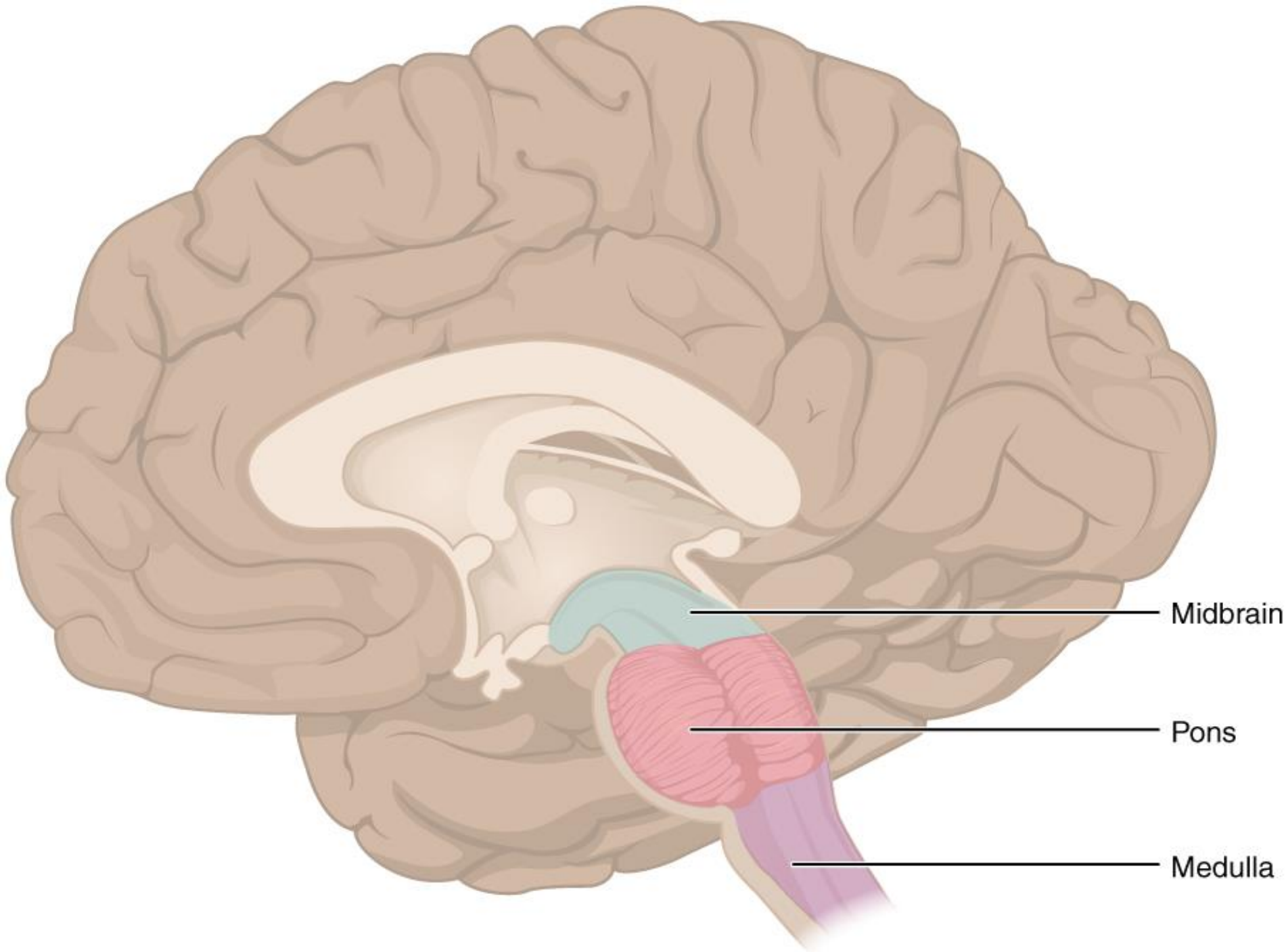


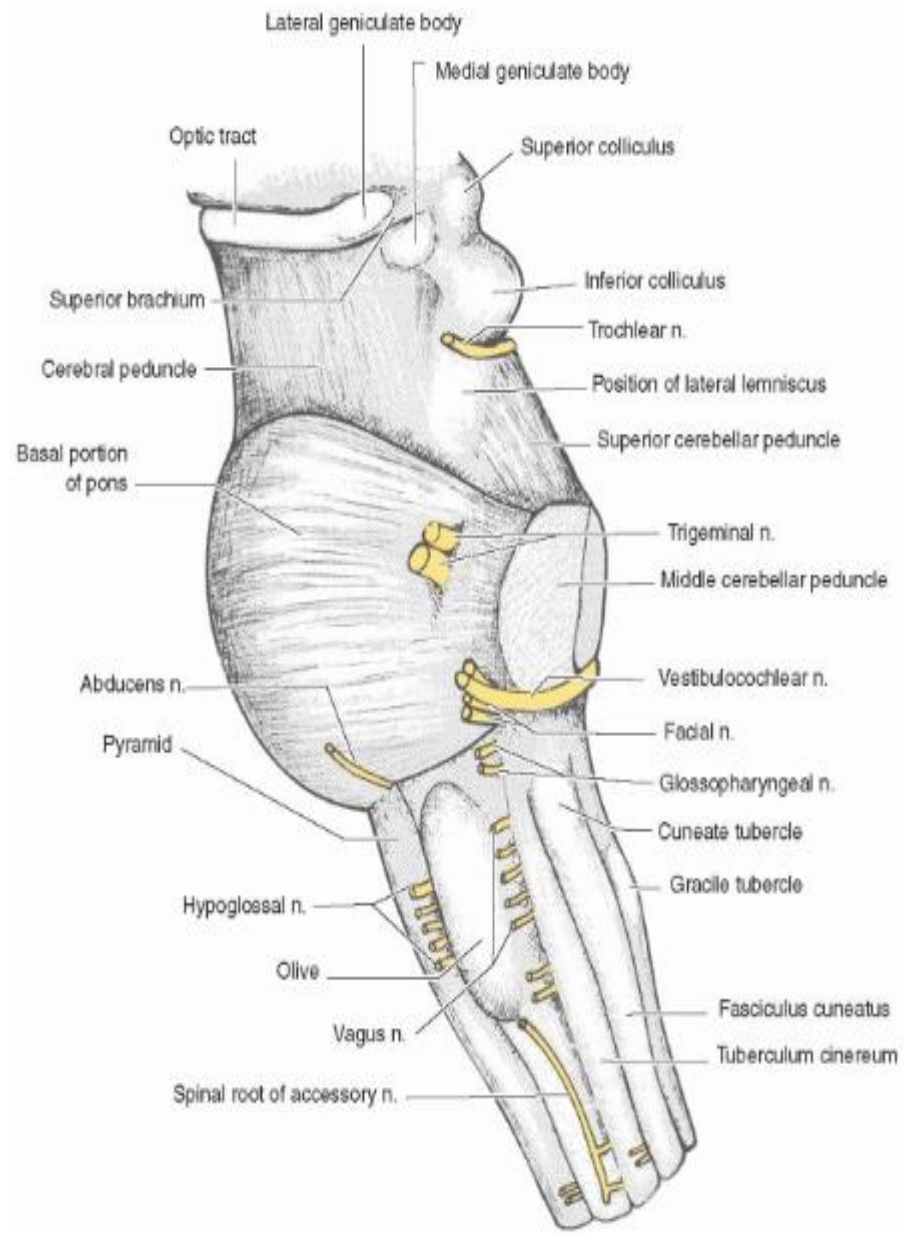
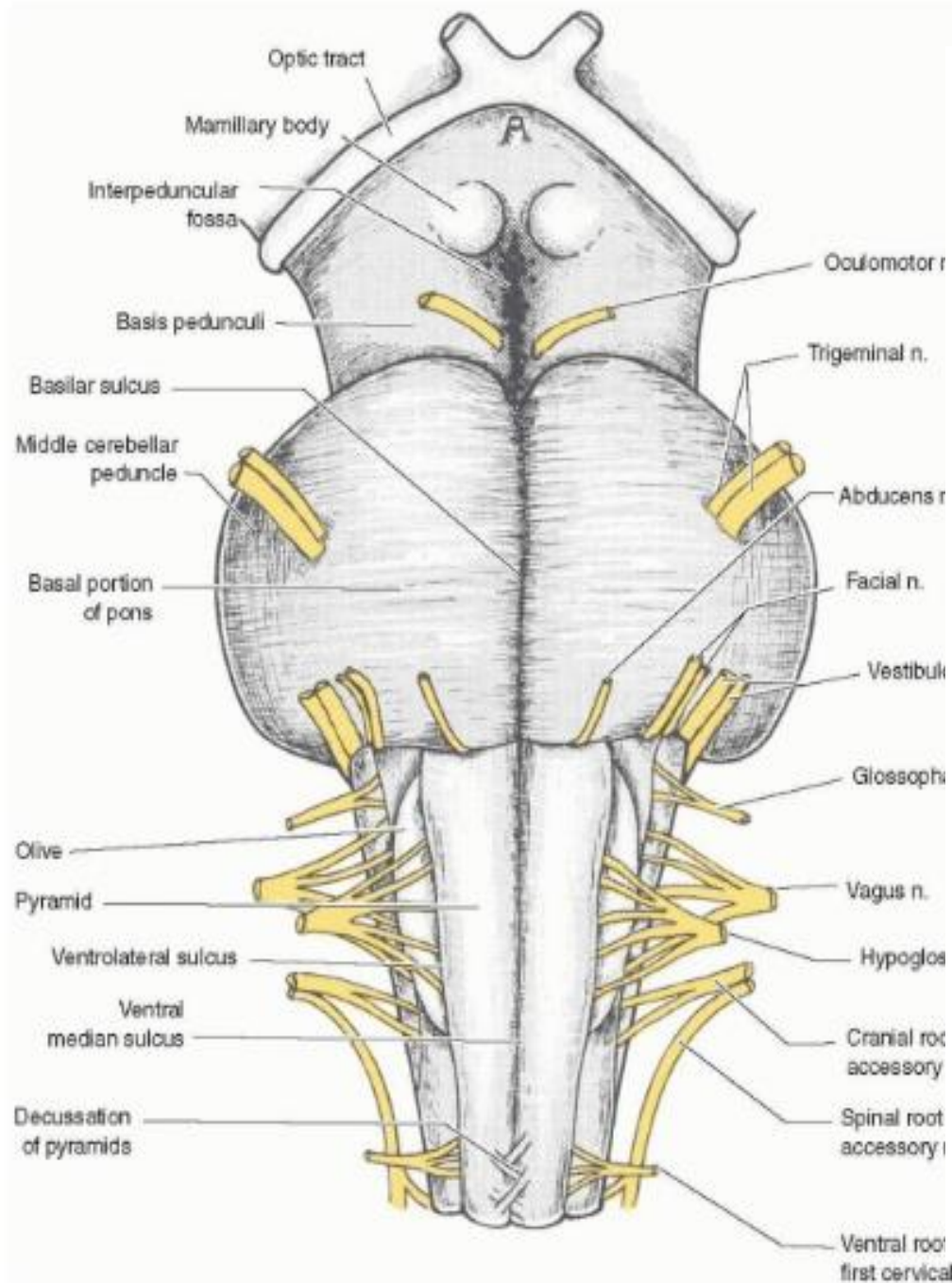
An anatomical illustration of the brain stem and surrounding structures. The illustration shows a cross-section of the brain stem, including the midbrain, pons, and medulla oblongata. The pons is a prominent bulge in the anterior part of the medulla. The medulla transitions into the spinal cord, which is shown with its characteristic segmented appearance. The brain stem is surrounded by meninges and other structures. The illustration is rendered in a detailed, artistic style with a color palette of browns, tans, and greys.

Brain Stem

Presentation by:

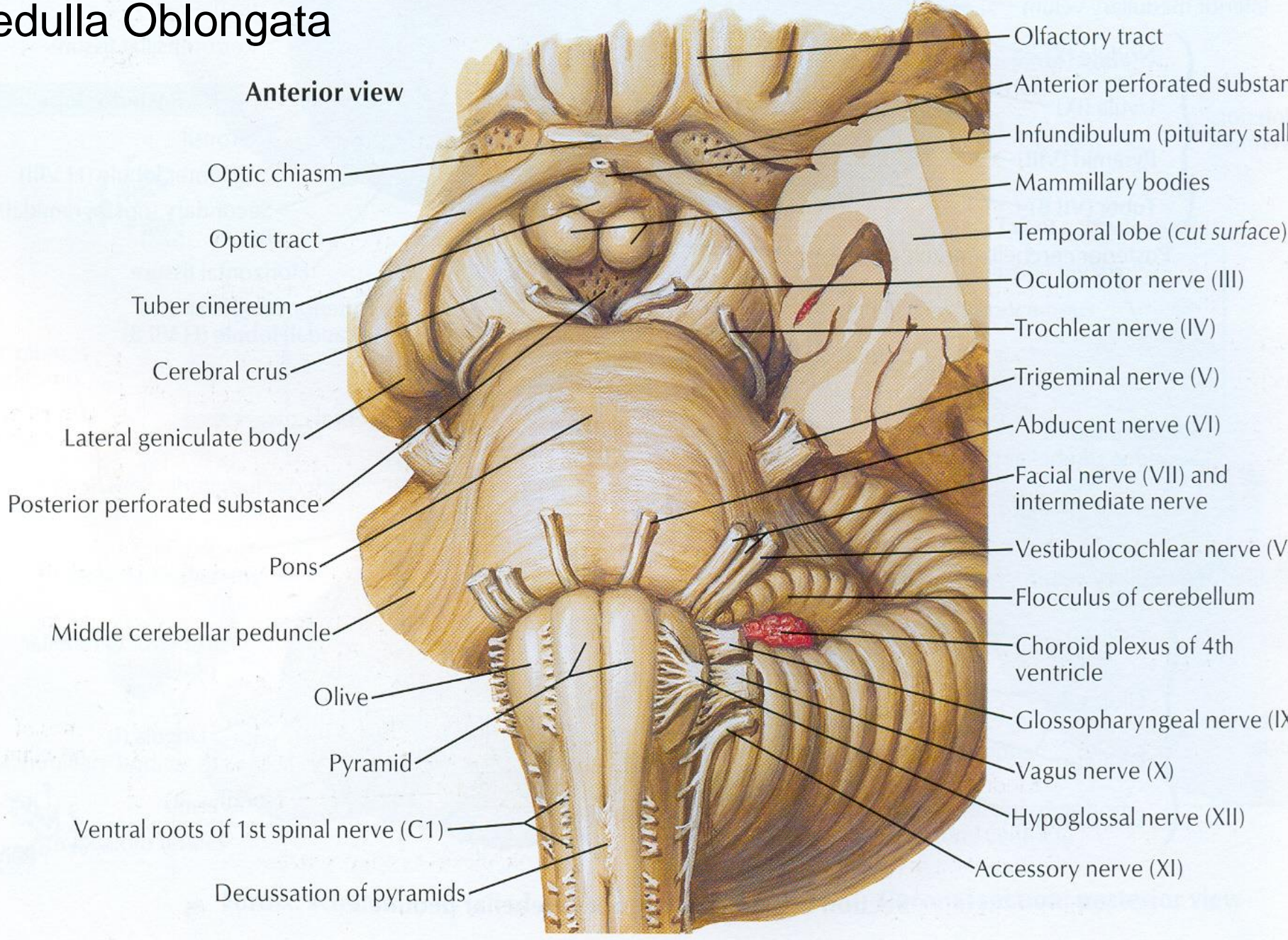
Abbas Aliaghaei, Ph.D. of Neuroscience, Anatomy And Cell Biology Department, School of Medicine,
Shahid Beheshti University Of Medical Sciences





Medulla Oblongata

Anterior view



Optic chiasm

Optic tract

Tuber cinereum

Cerebral crus

Lateral geniculate body

Posterior perforated substance

Pons

Middle cerebellar peduncle

Olive

Pyramid

Ventral roots of 1st spinal nerve (C1)

Decussation of pyramids

Olfactory tract

Anterior perforated substance

Infundibulum (pituitary stalk)

Mammillary bodies

Temporal lobe (*cut surface*)

Oculomotor nerve (III)

Trochlear nerve (IV)

Trigeminal nerve (V)

Abducent nerve (VI)

Facial nerve (VII) and intermediate nerve

Vestibulocochlear nerve (VIII)

Flocculus of cerebellum

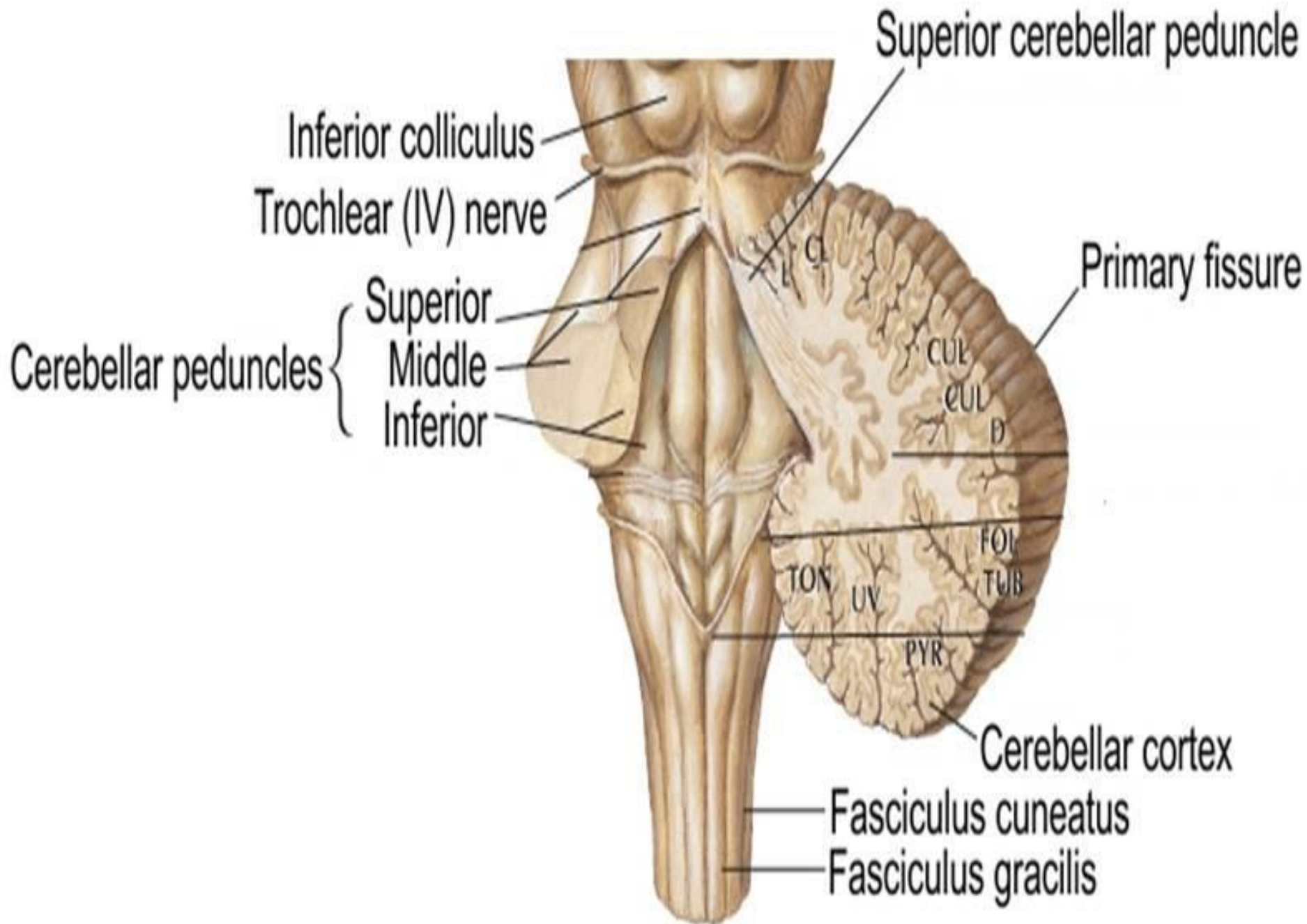
Choroid plexus of 4th ventricle

Glossopharyngeal nerve (IX)

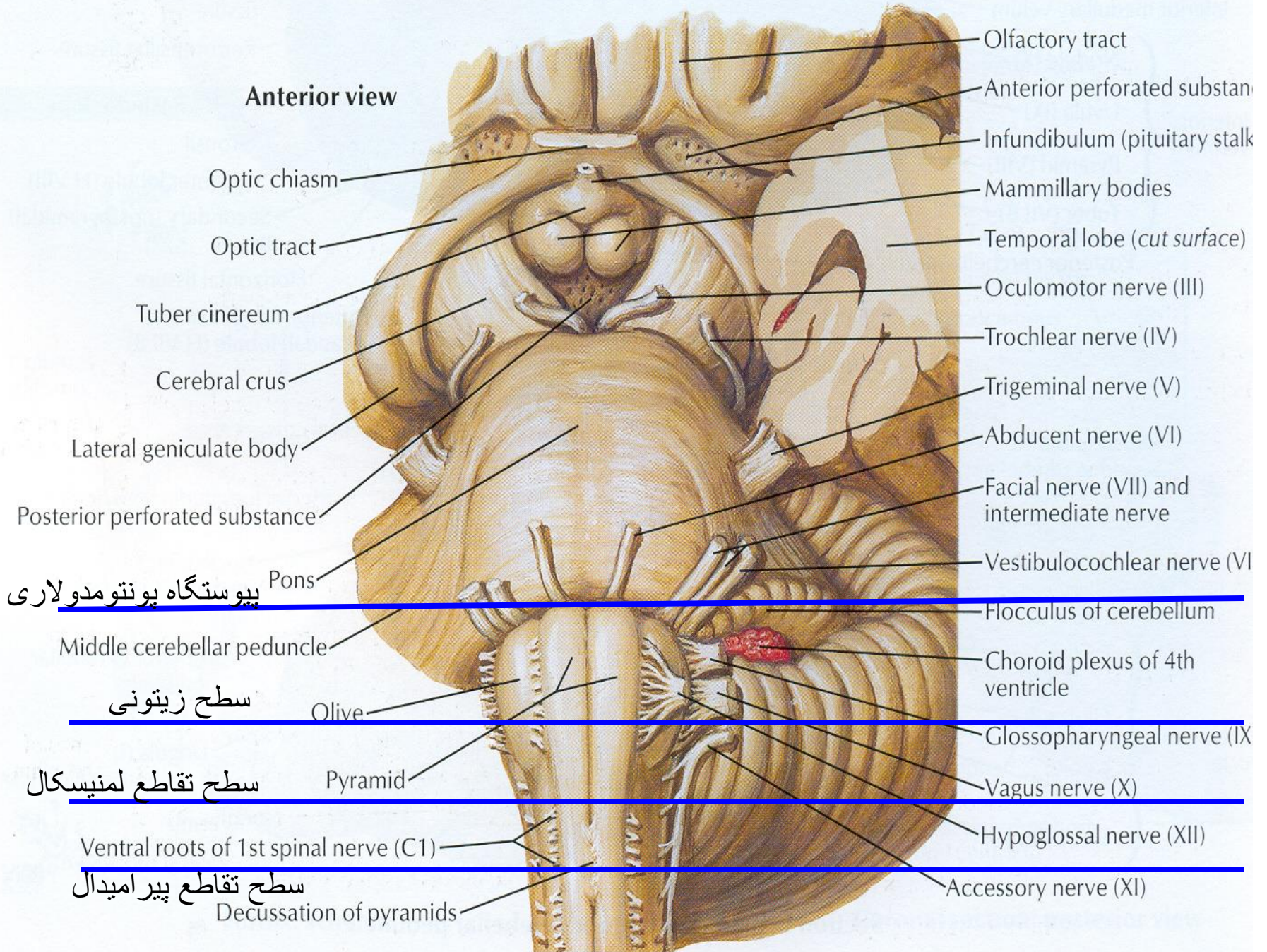
Vagus nerve (X)

Hypoglossal nerve (XII)

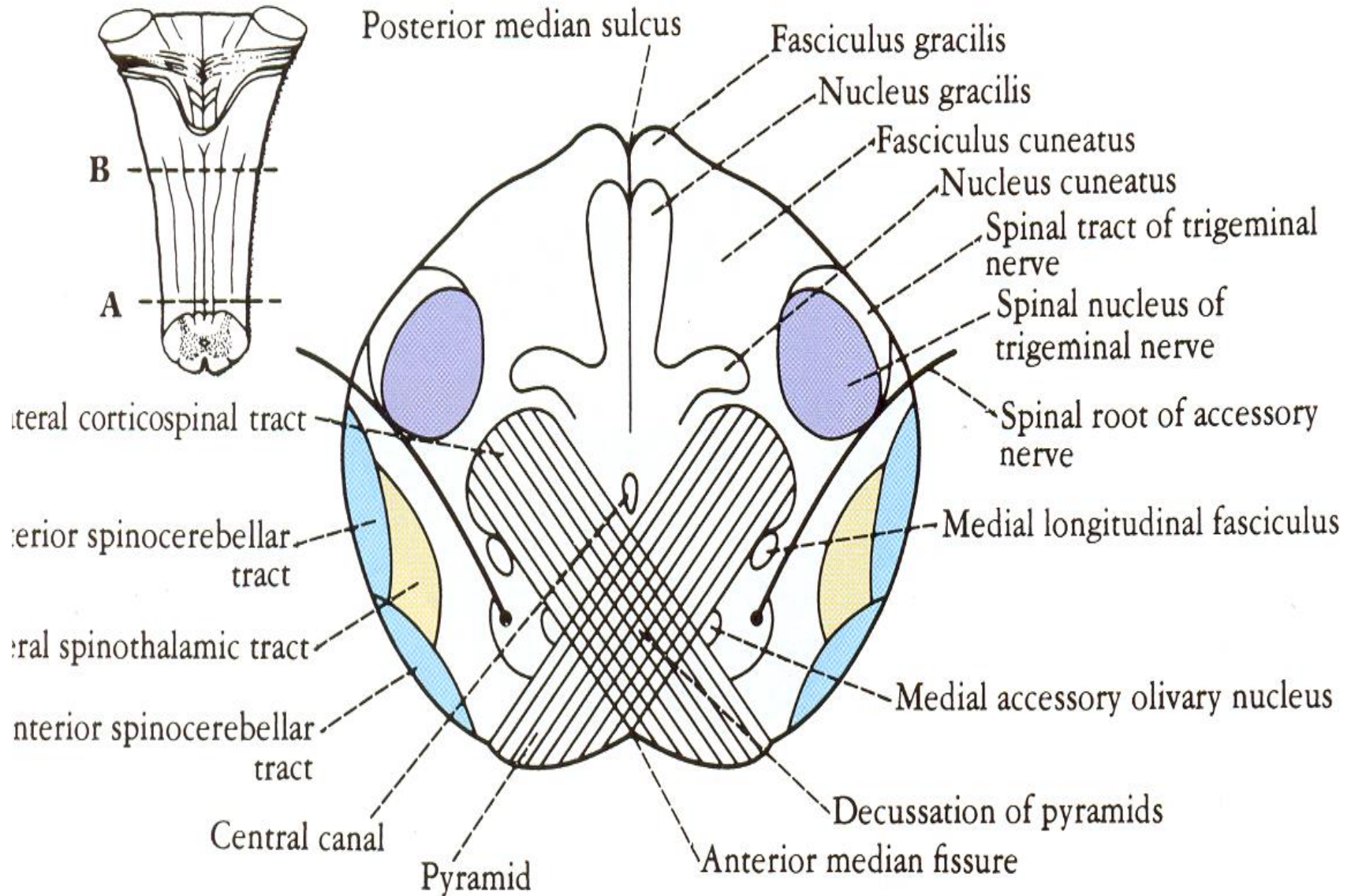
Accessory nerve (XI)

