharyngeal, posterior laterocondylar space)									+	+	+	+	
Villaret (posterior retroparotid space)									+	+	+	+	Horner's syndrome
Tapia										+		+	

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INTRAPARENCHYMAL													
Jackson										+	+	+	
Schmidt										+	+		
Weber (ventral midbrain syndrome)			+				+ [3]						*cerebral peduncle* (CHP)
Claude			+										*red nucleus* or *dentato-rubro-thalamic tract*
Benedikt			+										*red nucleus*, *cerebral peduncle* (CHP)
Nothnagel			+										ipsilateral cerebellar ataxia, dizziness, staggering and rolling gait, often nystagmus
central midbrain syndrome			+										*red nucleus*, *subst. nigra*, *medial lemniscus*
Foville						+							CHP
Millard-Gubler							+						CHP
medial medullary syndrome												+	CHP, *medial lemniscus*
medial pontine syndrome						+							CHP, *medial lemniscus*, *MLF* (internuclear ophthalmoplegia), *cerebellar connections*
Wallenberg (lateral medullary syndrome)					+ [2]		+ [1]		+	+			lateral medullopontine structures: *tr. spinothalamicus*, *tr. reticulospinalis* (sympathetic fibers), *vestibular connections*, *inf. cerebellar peduncle*
Marie-Foix (lateral inferior pontine syndrome)							+	+					
lateral superior pontine syndrome													
pseudobulbar paralysis								+	+	+		+	
bulbar paralysis									+	+		+	

CHP - contralateral hemiplegia [1]only nucl. tractus solitarii (taste) [2]nucl. sensorii of CN5 [3]supranuclear CN7 palsy

INTRAPARENCHYMAL lesions - ***crossed*** sensory or motor paralysis (cranial nerve signs on one side of body and tract signs on opposite side).

Lesions on **BRAINSTEM SURFACE**:

- involvement of ***adjacent*** cranial nerves (often occurring in succession);
- late and rather slight involvement of ***long pathways*** (sensory and motor) and segmental structures lying within brainstem.

EXTRA-AXIAL lesions - likely to cause ***bone erosion*** (e.g. enlargement of foramens of exit of cranial nerves); causes of multiple extra-axial cranial nerves involvement:

1) diabetes
2) trauma
3) tumors
4) localized infections (e.g. herpes zoster)
5) granulomatous disease (e.g. Wegener's granulomatosis), Behçet's disease, sarcoidosis, chronic glandular tuberculosis (scrofula)
6) enlarging saccular aneurysms
7) basilar invagination, platybasia, Chiari malformation.

IDIOPATHIC MULTIPLE CRANIAL NERVE INVOLVEMENT

- on one or both sides of face.
- subacute onset of boring facial ***pain*** → ***paralysis*** of motor cranial nerves.
- clinical features overlap those of *Tolosa-Hunt syndrome*.
- frequently responsive to **steroids**.

Vascular compression syndromes:

1) trigeminal neuralgia
2) hemifacial spasm
3) CN9 neuralgia
4) torticollis

Cranial nerve	Syndrome	Typical offending vessel
V	trigeminal neuralgia	superior cerebellar artery (SCA)
VII (facial nerve proper)	hemifacial spasm (p. 1651)	anterior inferior cerebellar artery (AICA)
VII (nervus intermedius)	geniculate neuralgia (p. 1653)	
VIII	disabling positional vertigo (p. 1654)	
IX	glossopharyngeal neuralgia (p. 1654)	posterior inferior cerebellar artery (PICA)
X	superior laryngeal neuralgia (p. 1654)	PICA or VA
XI	torticollis of XI nerve origin (p. 1630)	VA or (rarely) PICA

BIBLIOGRAPHY for ch. "Cranial Neuropathies" → follow this LINK >>