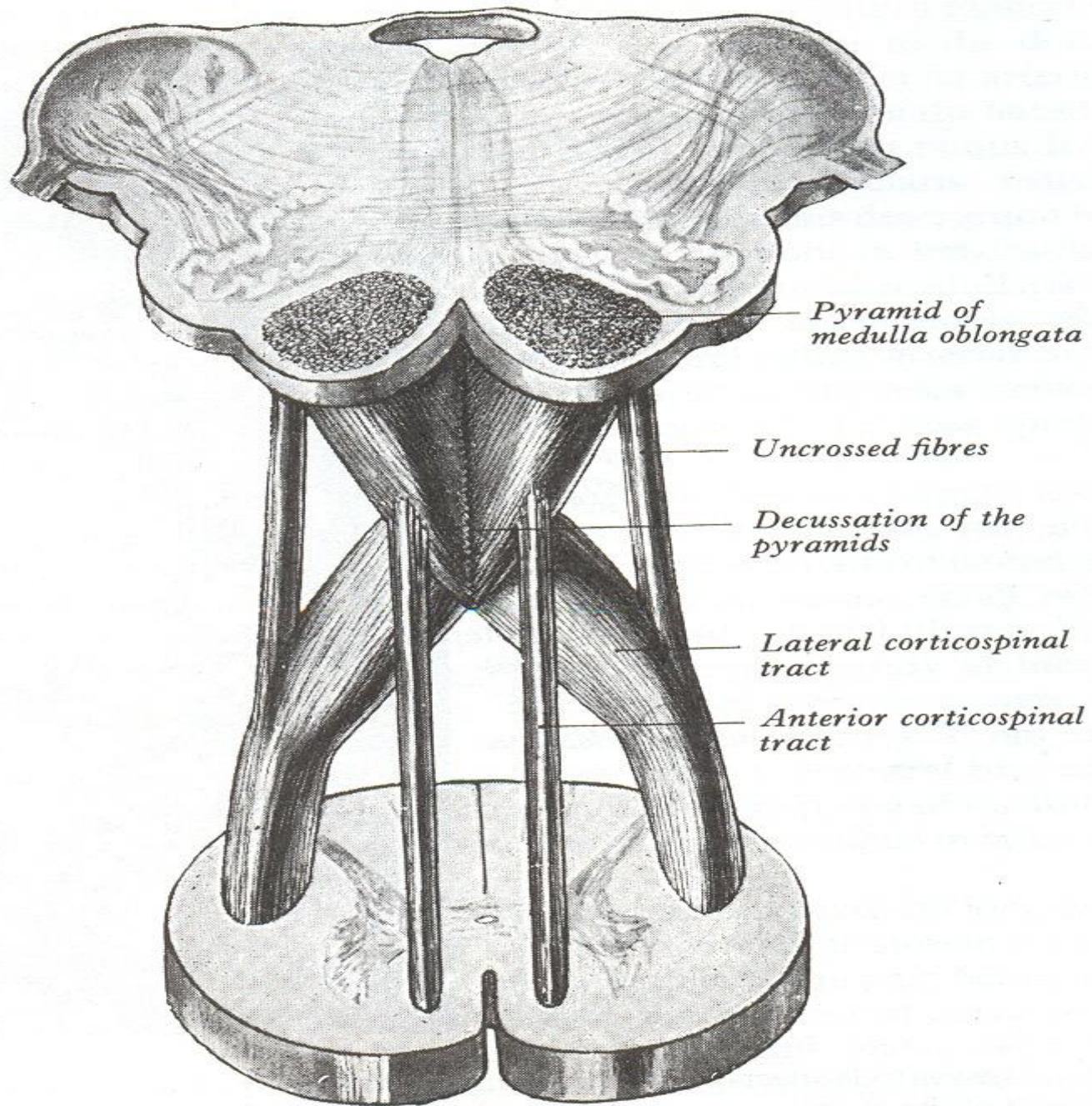


Anterior view

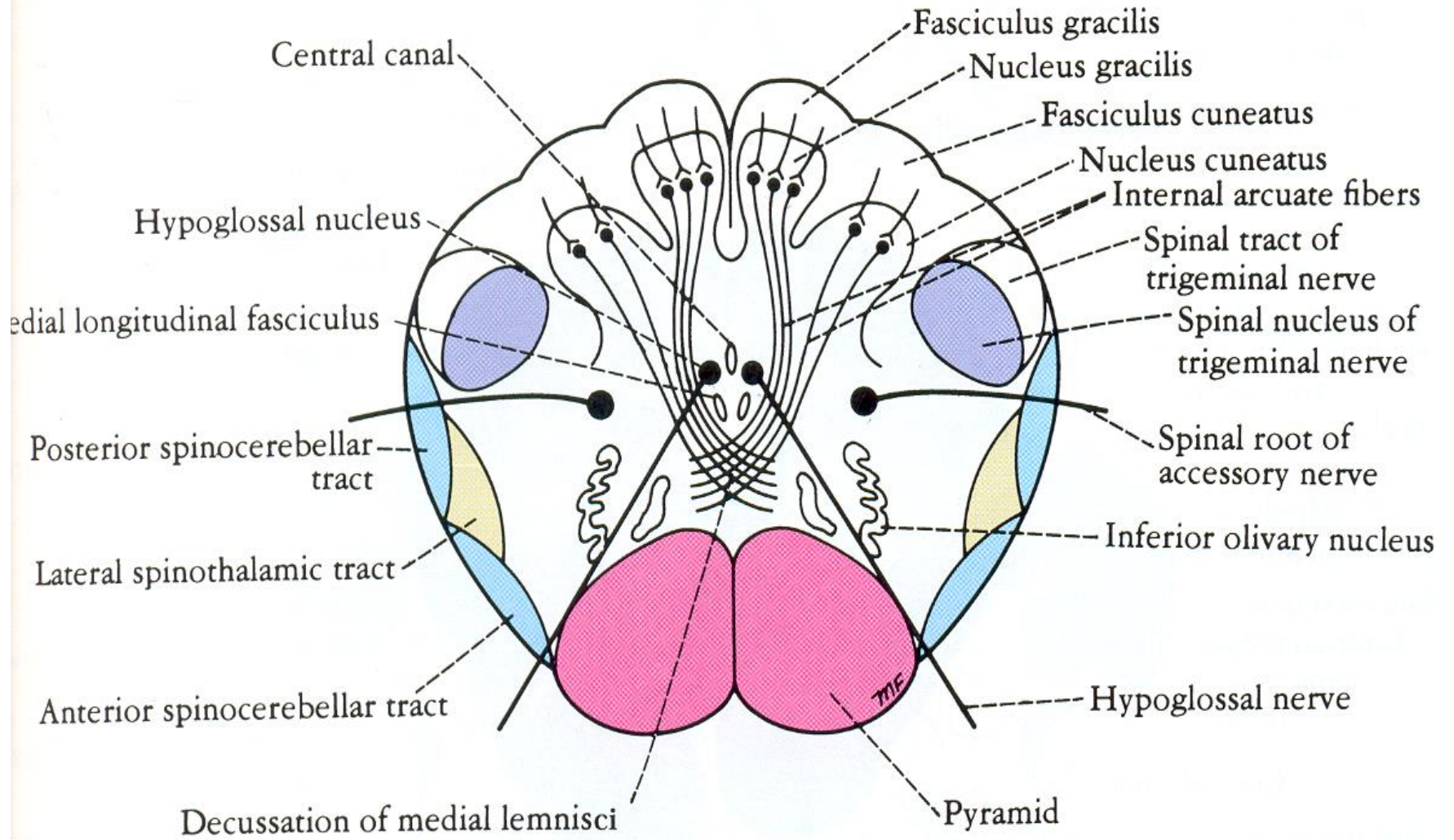


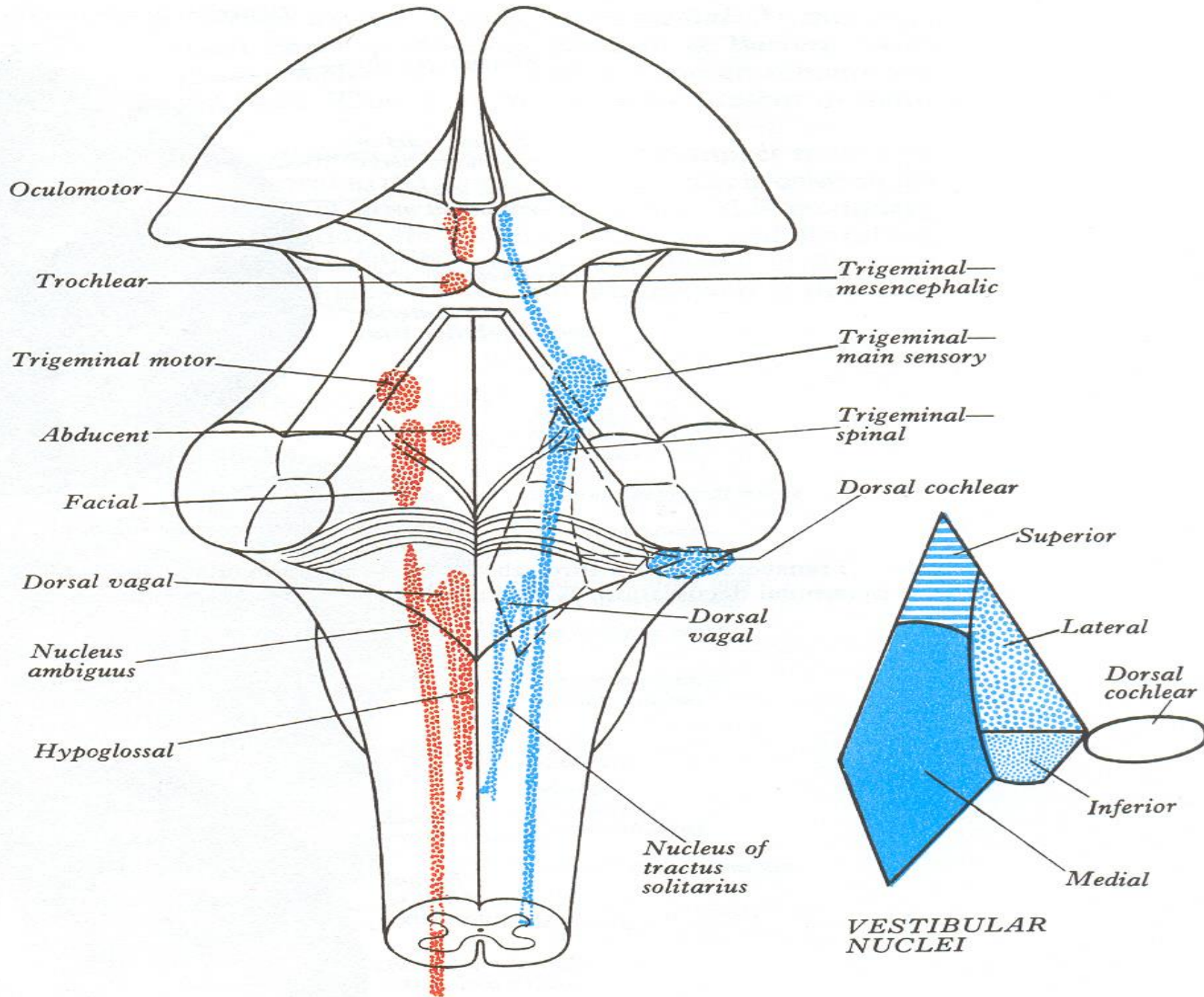
تقاطع پیرامیدال



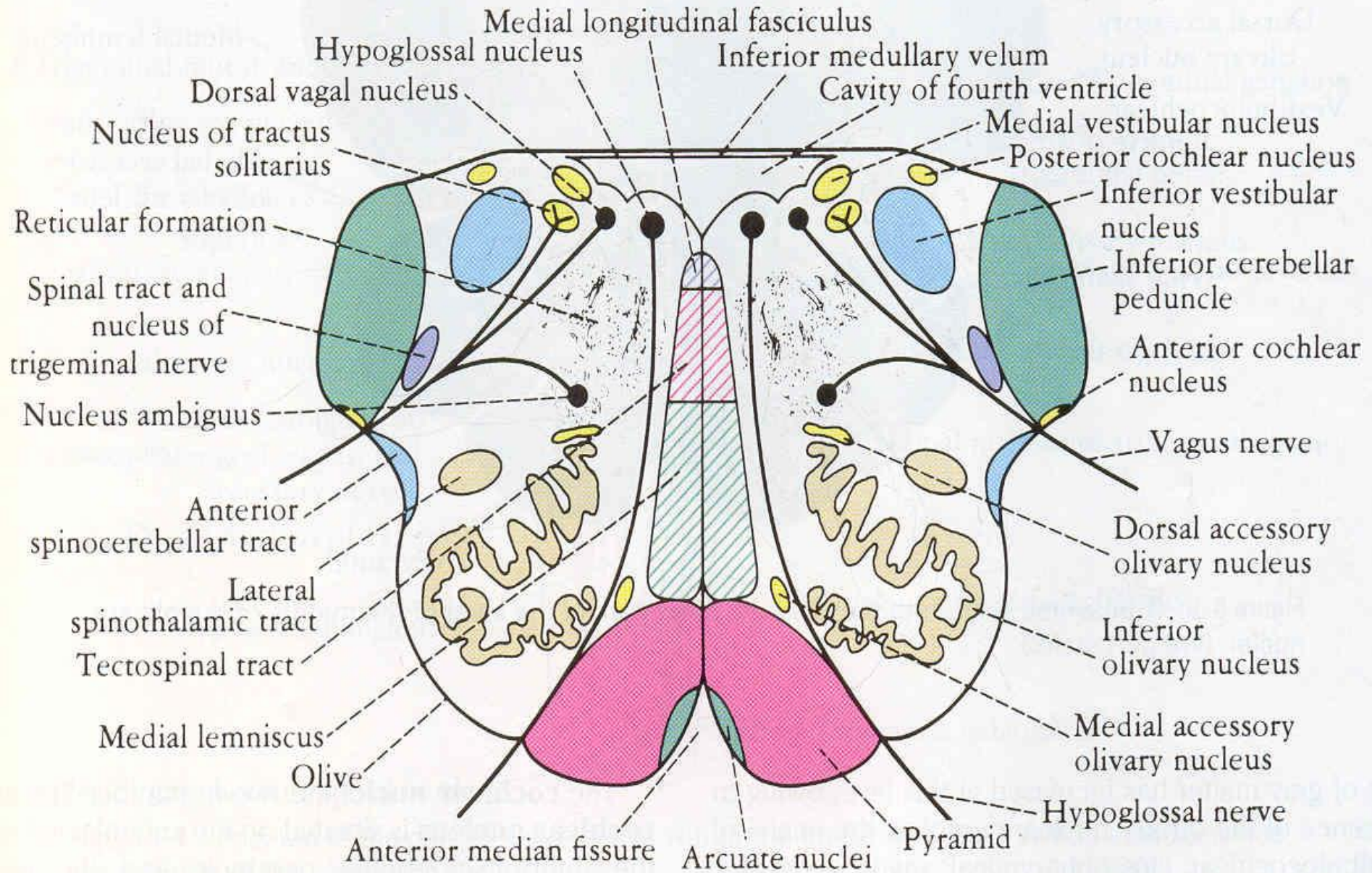


سطح تقاطع لمنيسكال

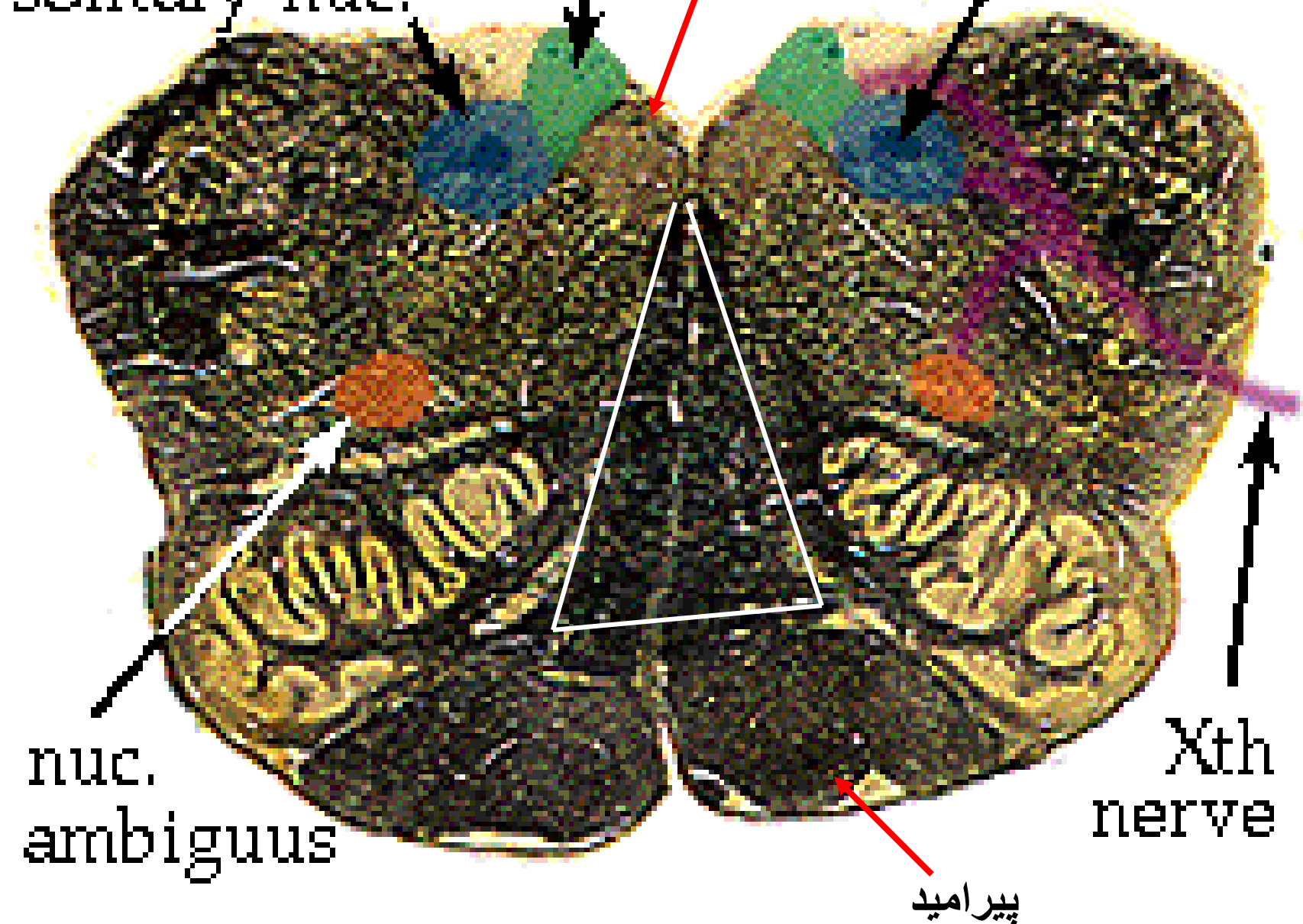




سطح زیتونی



dorsal nuc. of X هسته هایپوگلو سال solitary tract
solitary nuc.

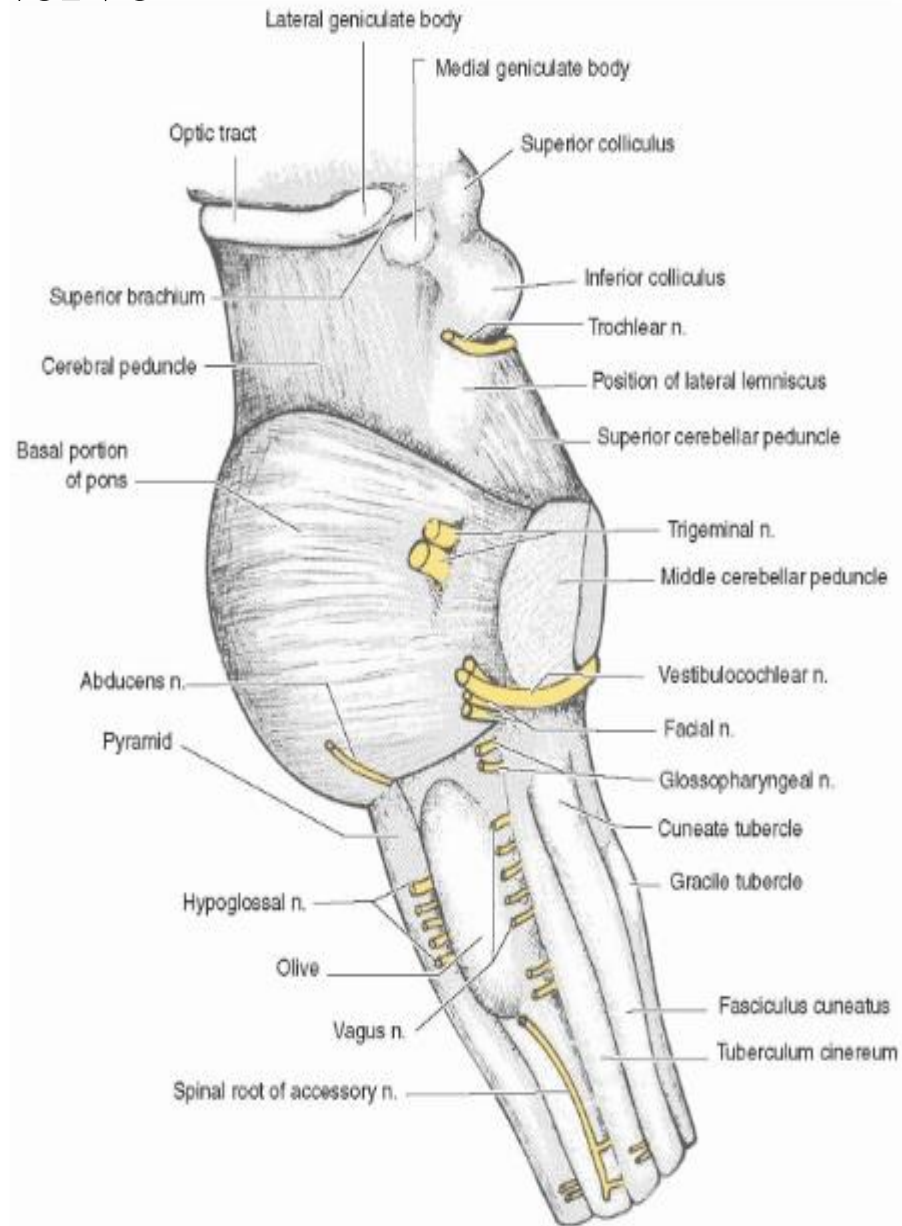
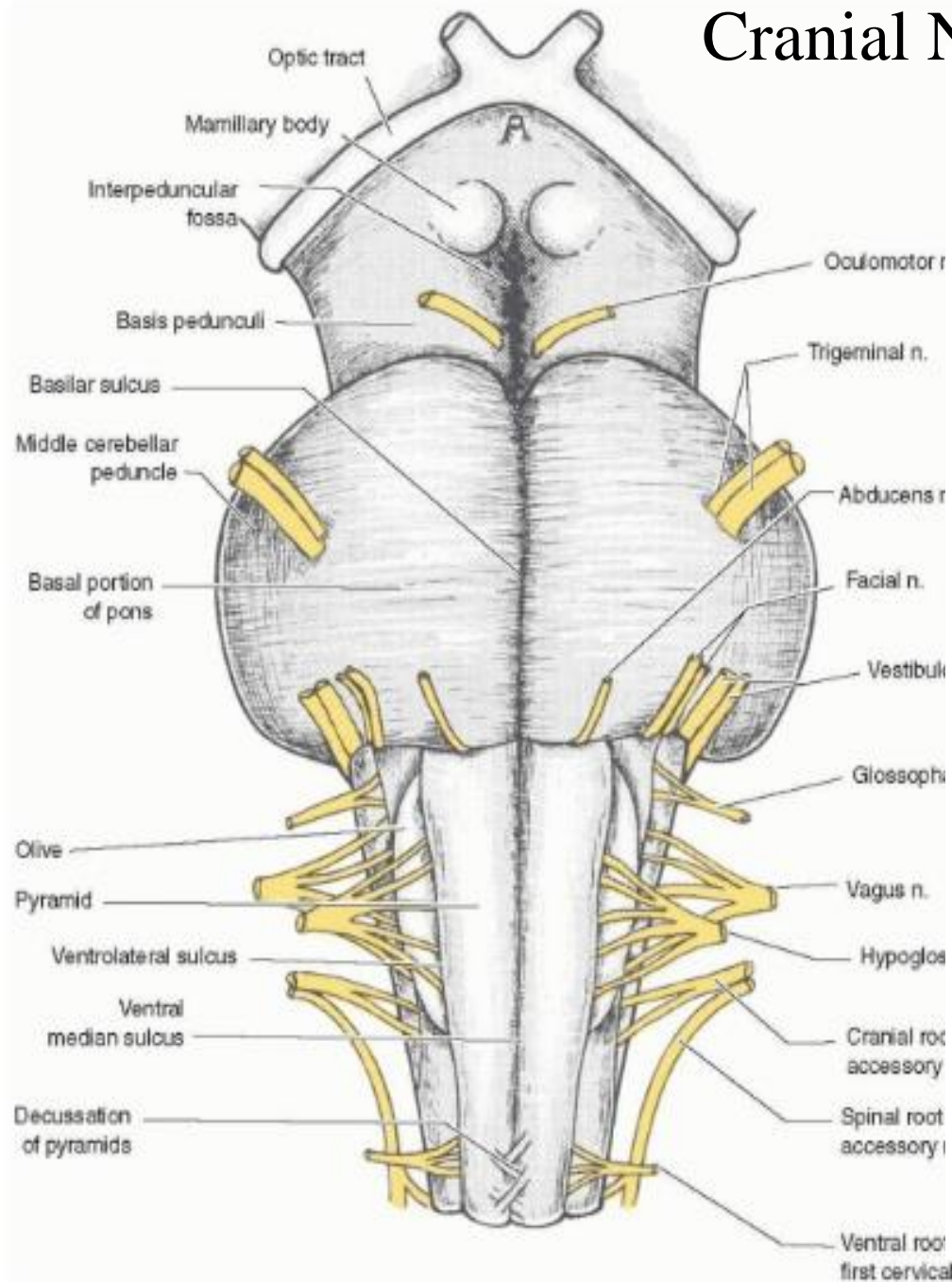


nuc. ambiguus

Xth nerve

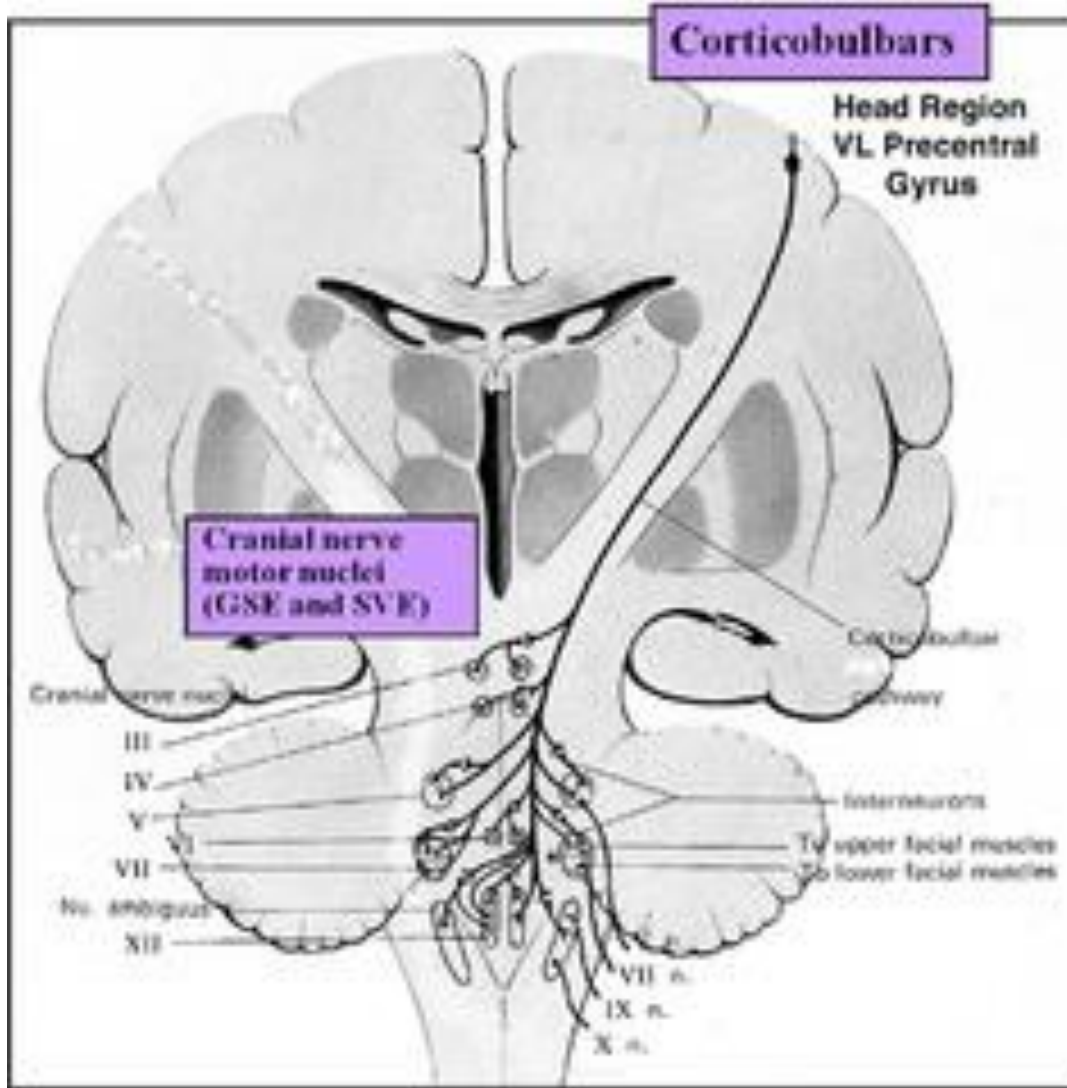
پیرامید

Cranial Nerve



General somatic afferent (GSA)	5,7,9,10
General visceral afferent (GVA)	9,10
Special somatic afferent (SSA)	1,2,8
Special visceral afferent (SVA)	7,9,10
General somatic efferent (GSE)	3,4,6,11,12
General visceral efferent(GVE)	3,7,9,10
Special visceral efferent(SVE)	5,7,9,10,11

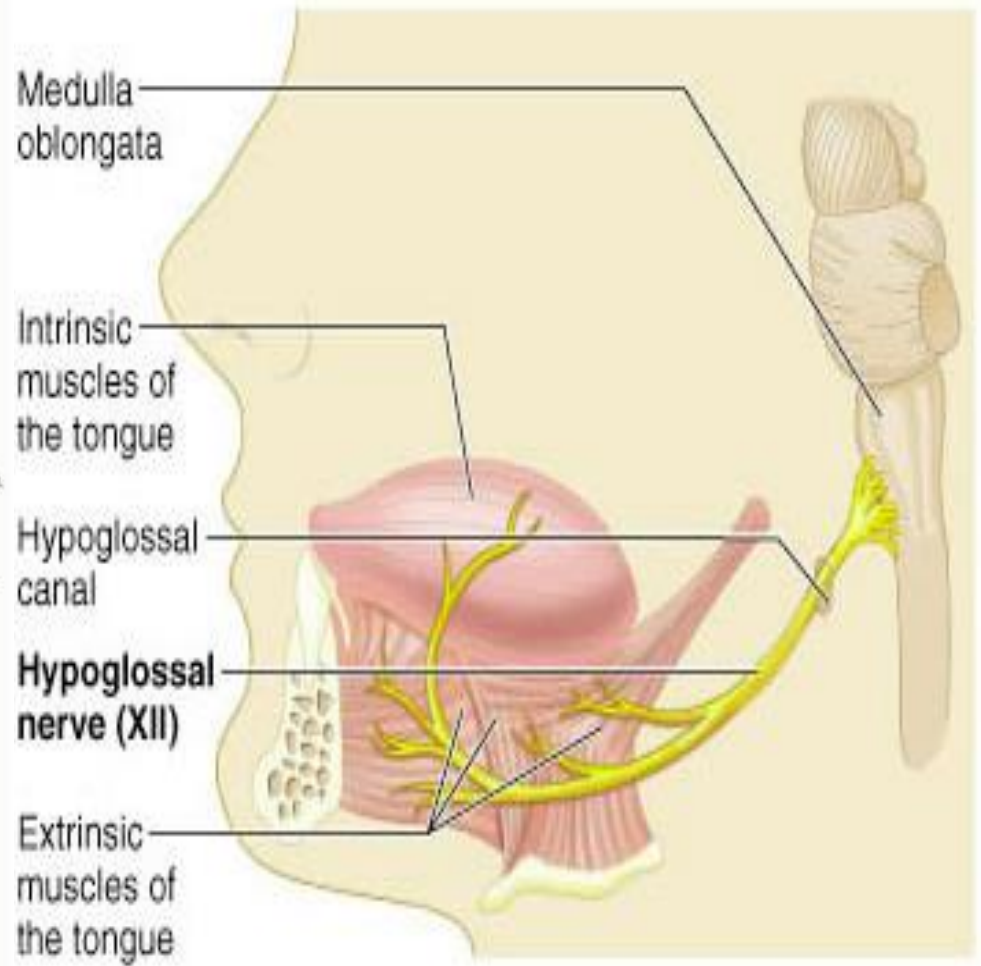
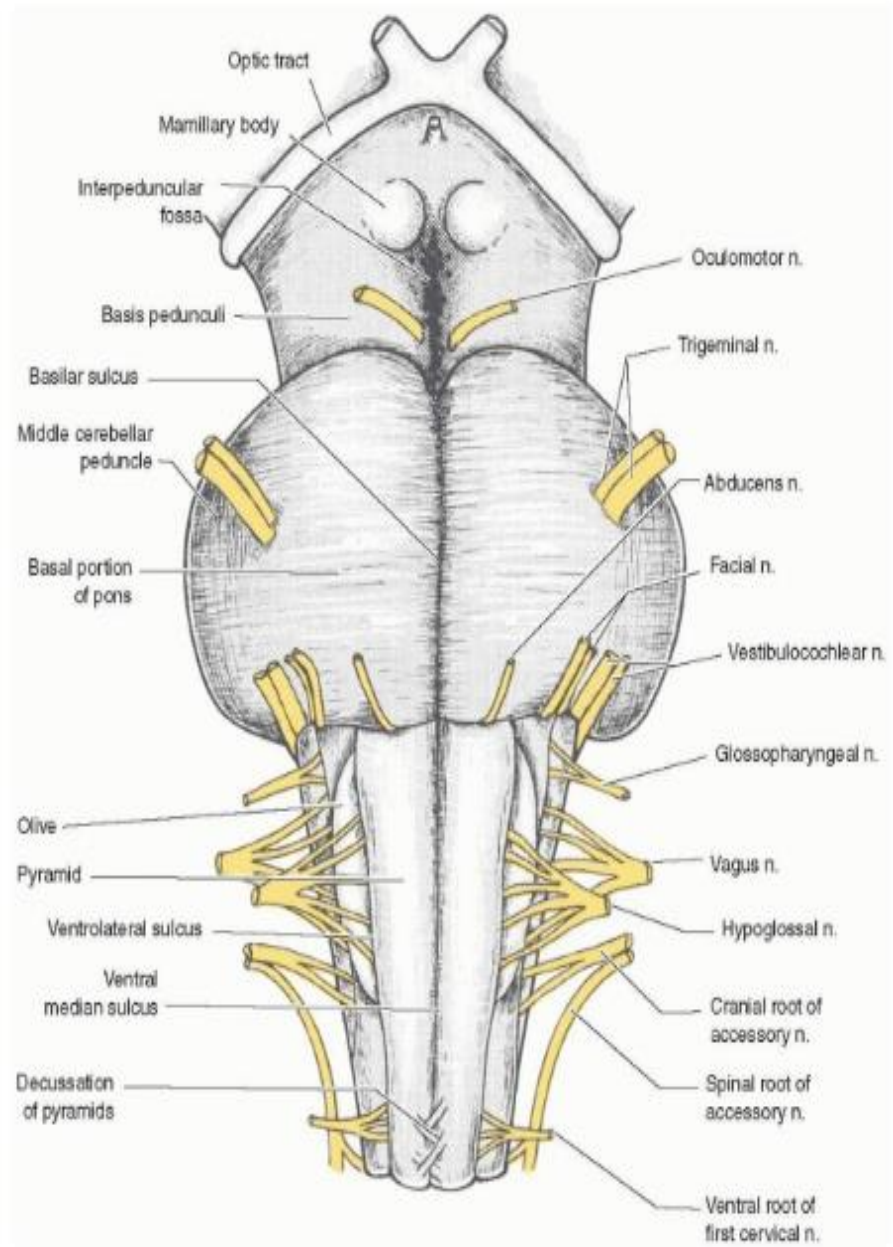
Corticobulbar tract



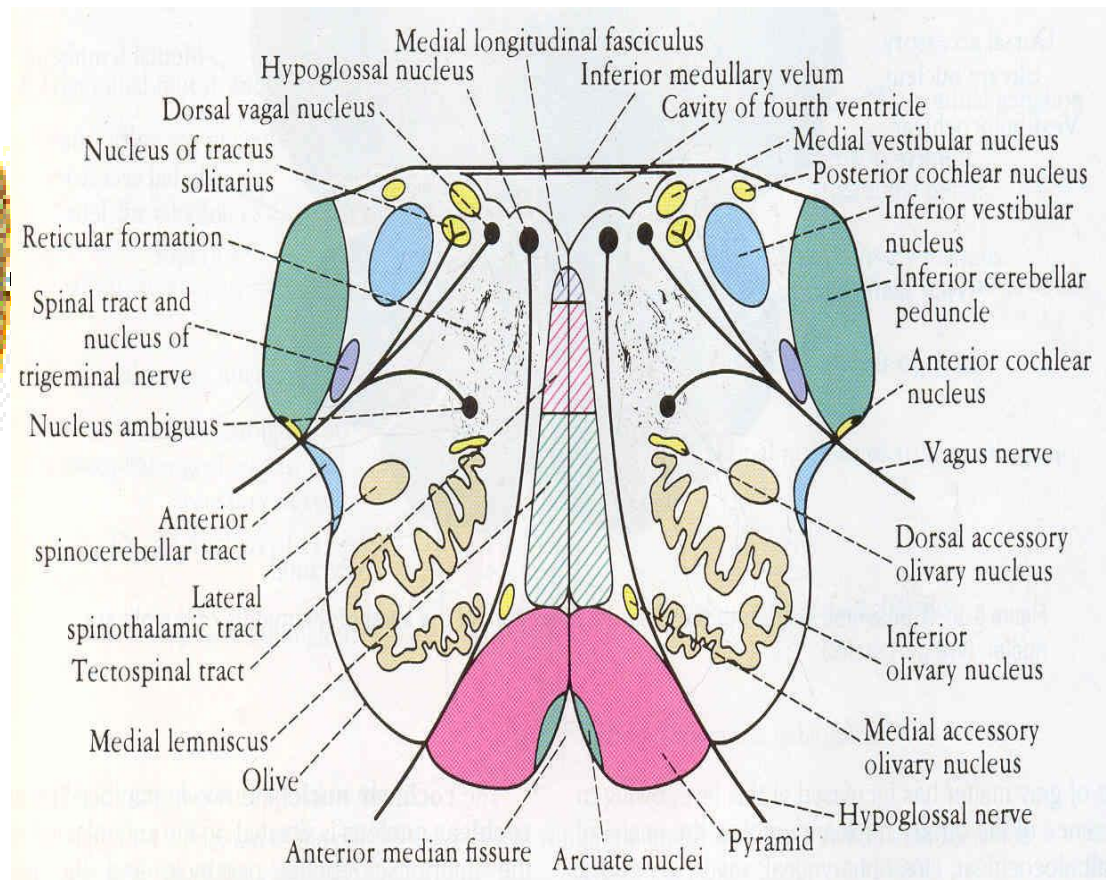
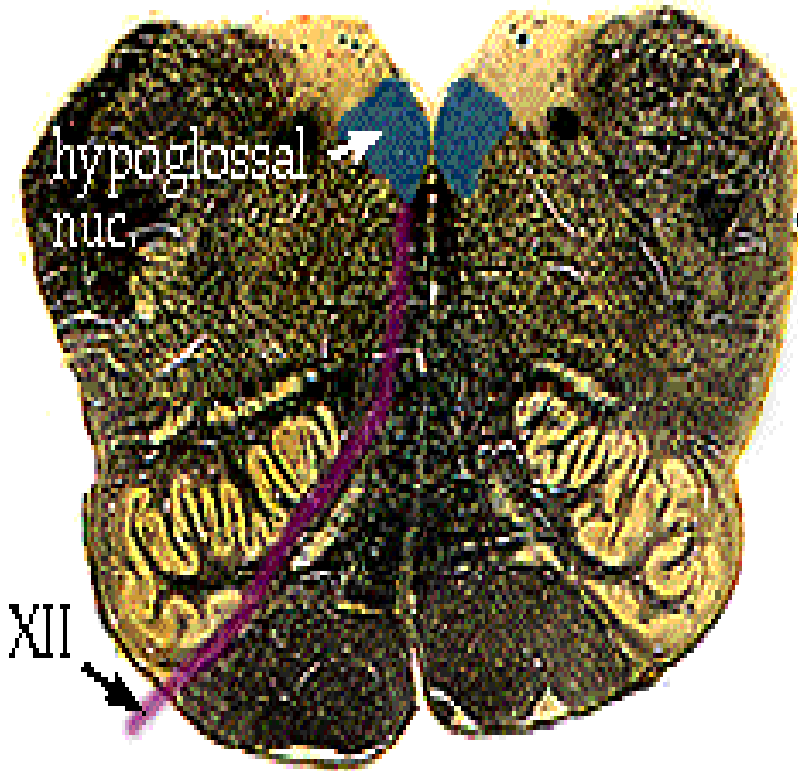
Hypoglossal N.
Ambiguous nucleus
Motor nucleus of facial
Abducent N.
Motor nucleus of trigeminal N.
Trochlear N.
Oculomotor N.

عصب زوج 12

GSE



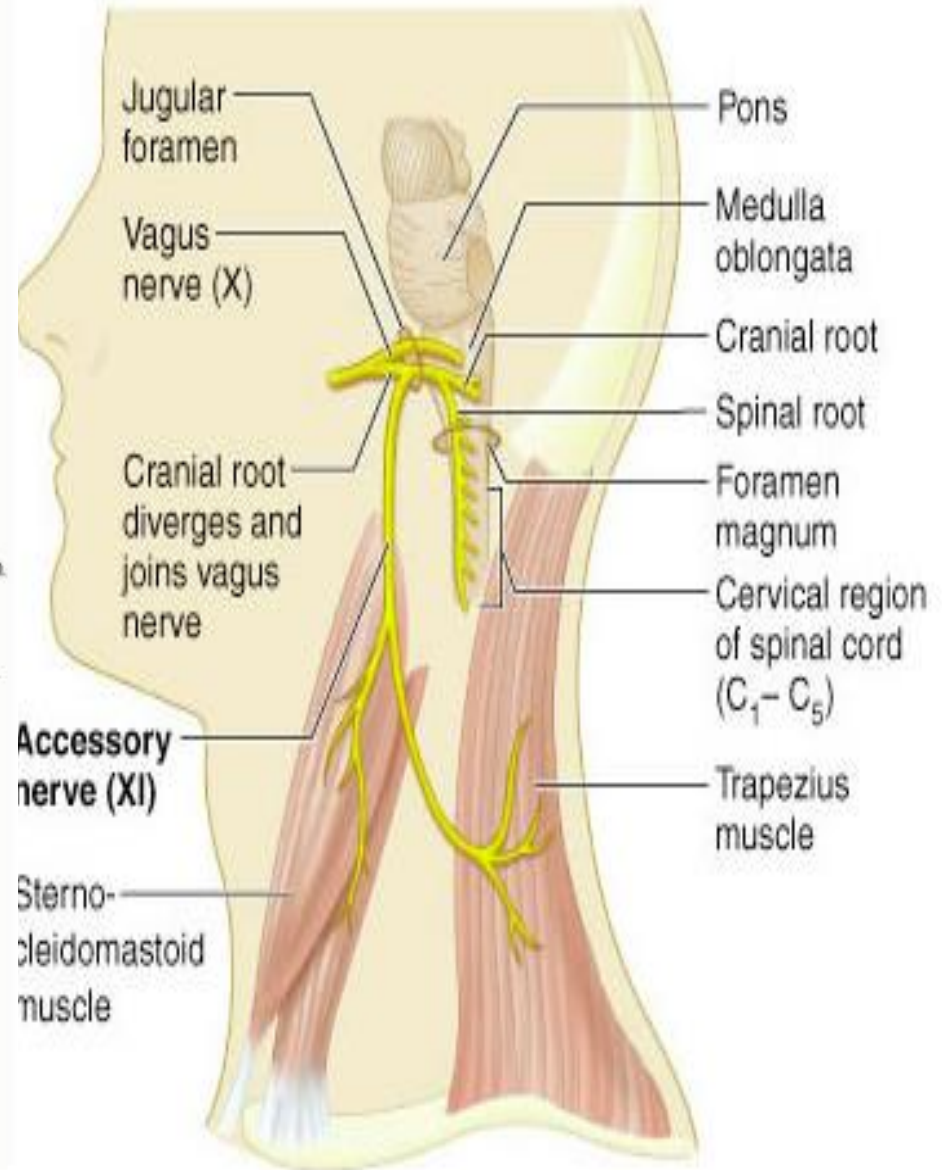
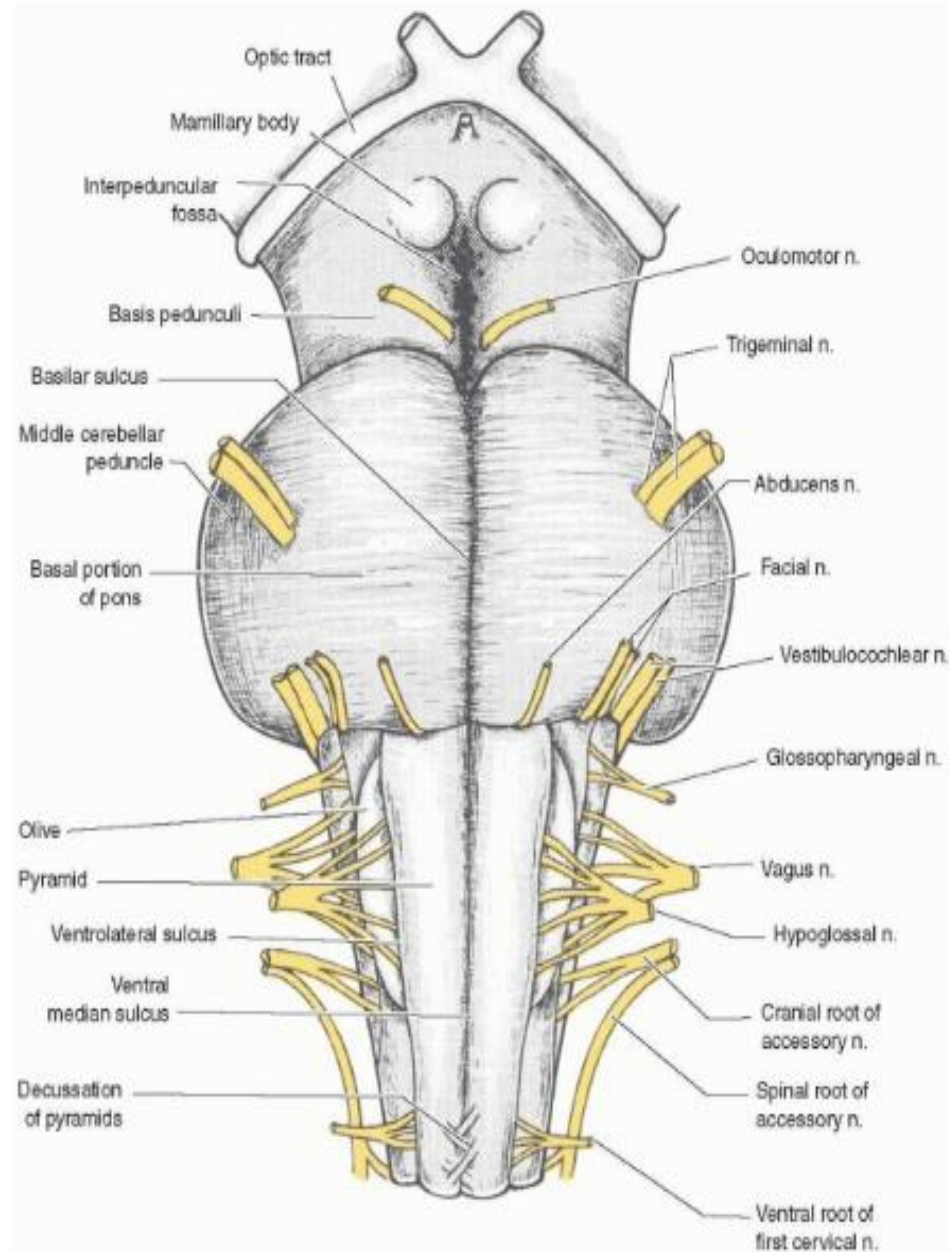
Hypoglossal N.(GSE)

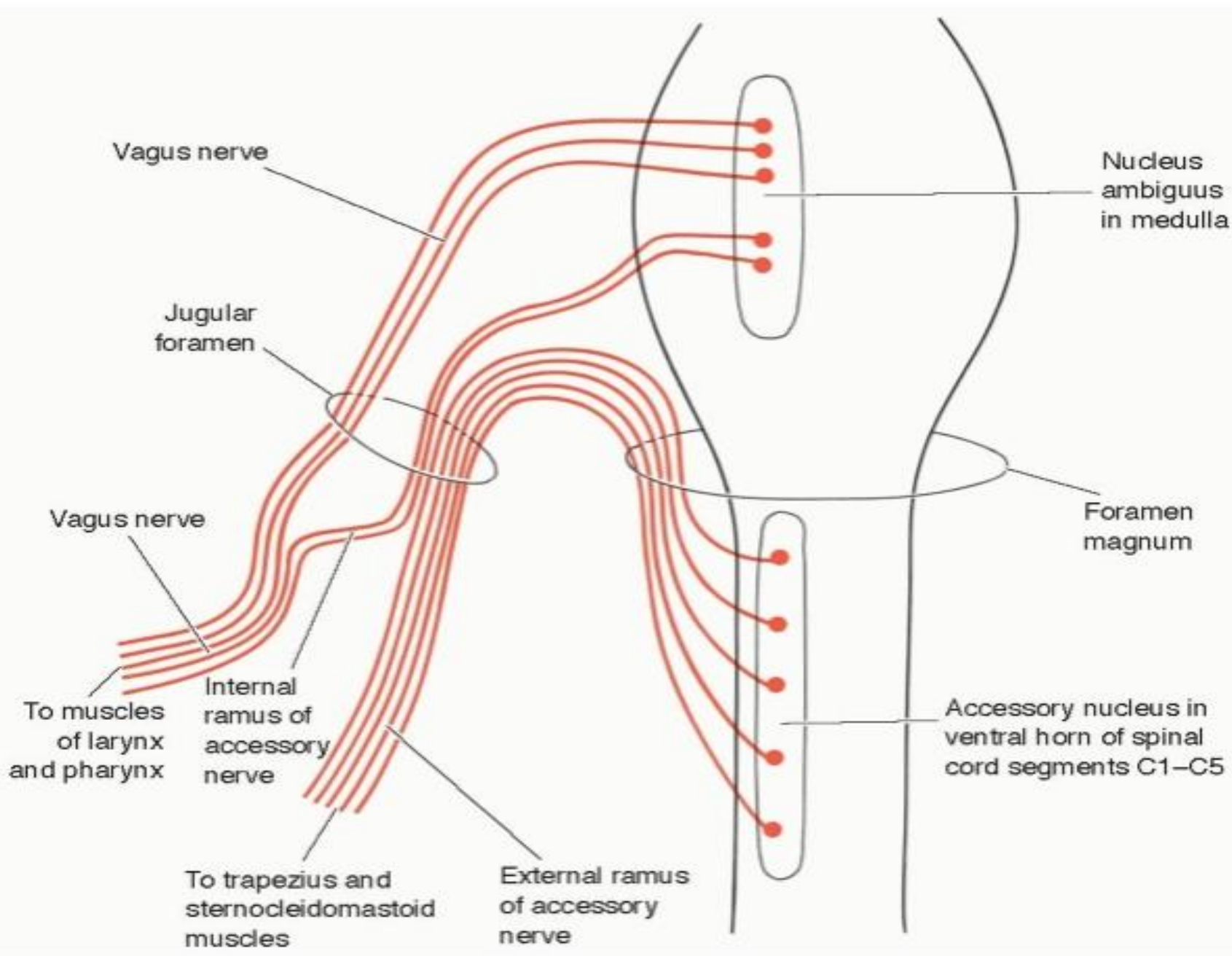


Hypoglossal nerve palsy



Accessory N.(SVE,GSE)



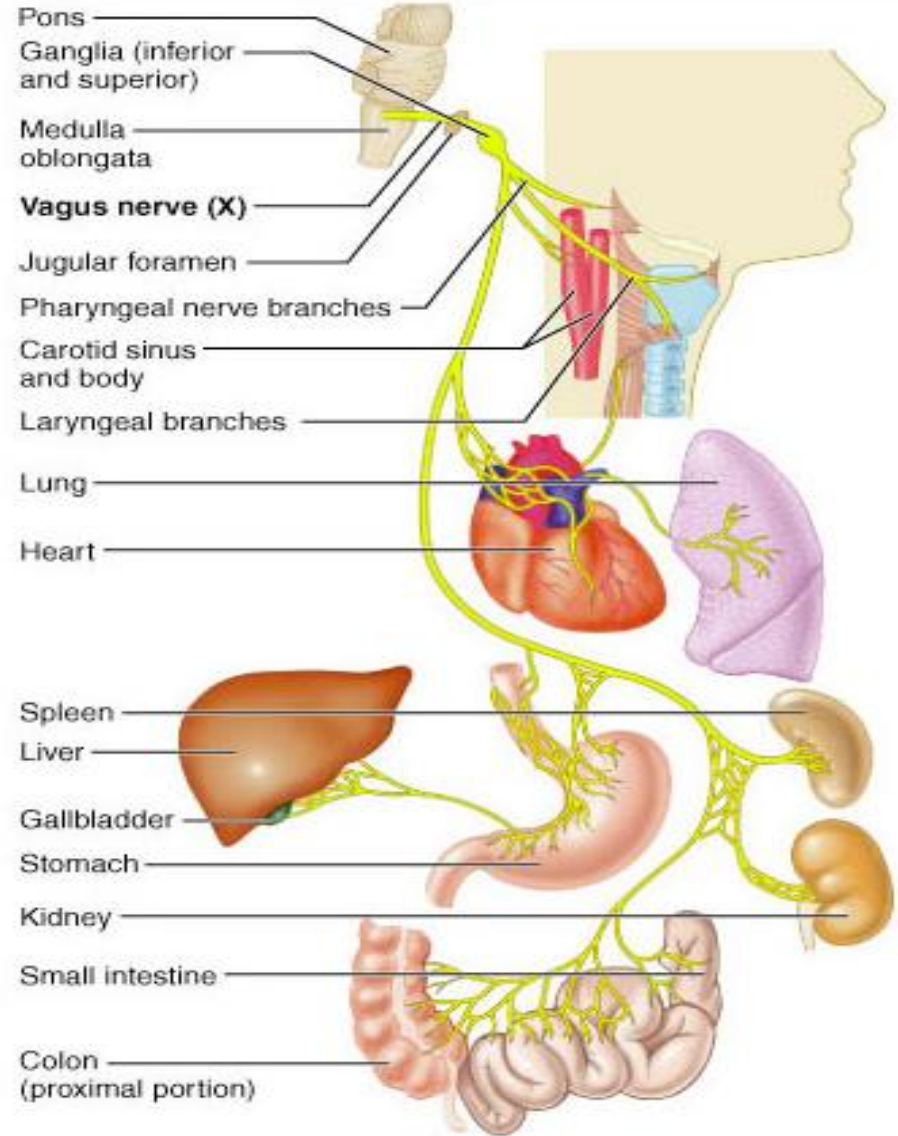
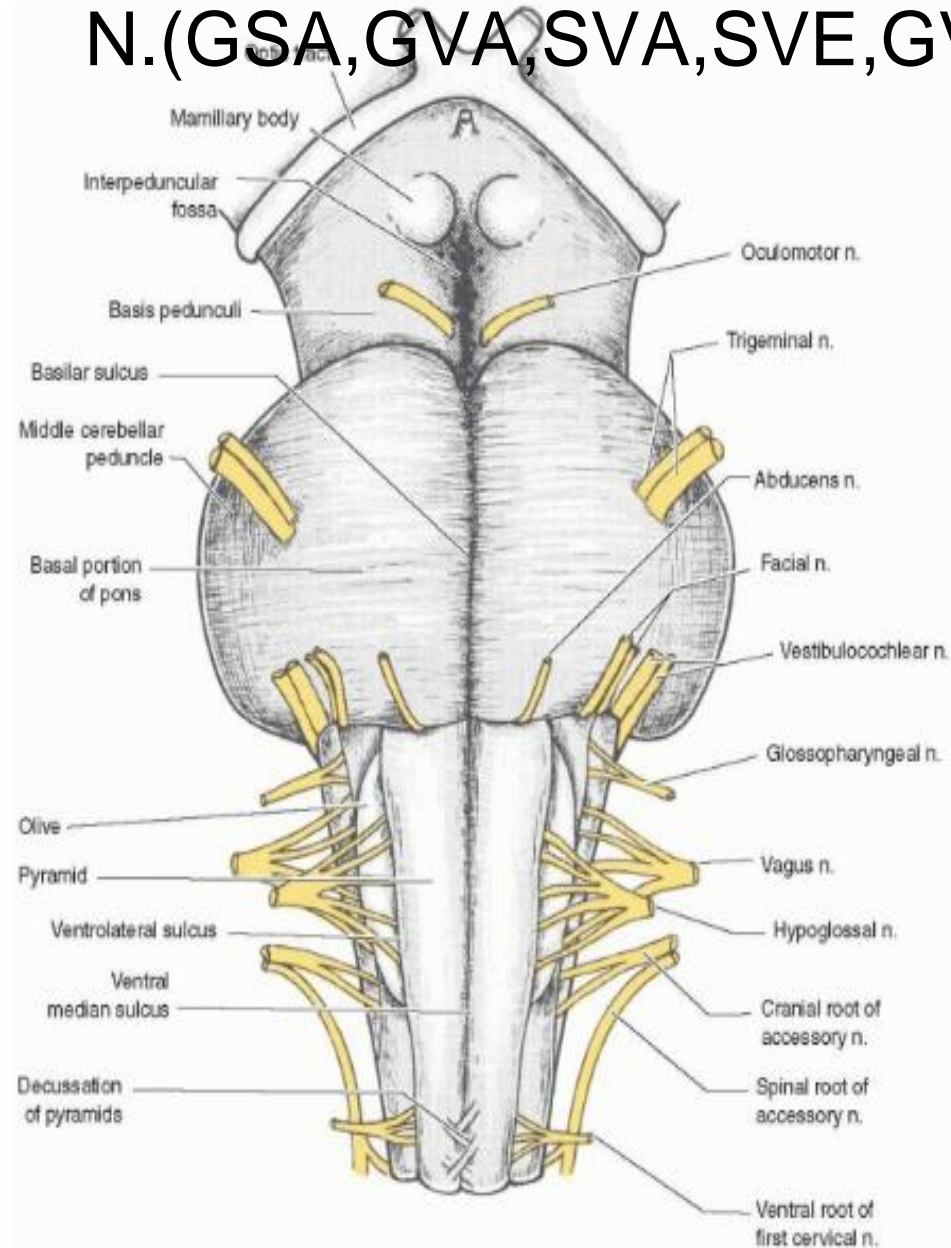


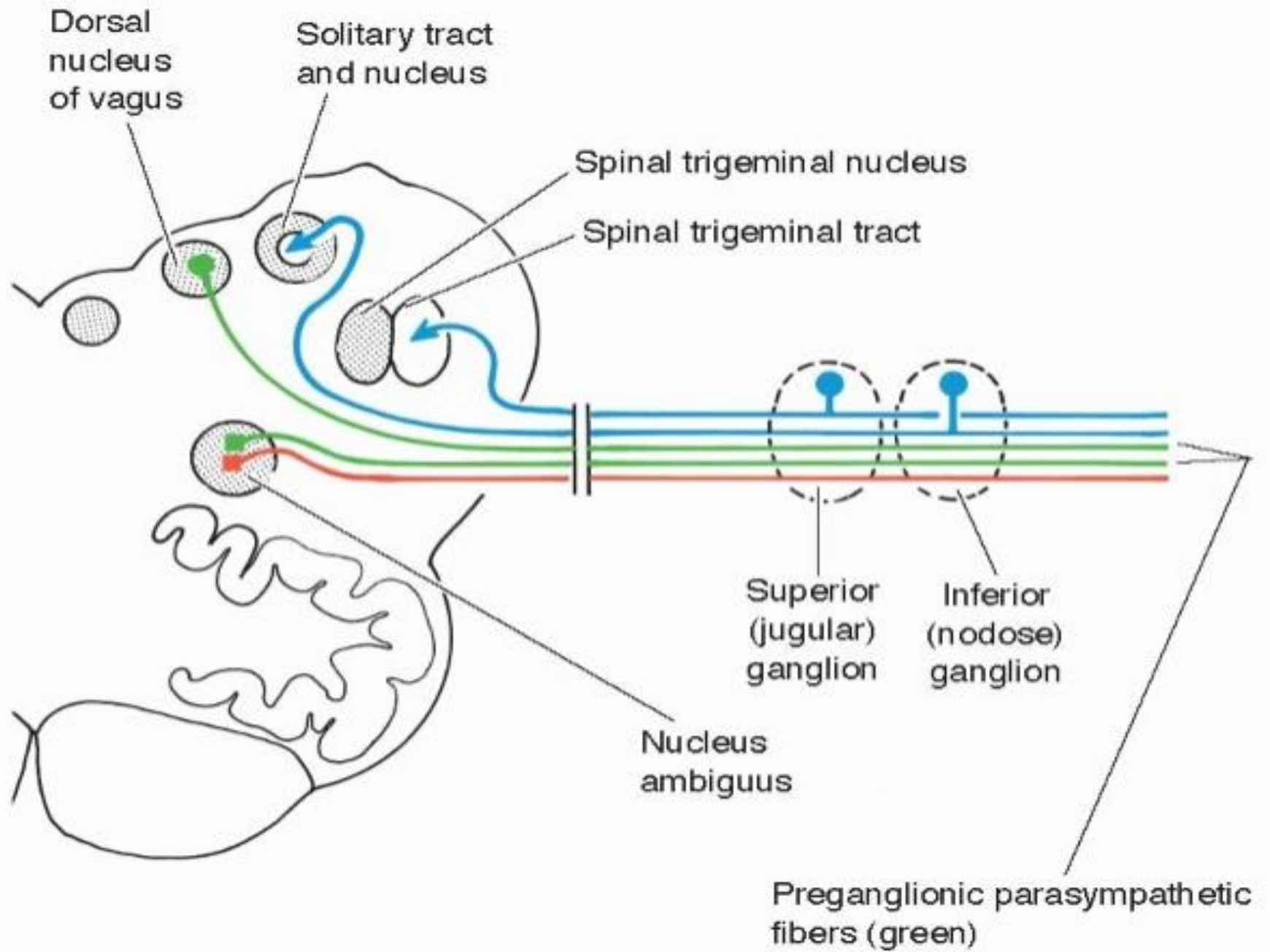
Accessory nerve palsy



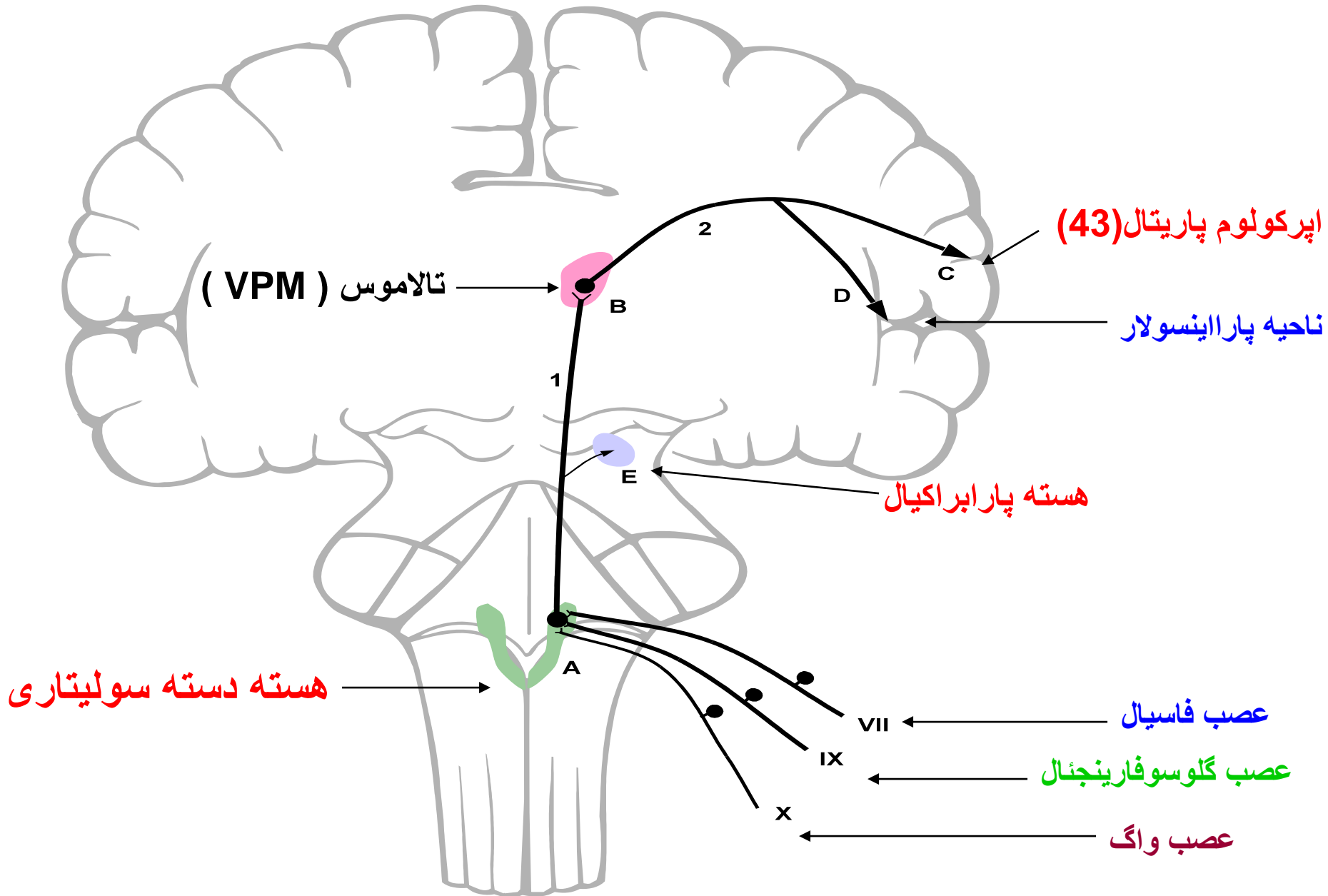
Vagus

N.(GSA,GVA,SVA,SVE,GVE)

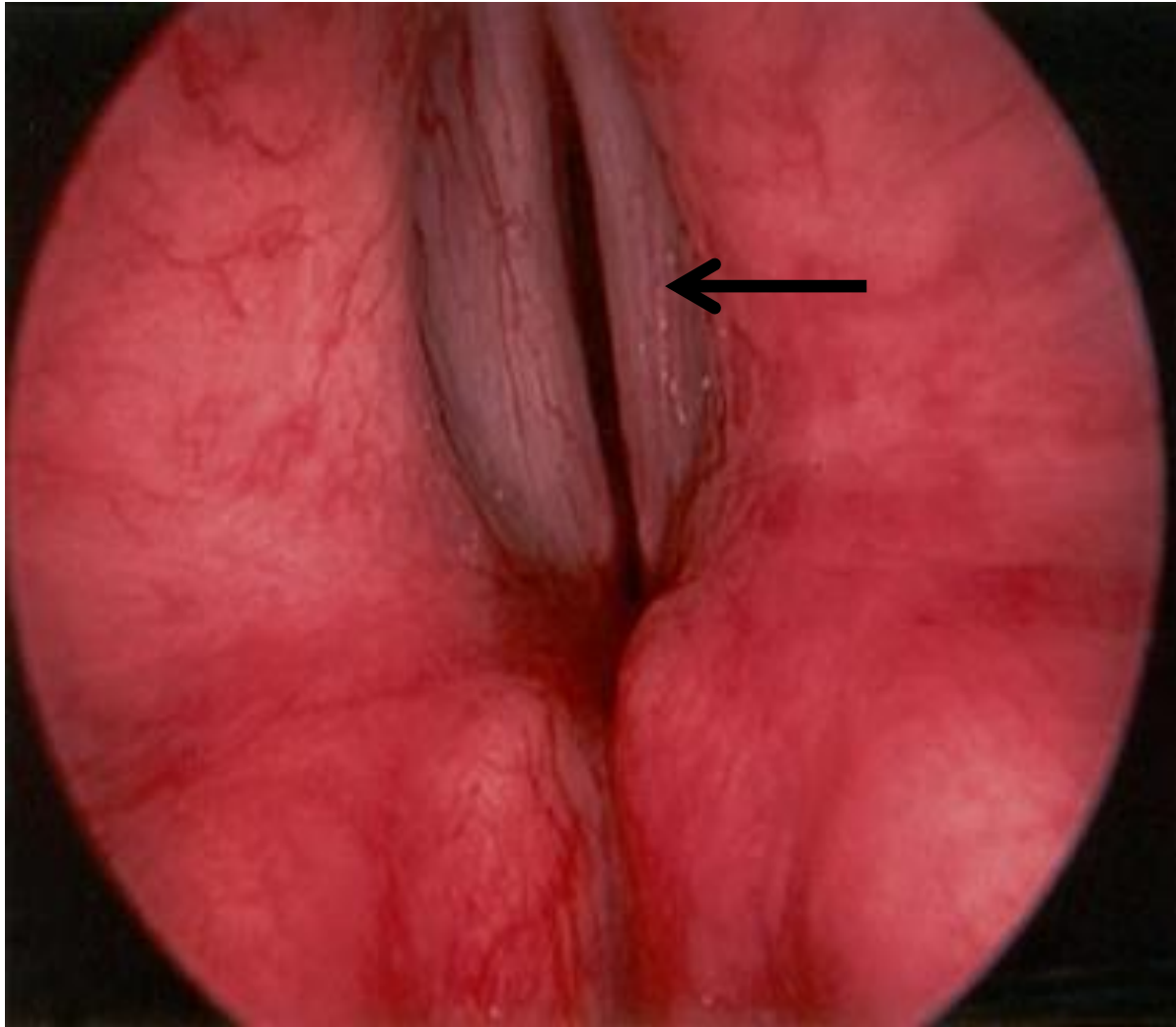




هسته دسته سولیتاری

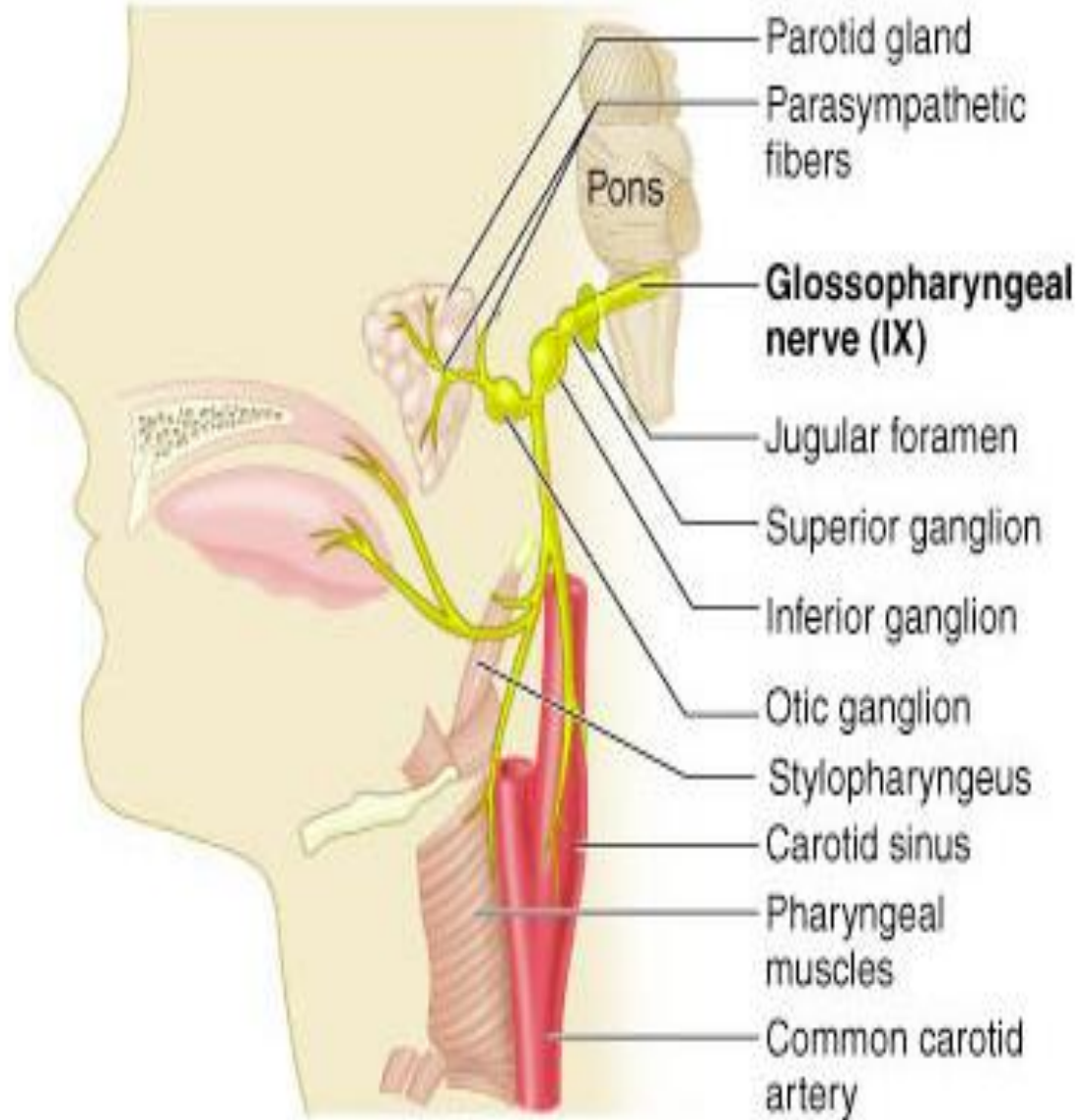
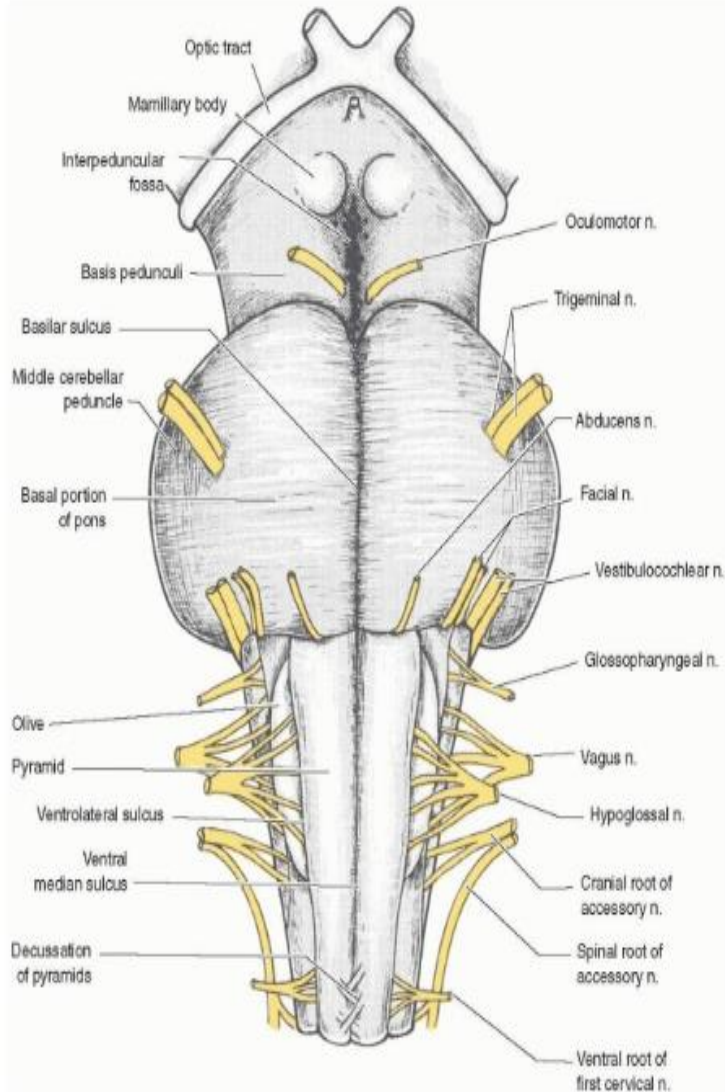


Vagal nerve palsy (recurrent laryngeal nerve)



Glossopharyngeal

N (GSA GVA SVA SVF GVF)



Solitary tract and nucleus

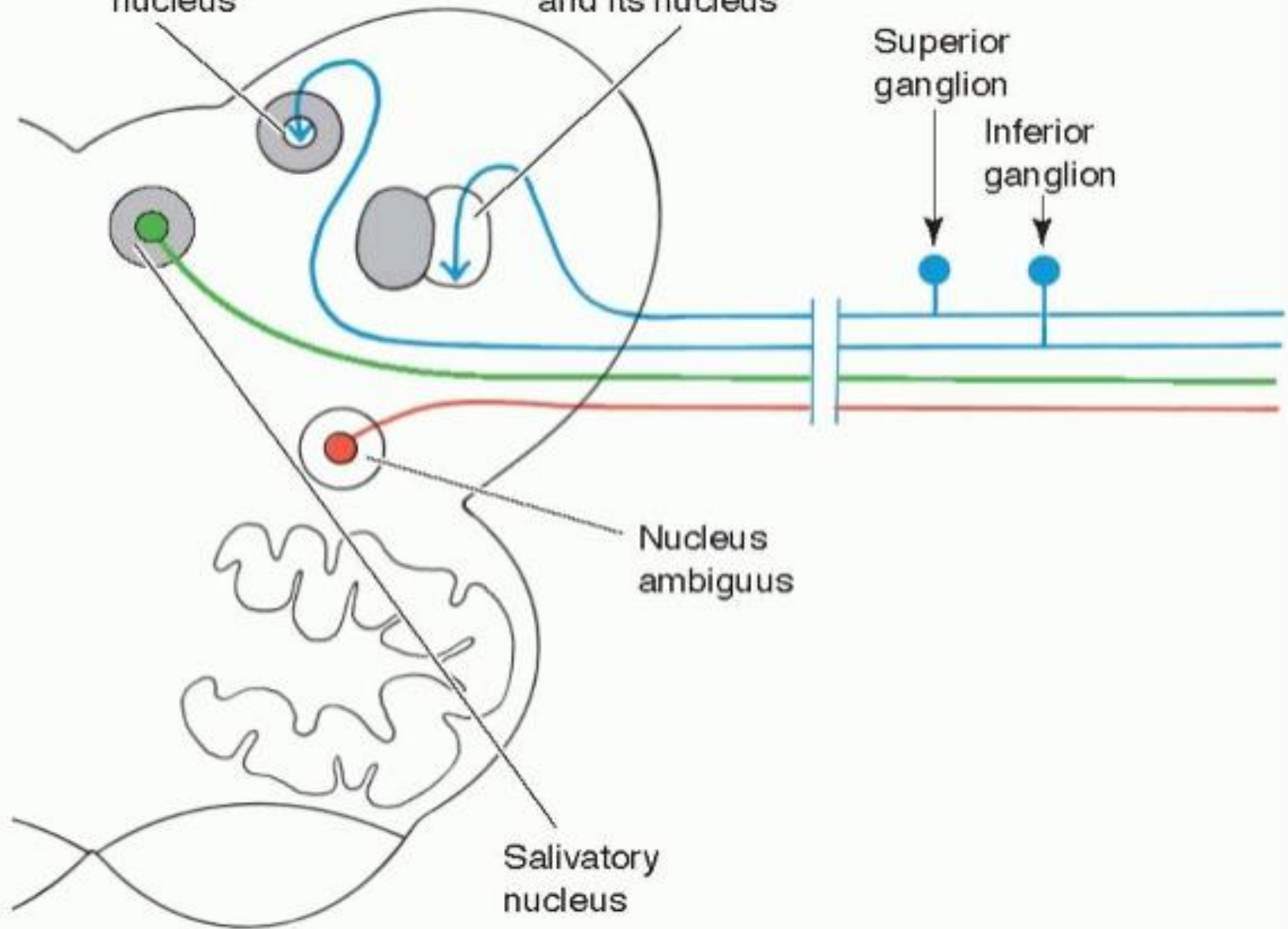
Spinal trigeminal tract and its nucleus

Superior ganglion

Inferior ganglion

Nucleus ambiguus

Salivatory nucleus



هسته بزاقي تحتانی
(پاراسمپاتیکی)

عصب زوج 9

شاخه صماخی زوج 9

عصب پتروزال کوچکی

گانگلیون اوتیکی
(پاراسمپاتیکی + سمپاتیکی)

عصب اوریکولو تیمپانیکی

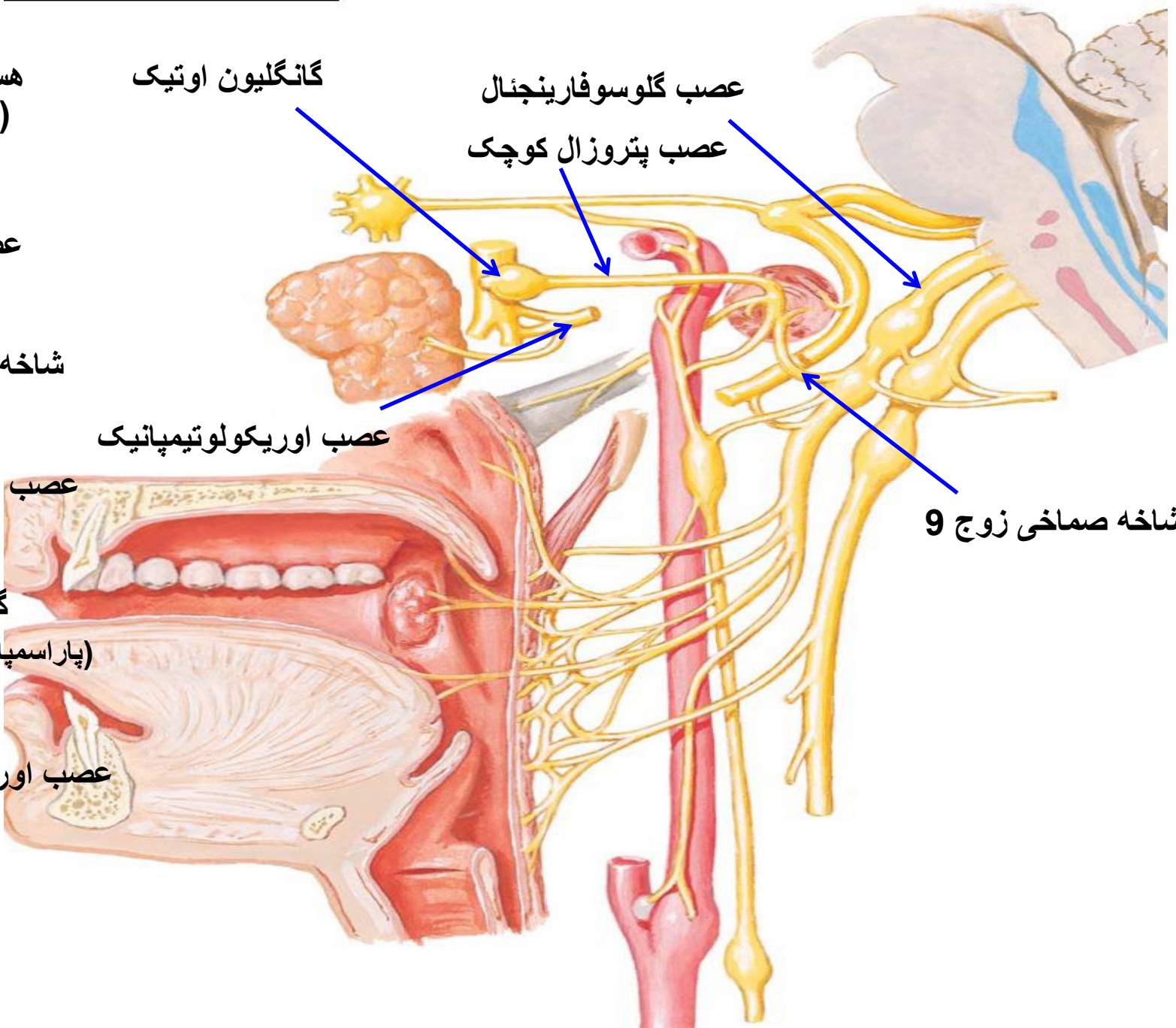
غده پاروتید

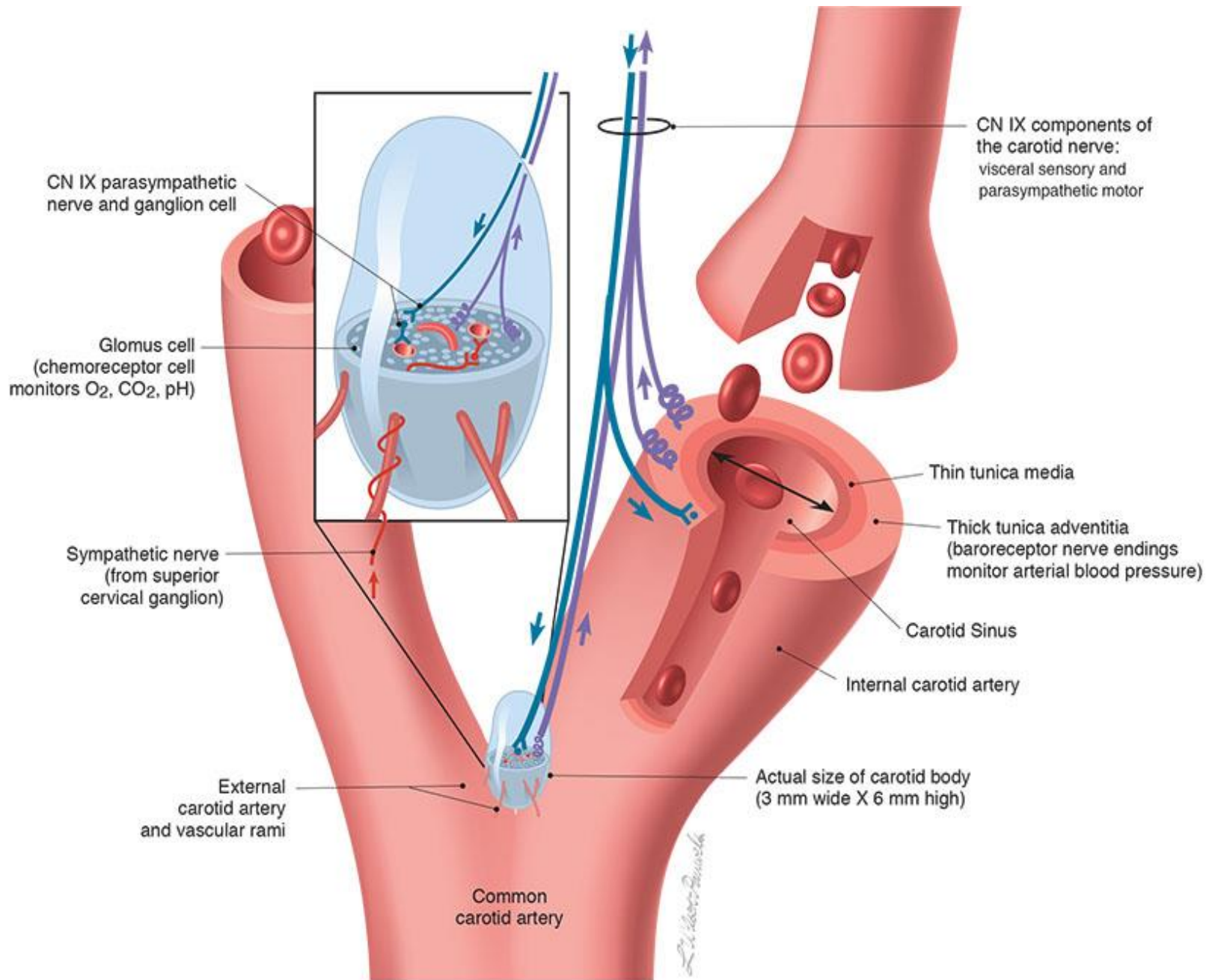
گانگلیون اوتیکی

عصب گلوسوفارینجیال
عصب پتروزال کوچکی

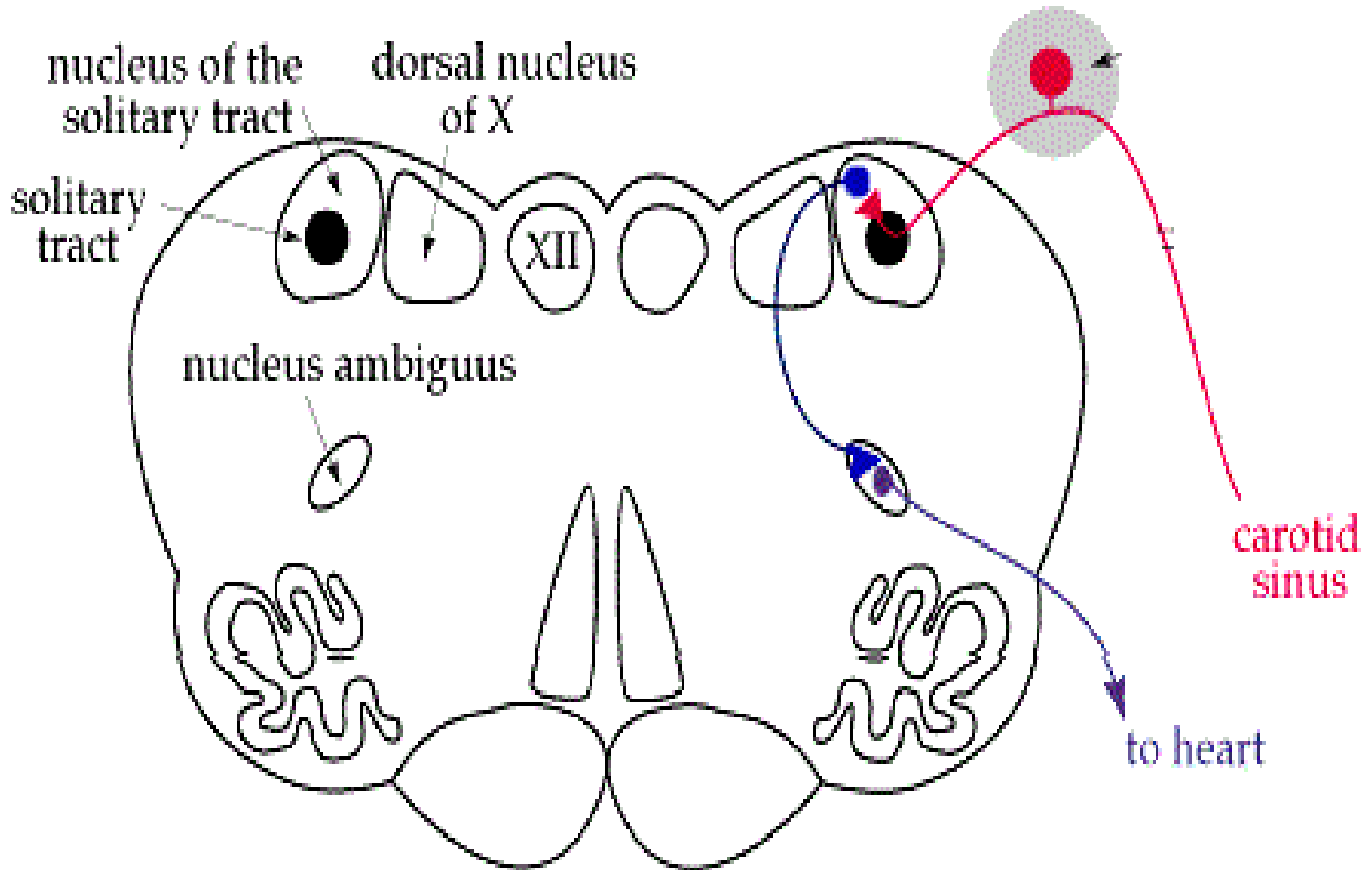
عصب اوریکولو تیمپانیکی

شاخه صماخی زوج 9

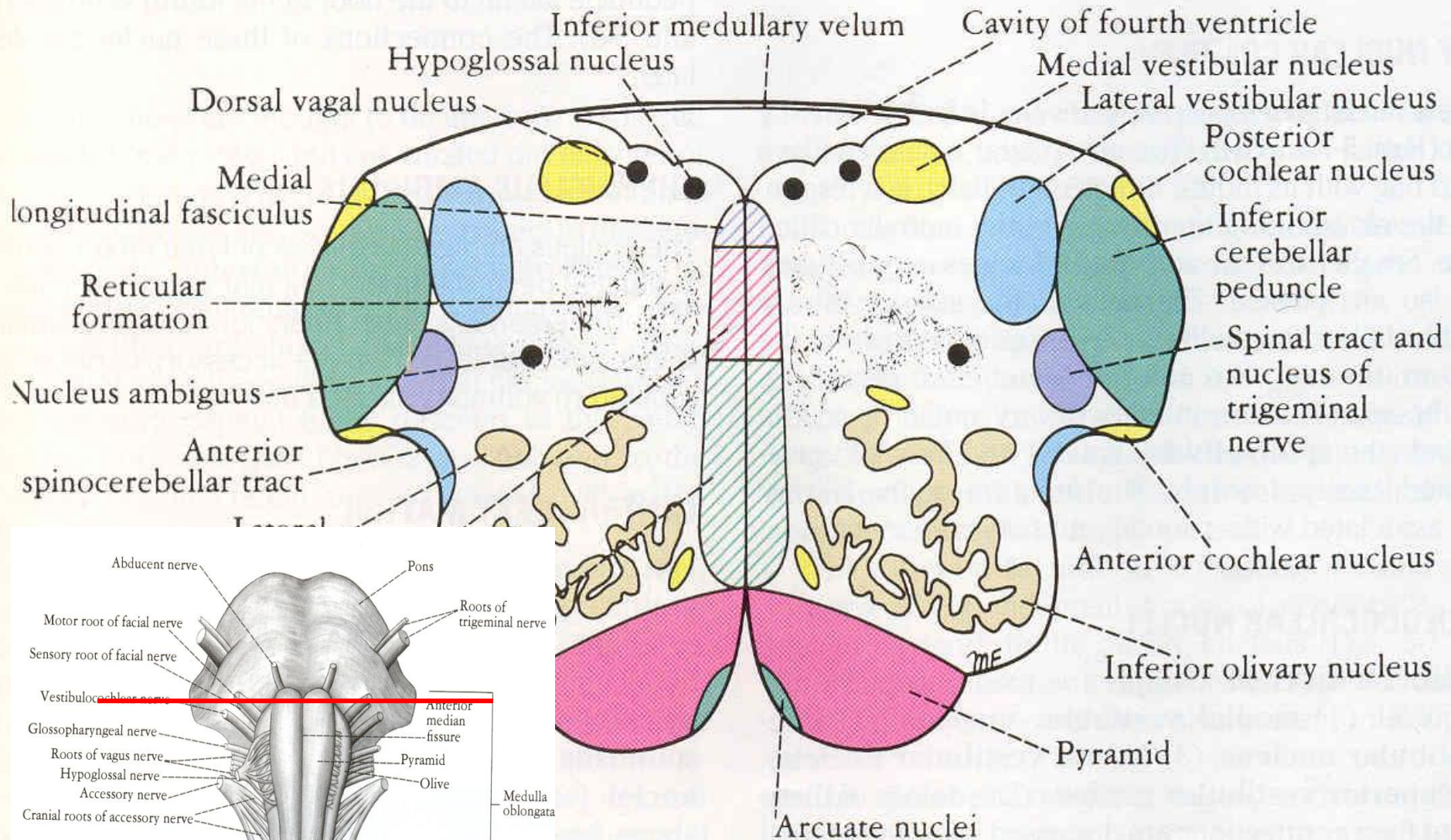




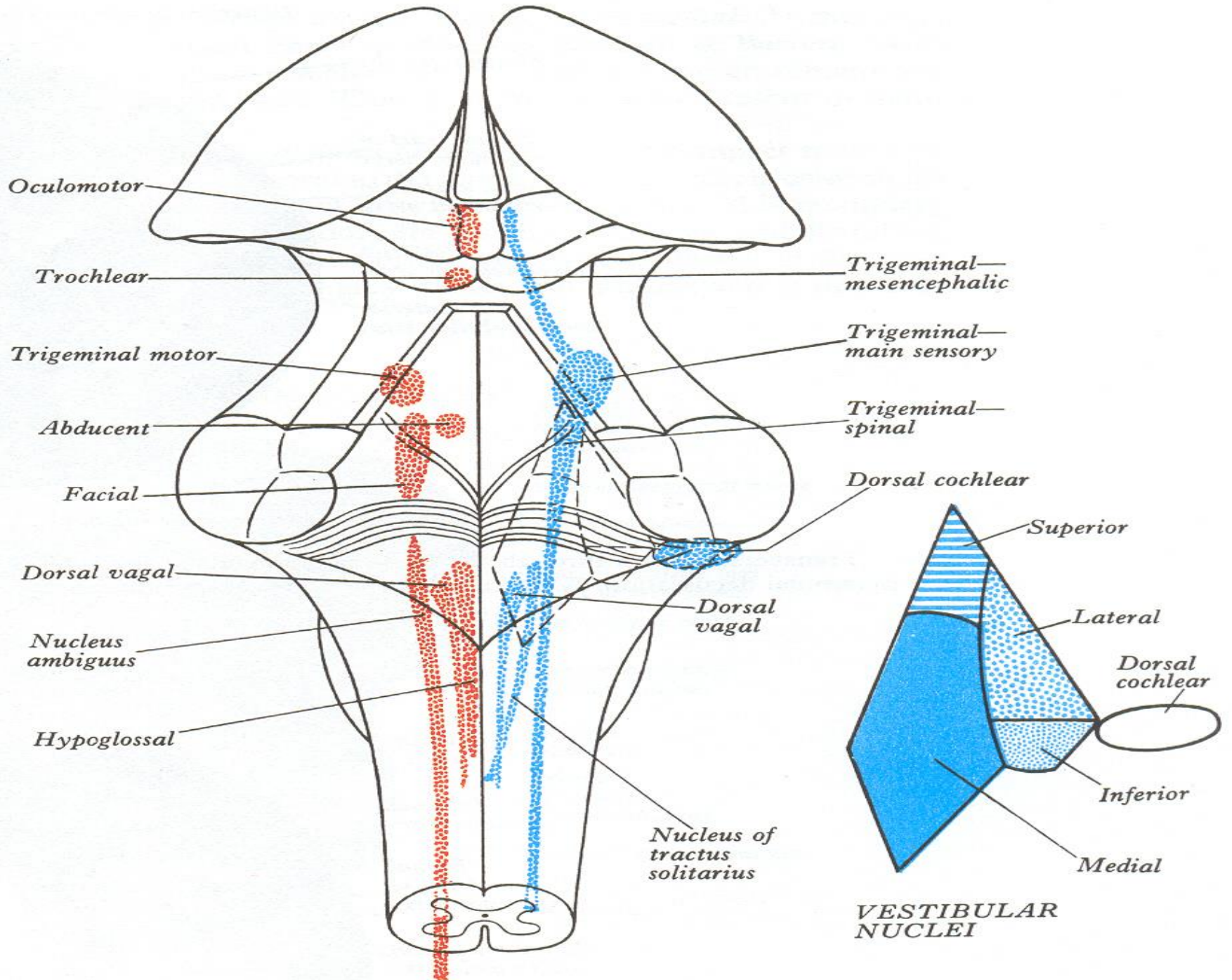
Carotid sinus, GVA(Blood pressure and heart rate control)



سطح فوقانی بصل النخاع زیر پل



the medulla oblongata at the level of: **A**. The middle of the olivary nuclei just inferior to the pons.



Lateral medullary syndrome

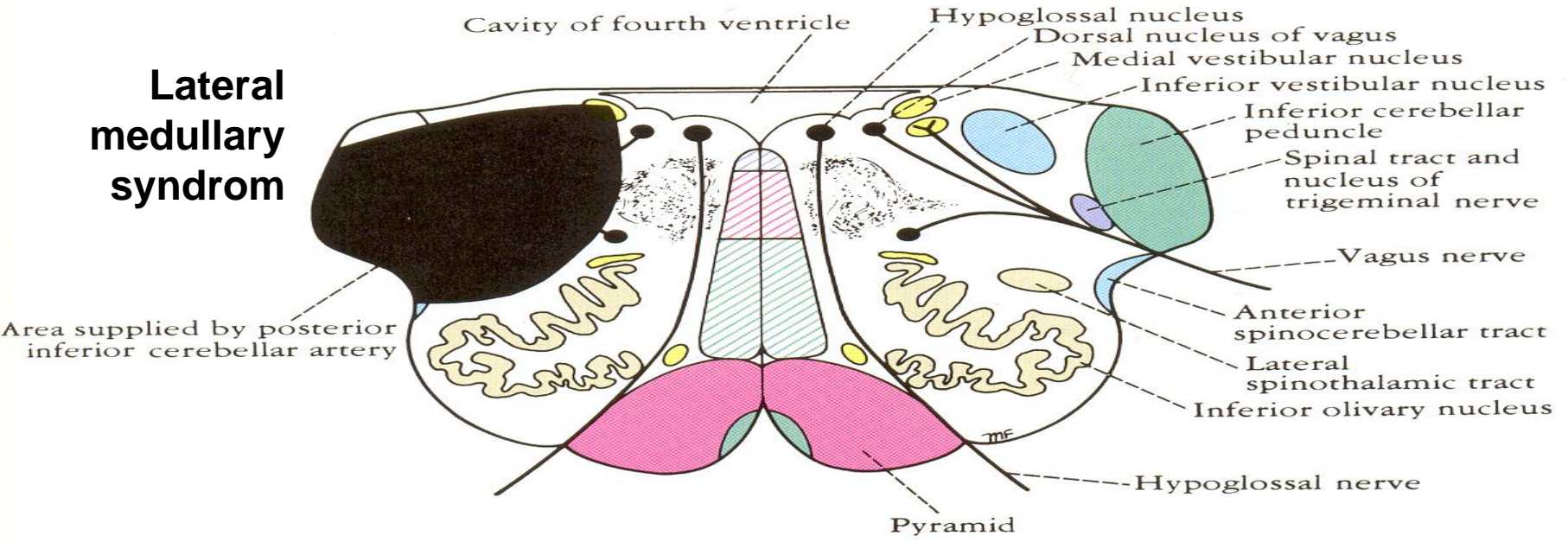


Figure 5-24 Transverse section of the medulla oblongata at the level of the inferior olivary nuclei, showing the extent of the lesion producing the lateral medullary syndrome.

Inferior alternating hemiplegia

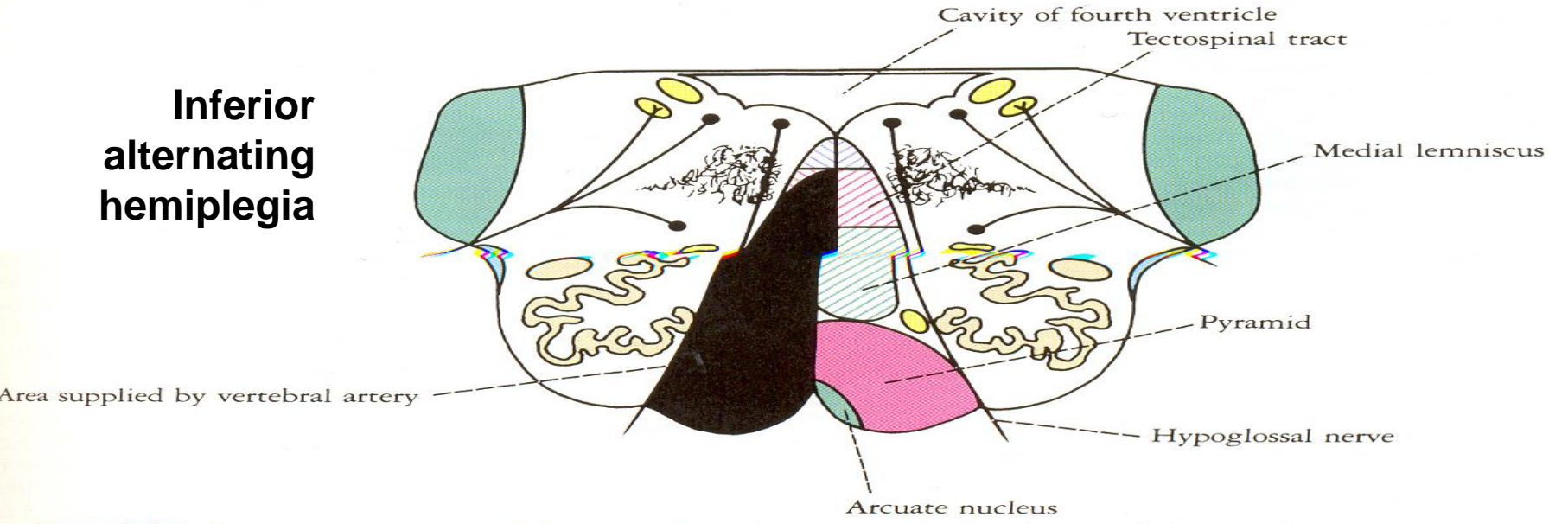
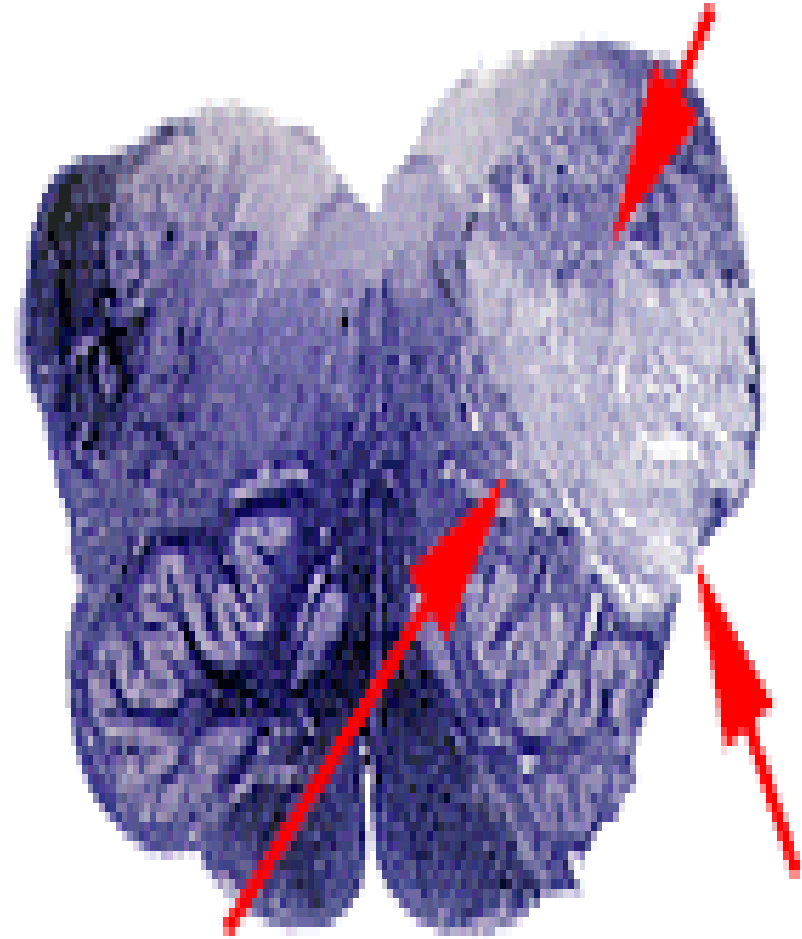
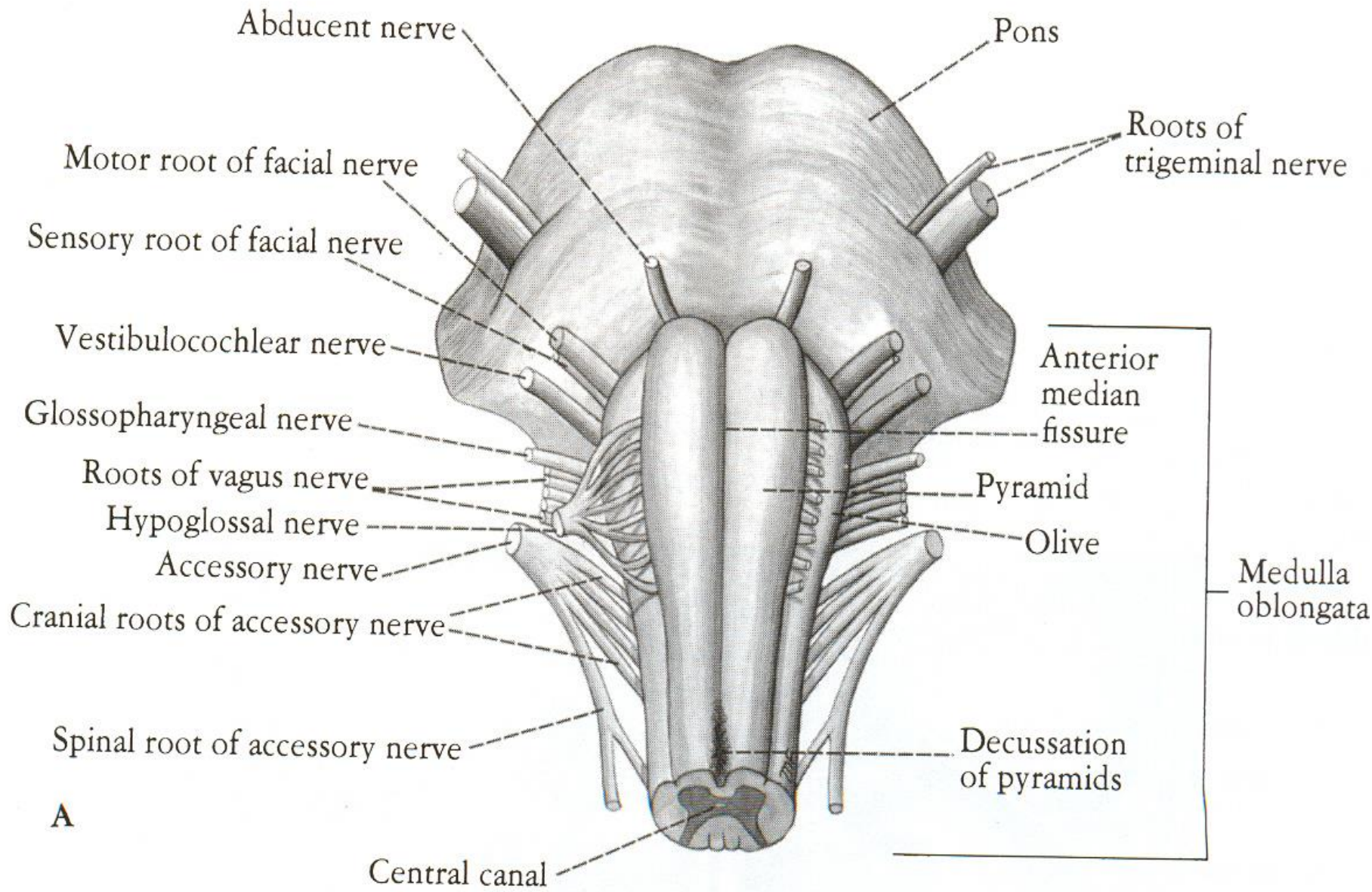


Figure 5-25 Transverse section of the medulla oblongata at the level of the inferior olivary nuclei, showing the extent of the lesion producing the medial medullary syndrome.

سندرم لترال مدولاری (وانبرگ)





Abducent nerve

Pons

Roots of trigeminal nerve

Motor root of facial nerve

Sensory root of facial nerve

Vestibulocochlear nerve

Glossopharyngeal nerve

Anterior median fissure

Roots of vagus nerve

Pyramid

Hypoglossal nerve

Olive

Accessory nerve

Medulla oblongata

Cranial roots of accessory nerve

Spinal root of accessory nerve

Decussation of pyramids

A

Central canal

سطح فوقانی پل

Lingula

Superior medullary
velum
سطح کولیکولوس
صورتی

Inferior cerebellar
peduncle

Facial colliculus

Hypoglossal triangle

Funiculus separans

Cuneate tubercle

Colliculi

Trochlear n

Superior cerebellar
peduncle

Middle cerebellar
peduncle

Striae mediae

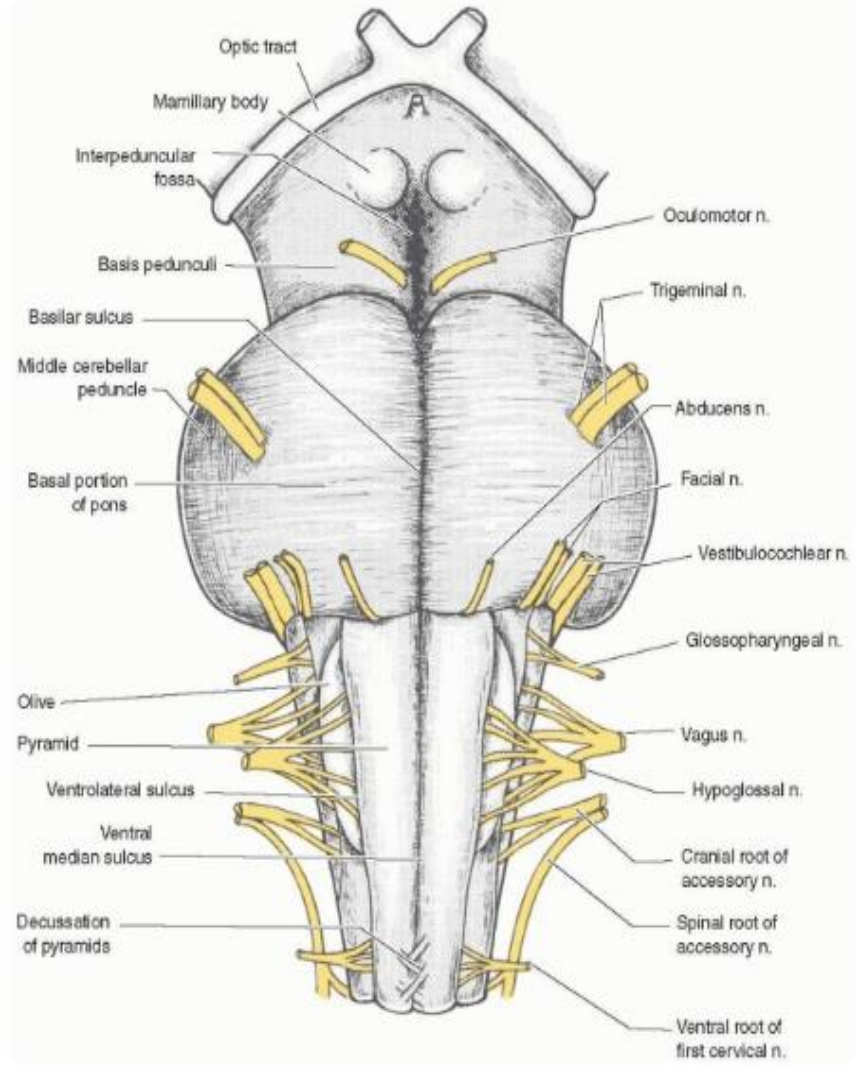
Vestibular
colliculus

Inferior cerebellar
peduncle

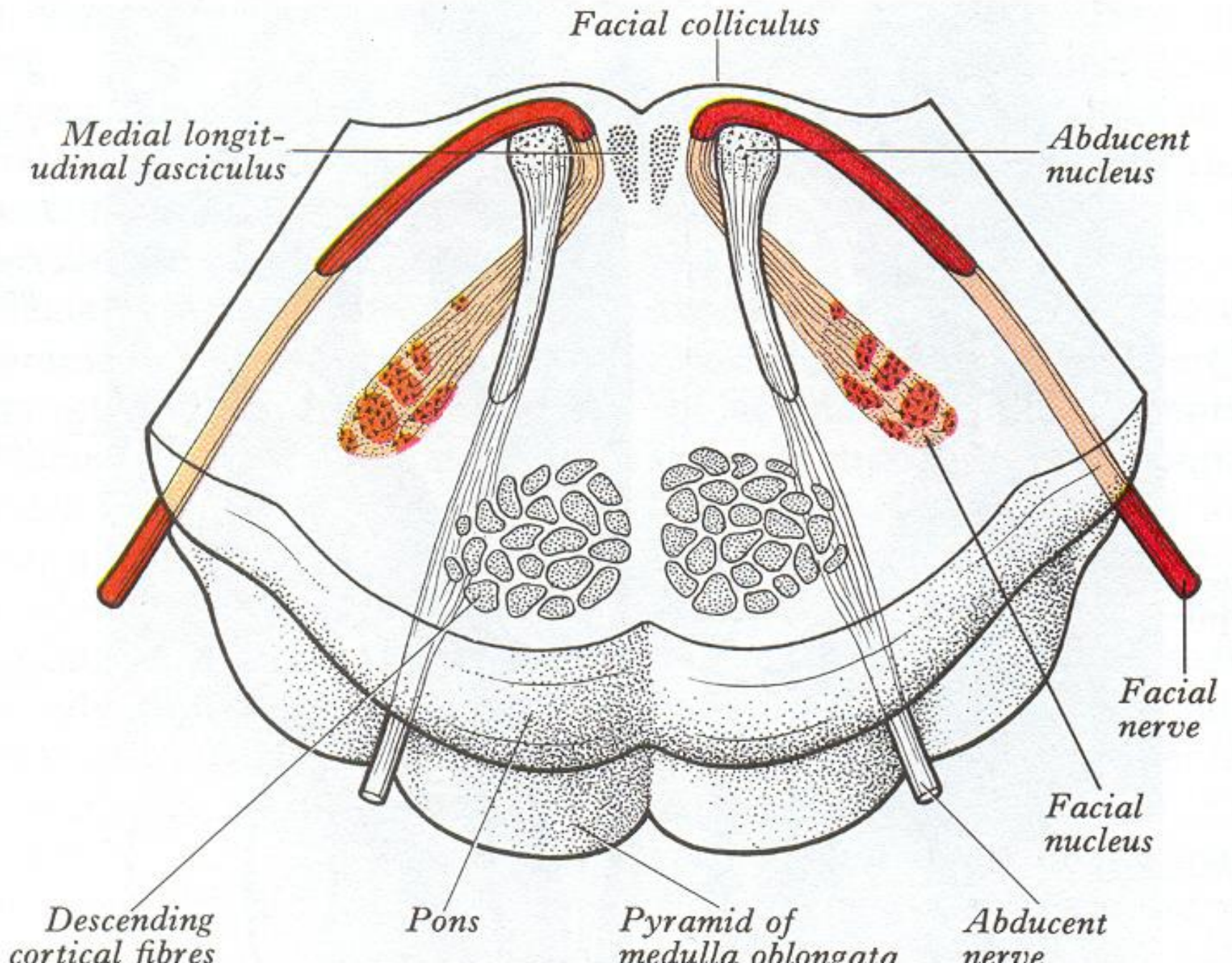
Vagal triangle

Obex

Gracile tubercle



7.89 The rhomboid fossa, or 'floor' of the fourth ventricle.



مقطع پل در قسمت فوقانی

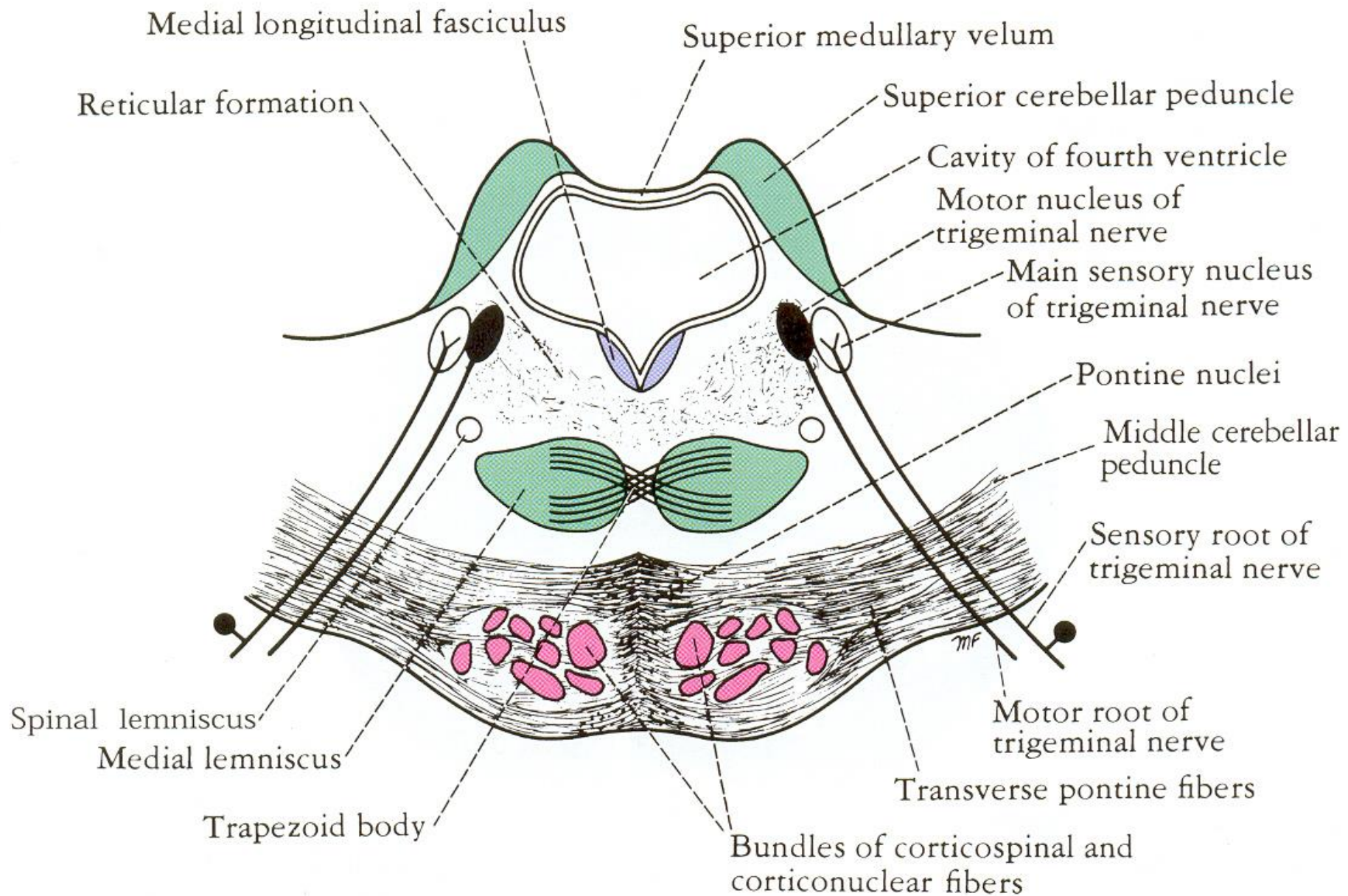


Figure 5-13 Transverse section through the pons at the level of the trigeminal nuclei.

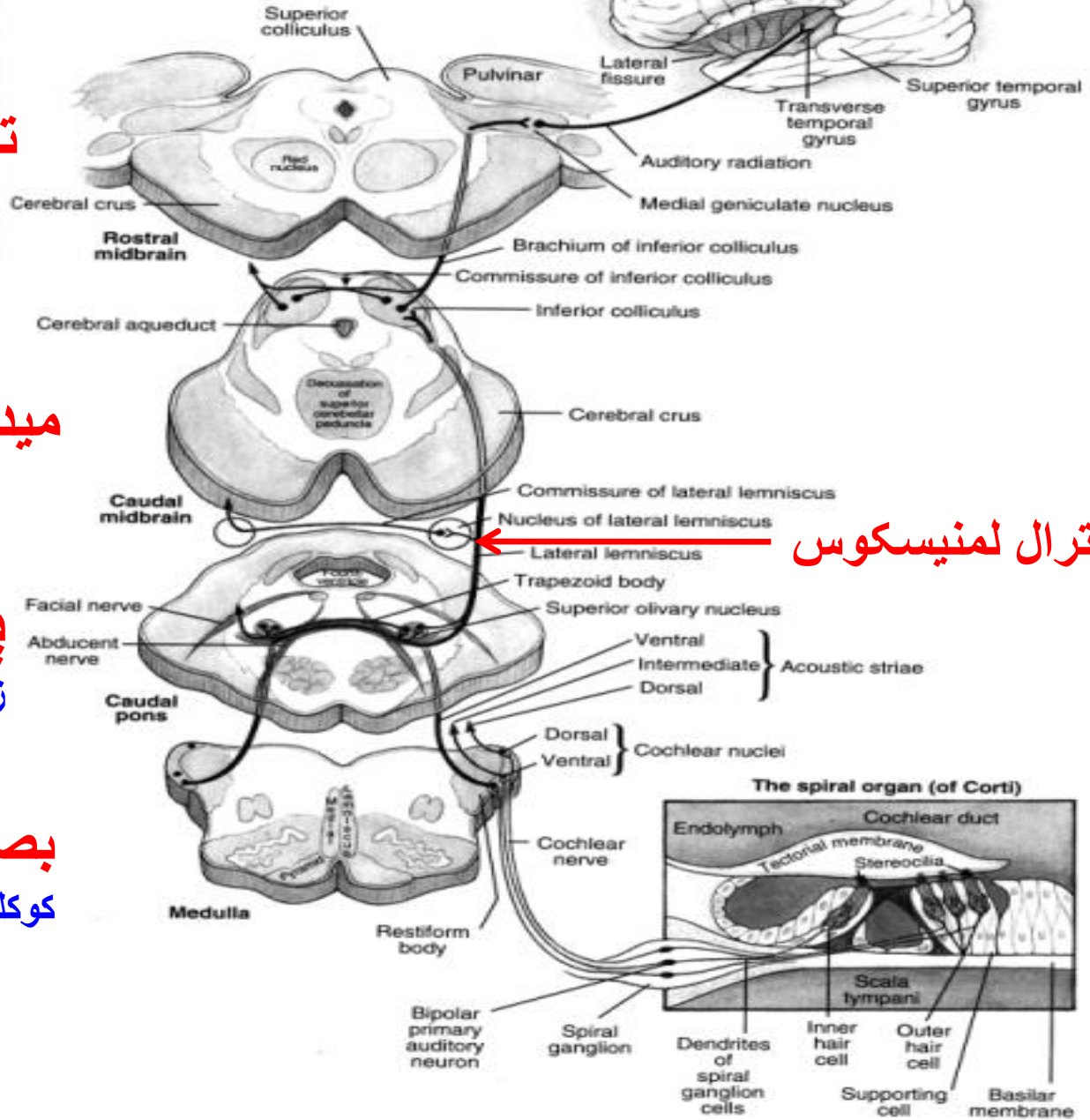
قشر شنوایی (لوب گیجگاهی)

تالاموس (هسته زائونی داخلی)

مید برین (کولیکولوس تحتانی)

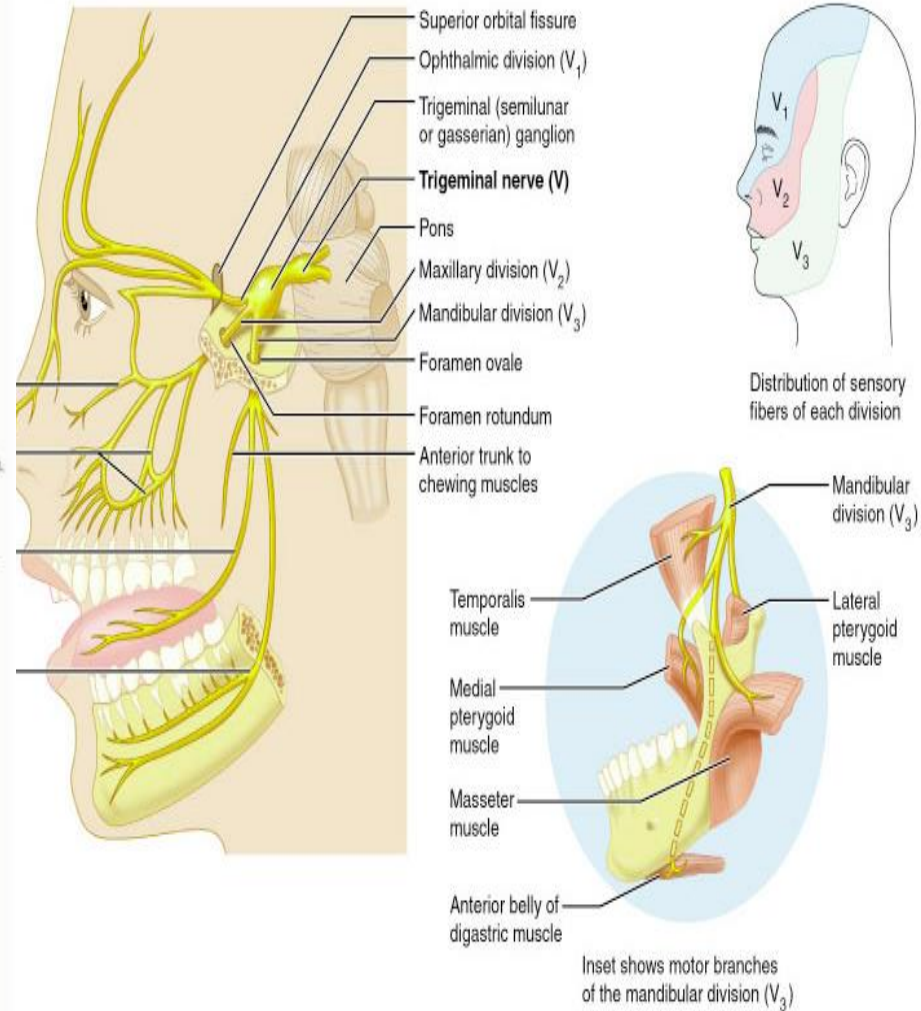
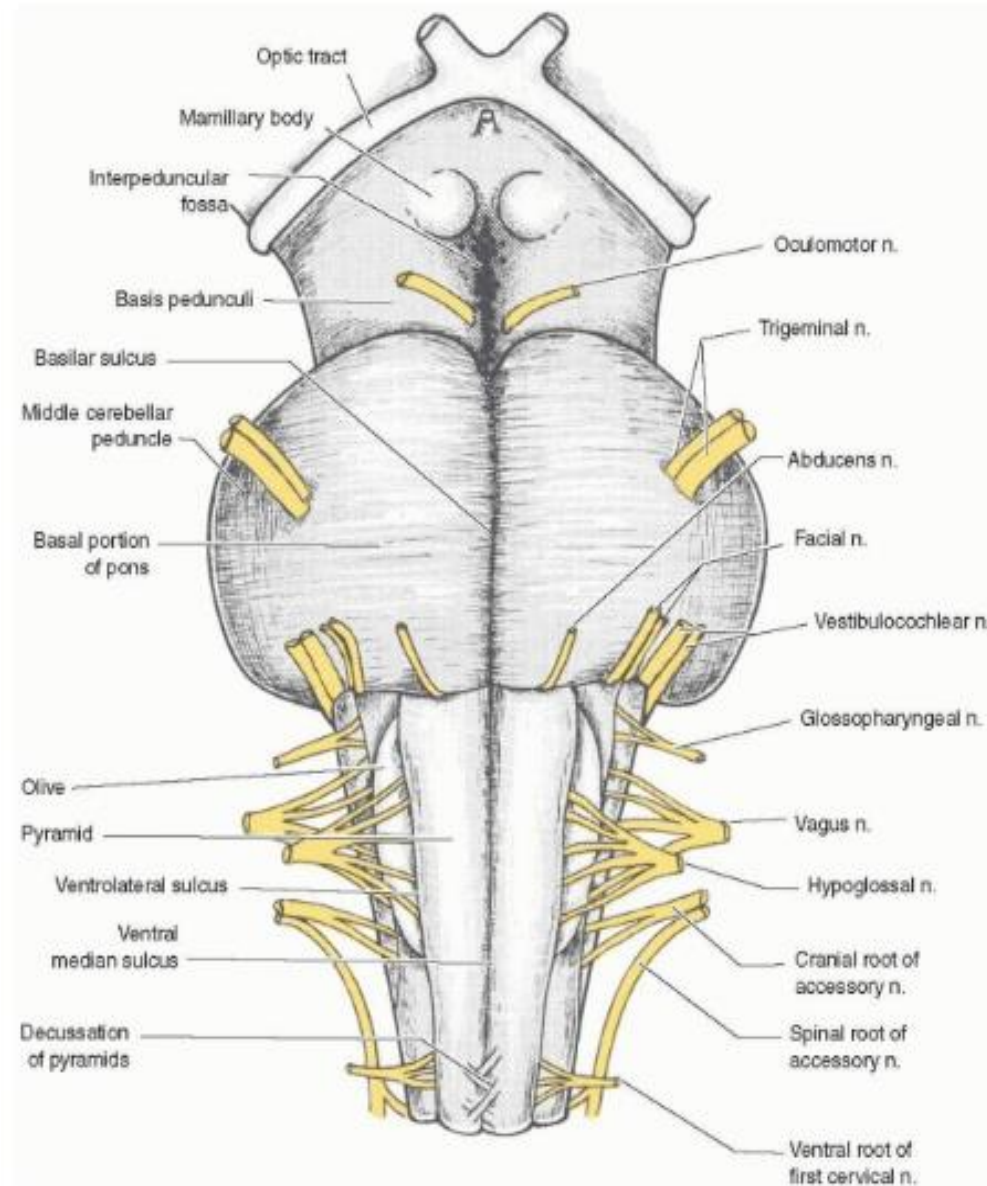
پل مغزی (هسته های زیتون فوقانی)

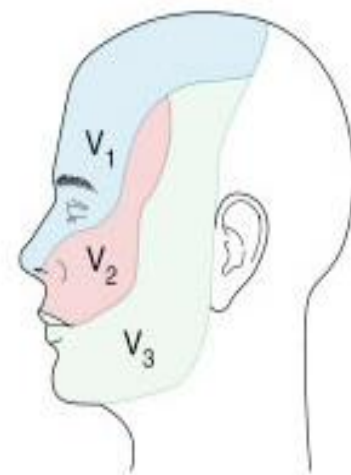
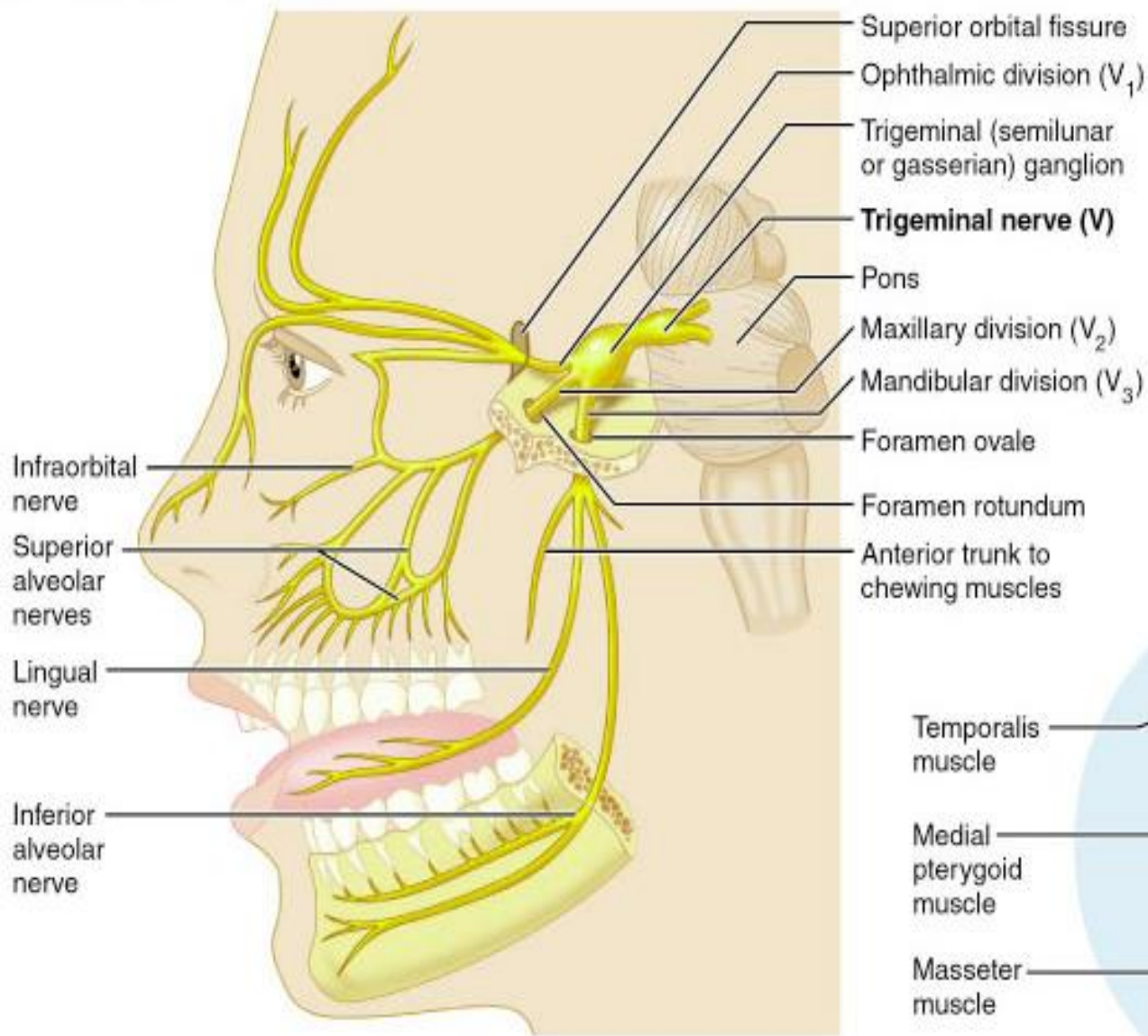
بصل النخاع (هسته های کوکلنار قدامی و خلفی)



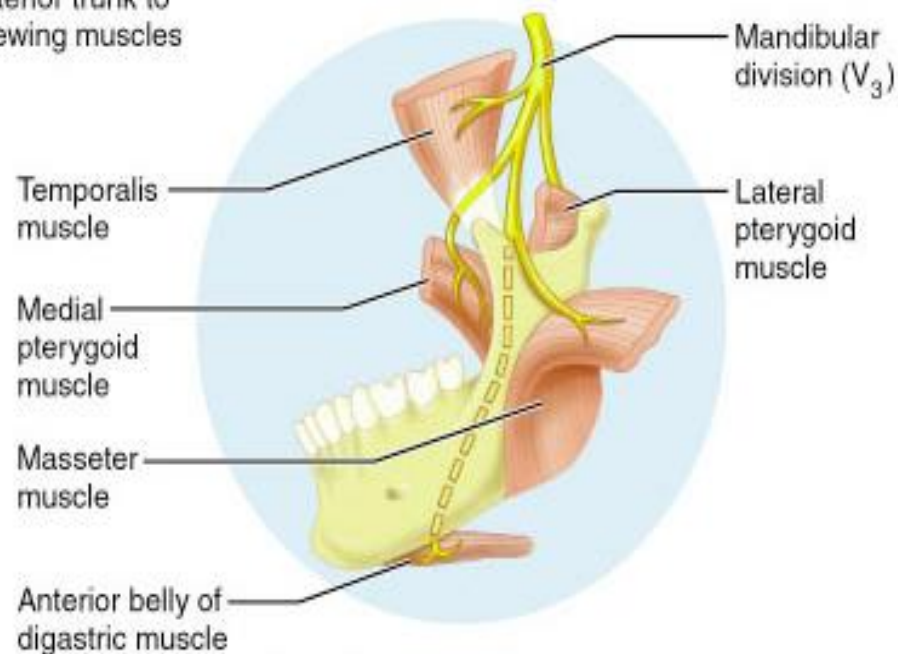
لترال لمنیسکوس

Trigeminal N.(GSA,SVE)

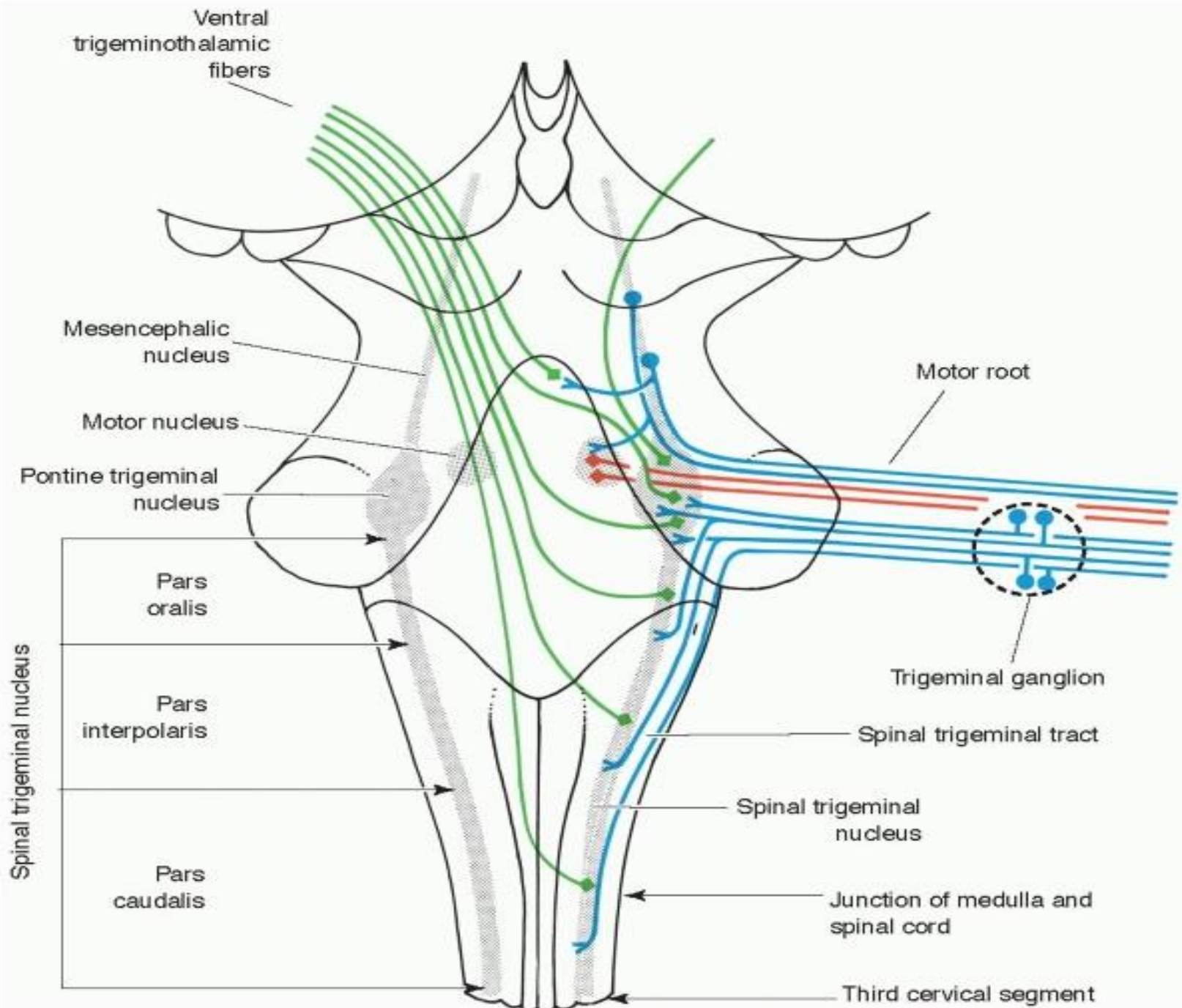




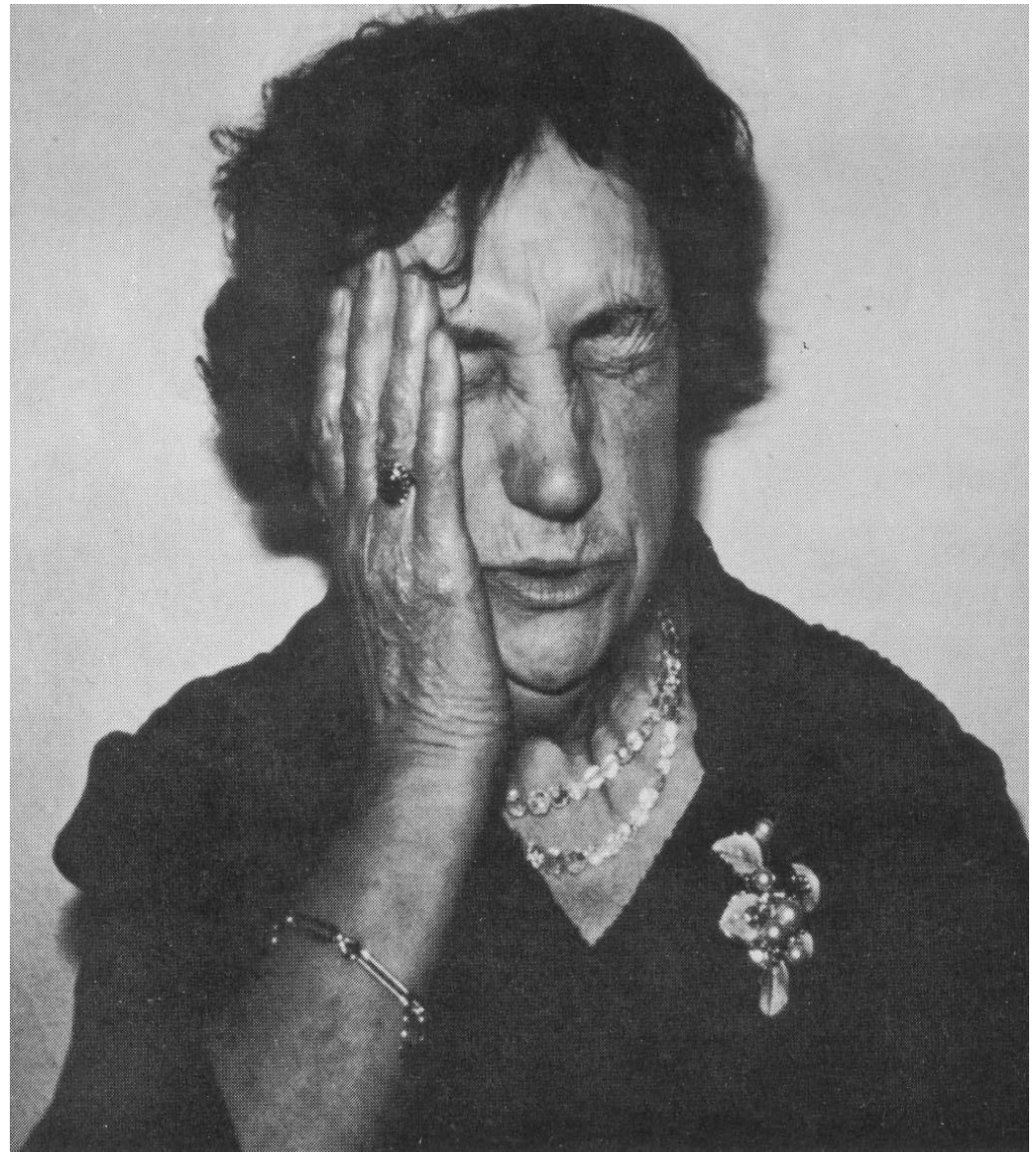
Distribution of sensory fibers of each division



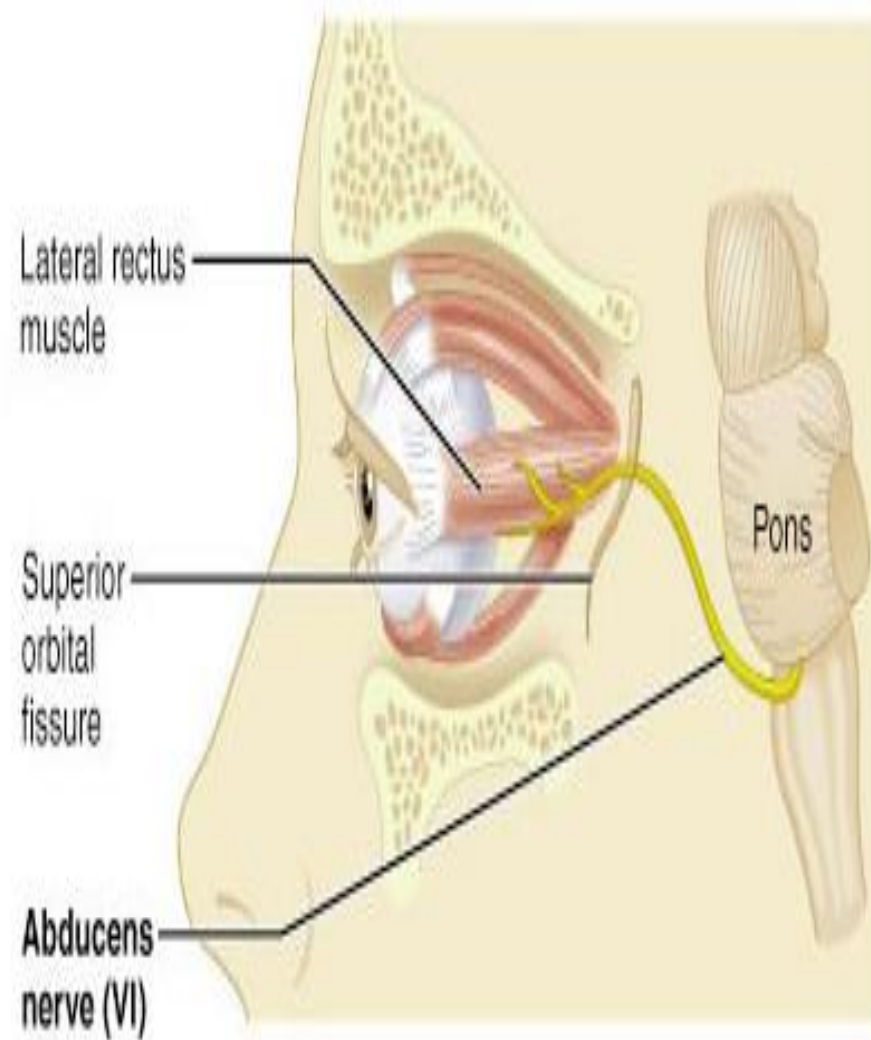
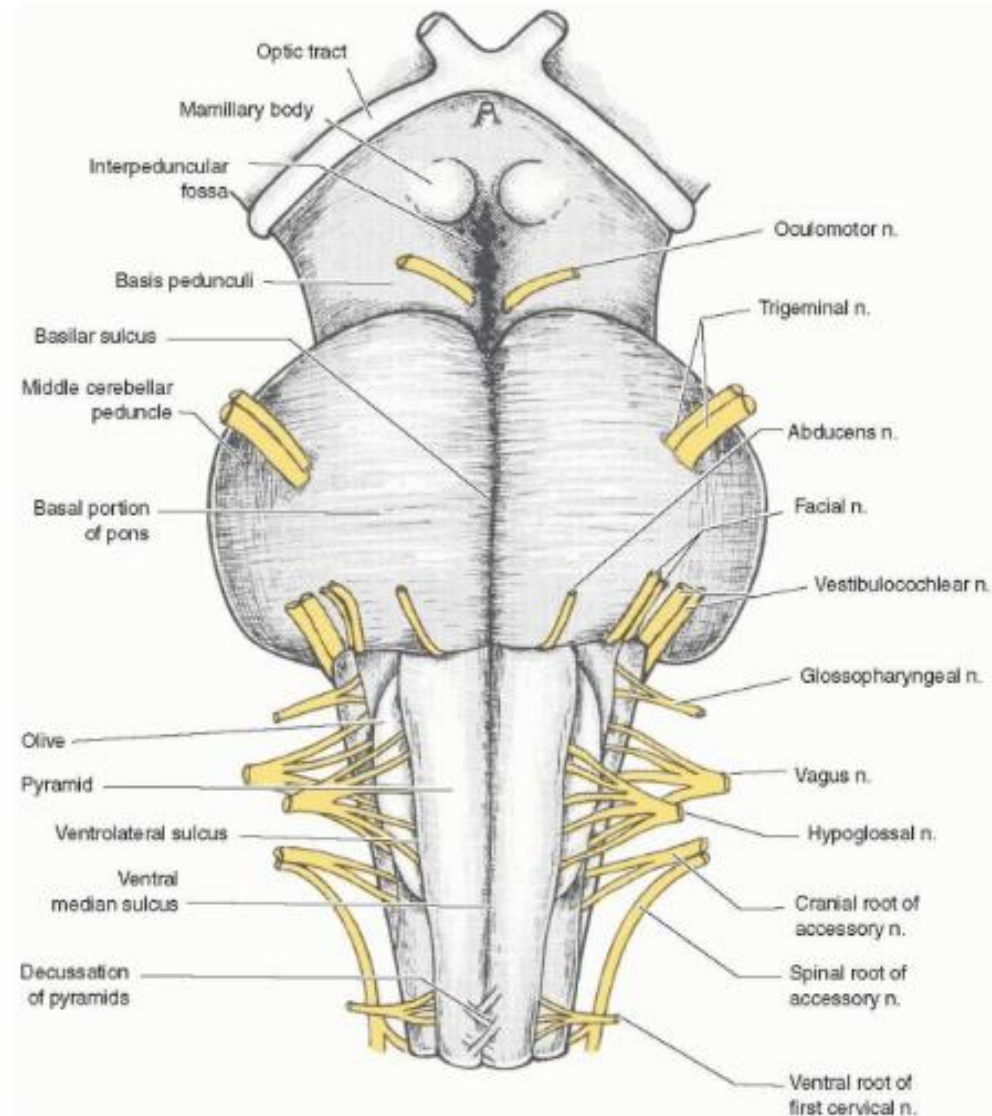
Inset shows motor branches of the mandibular division (V_3)

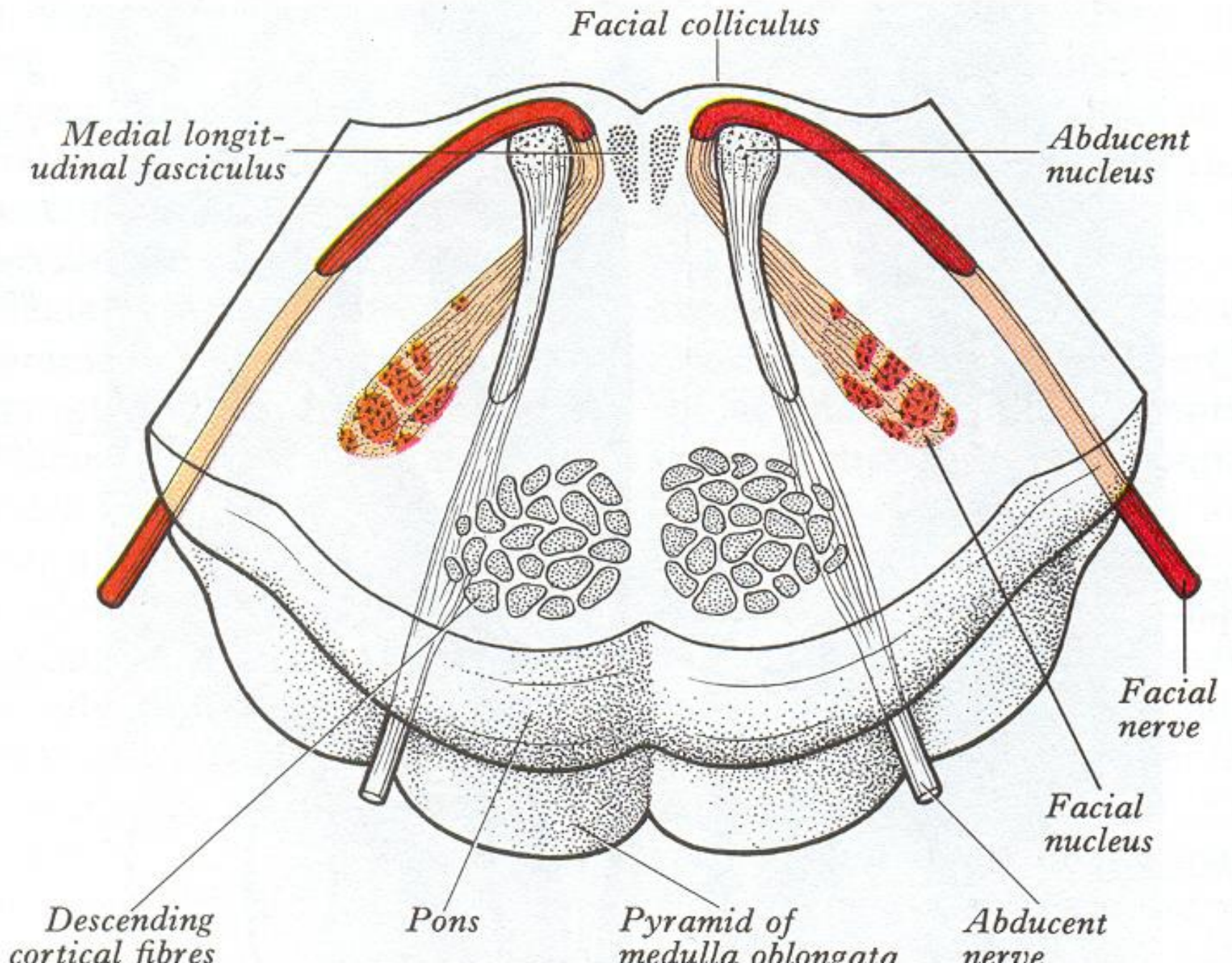


نورالزیاى تريجمينال
(*tic douloureux*)



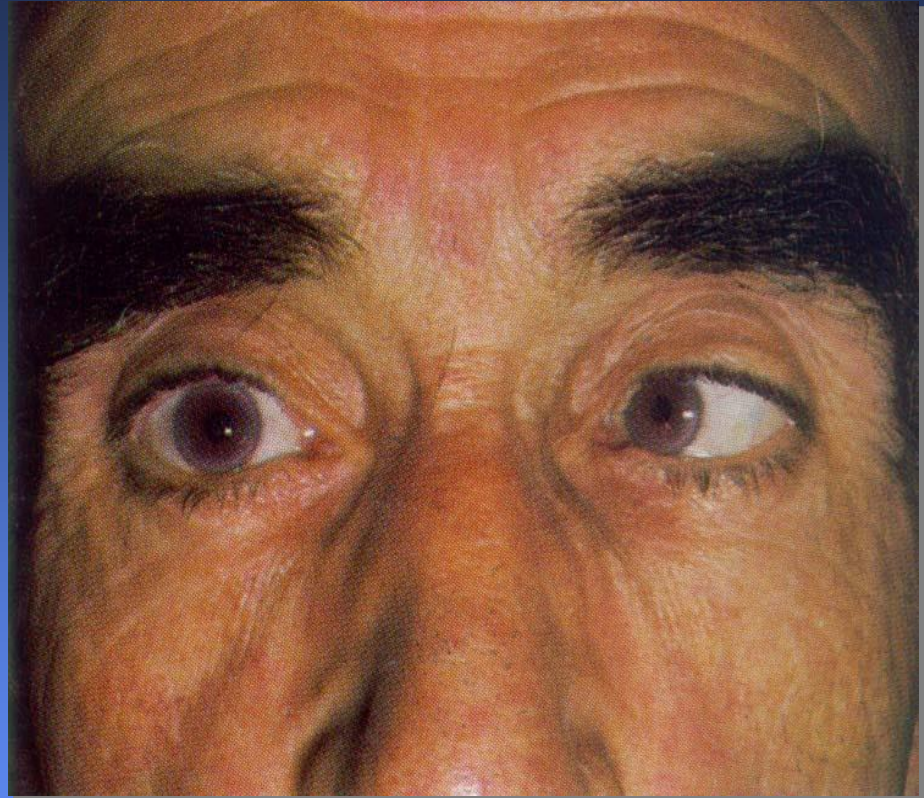
Abducens N.(GSE)





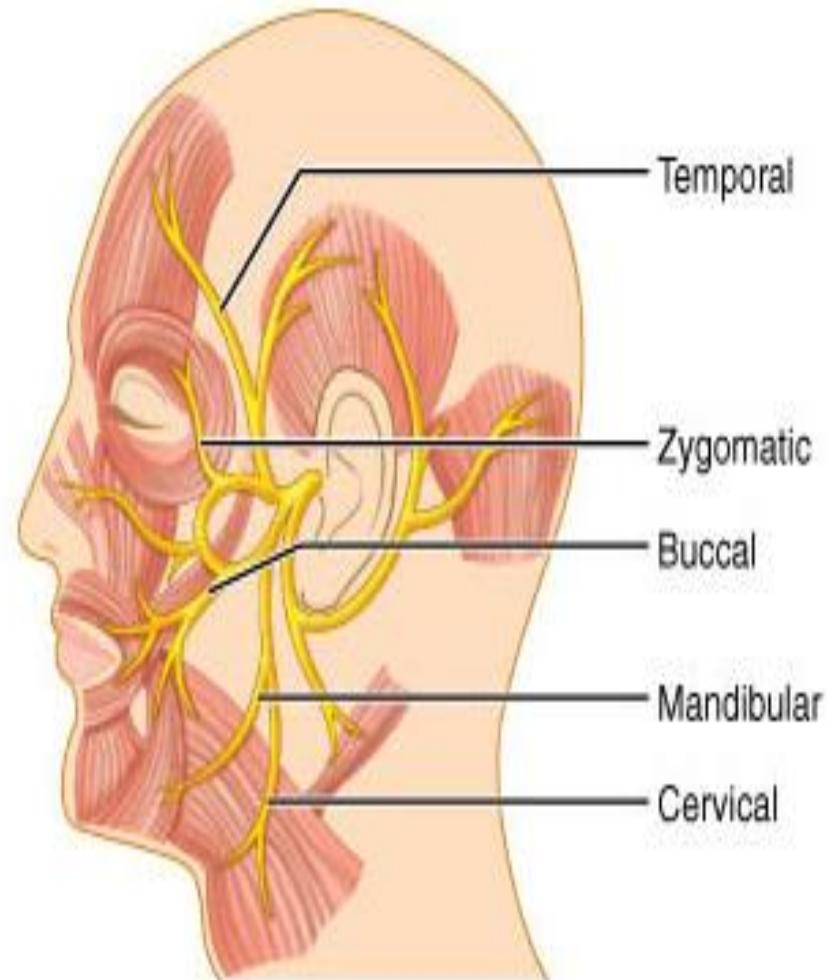
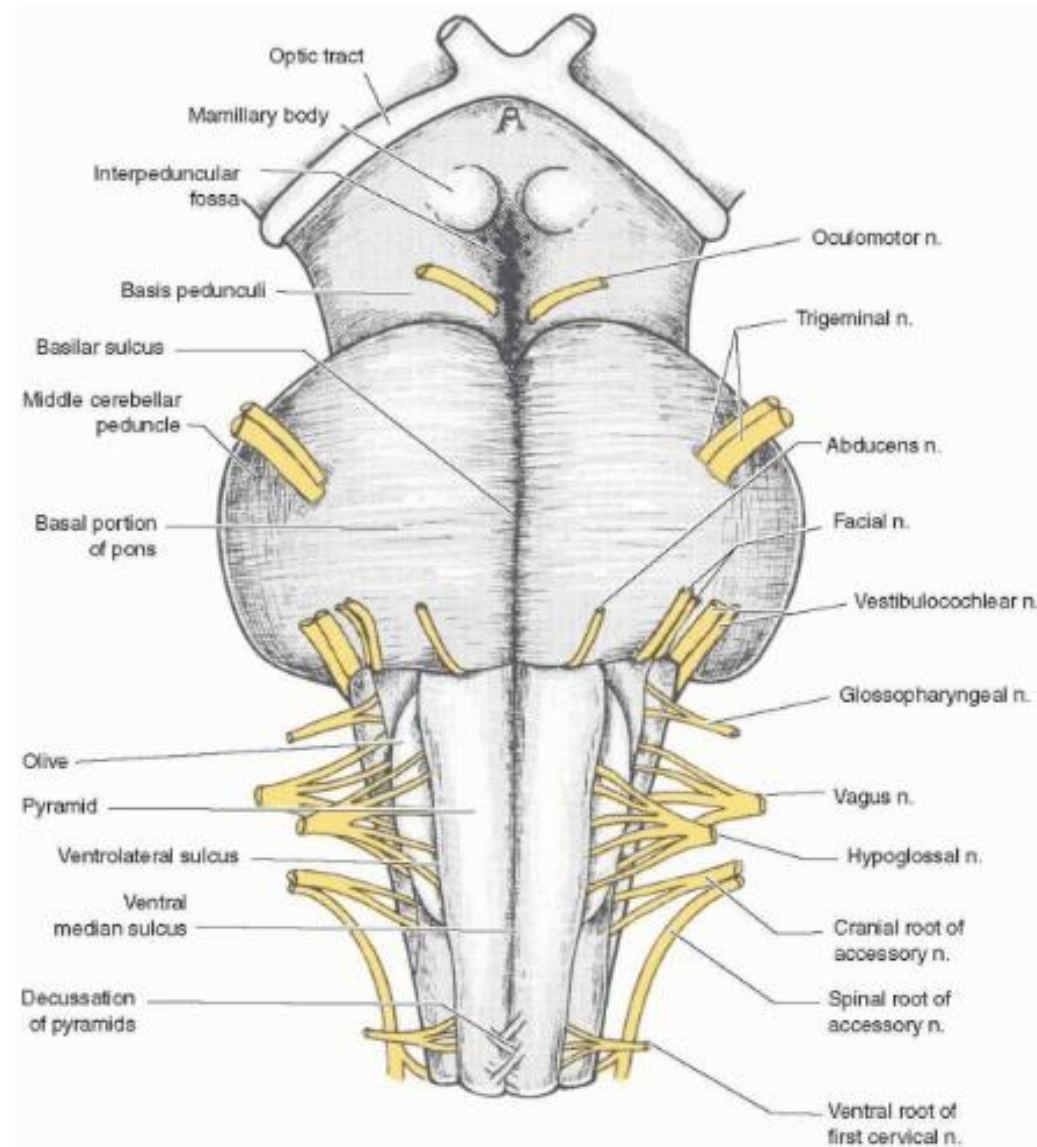
***Abducens
Palsy***

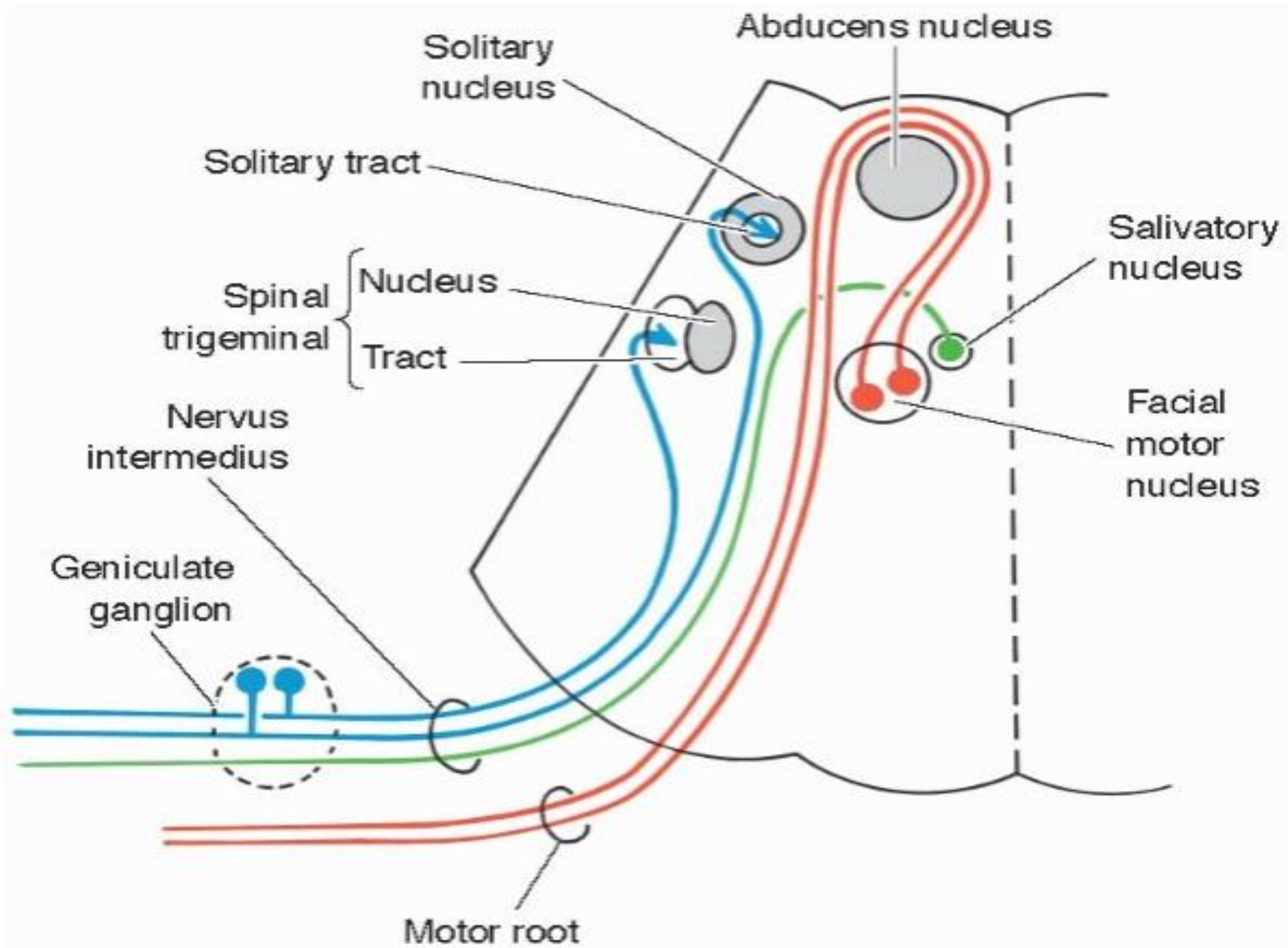
***Lower Motor
Neuron
Syndrome***



Lateral Gaze Paralysis

Facial N.(GSA,SVA,GVE, SVE)

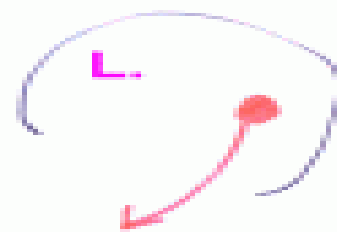






Right cortex

Left cortex



CEREBRAL HEMISPHERE

Cortico nuclear tract

Motor nucleus of facial



FACIAL NUCLEI

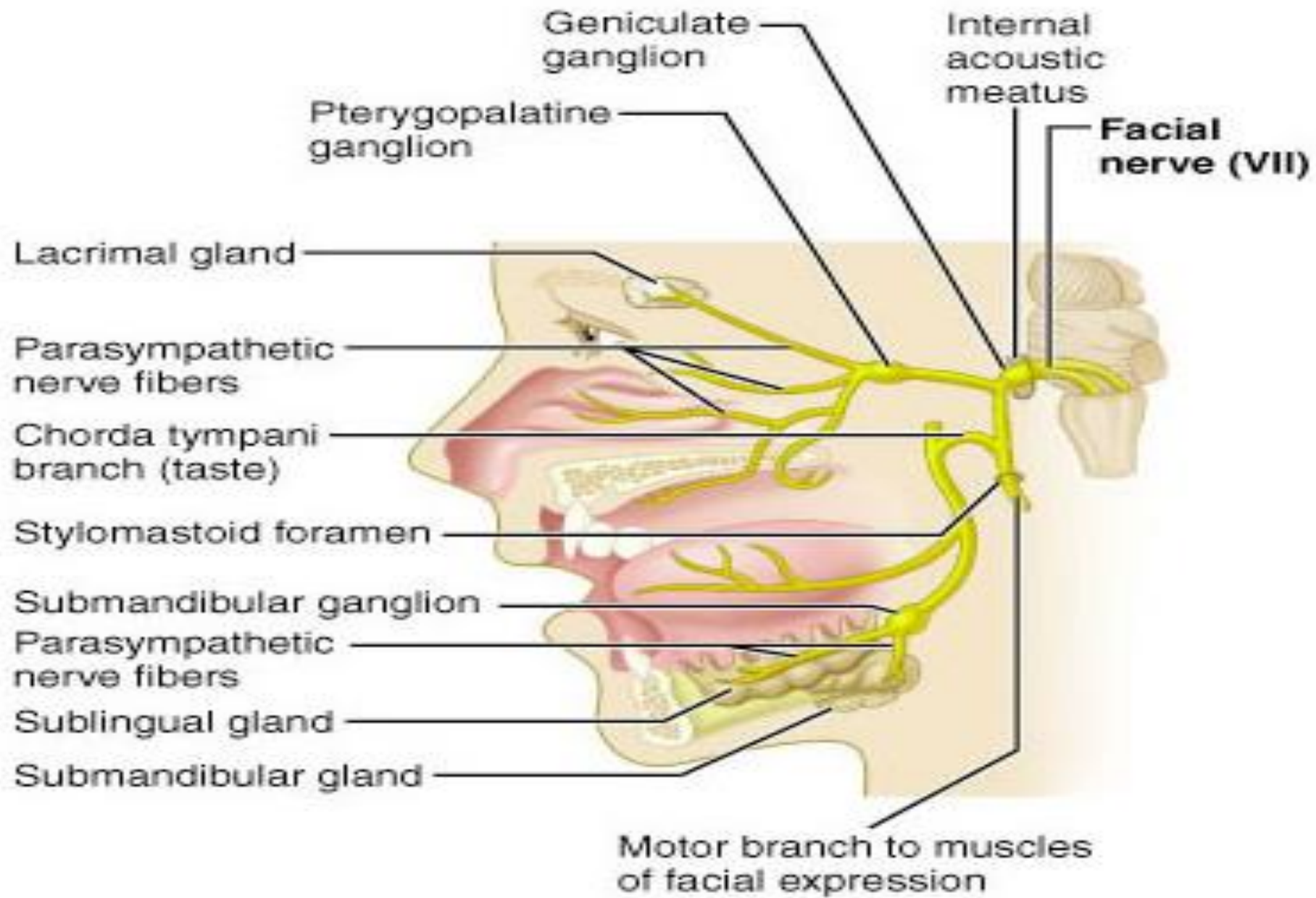


RIGHT

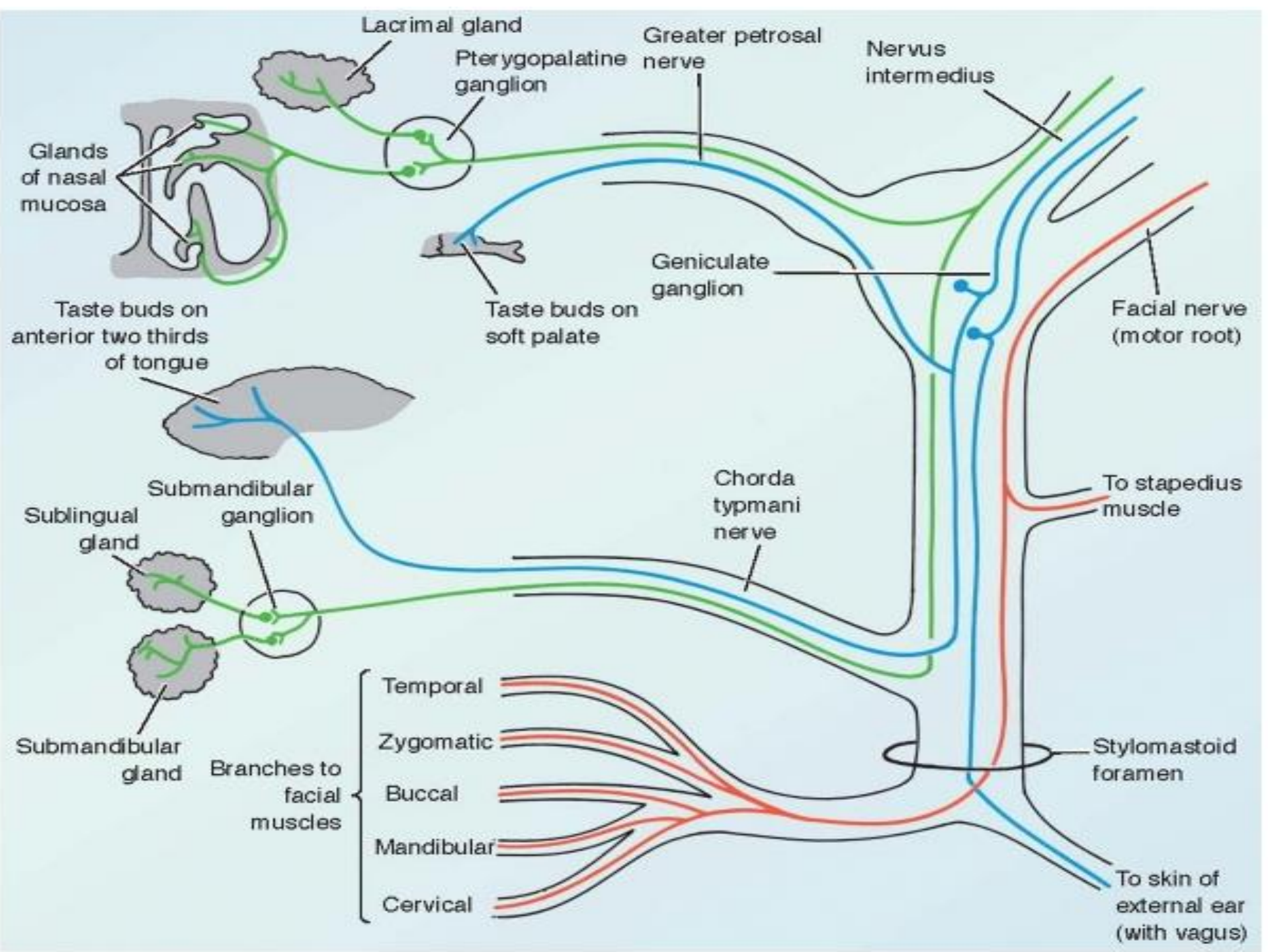
LEFT

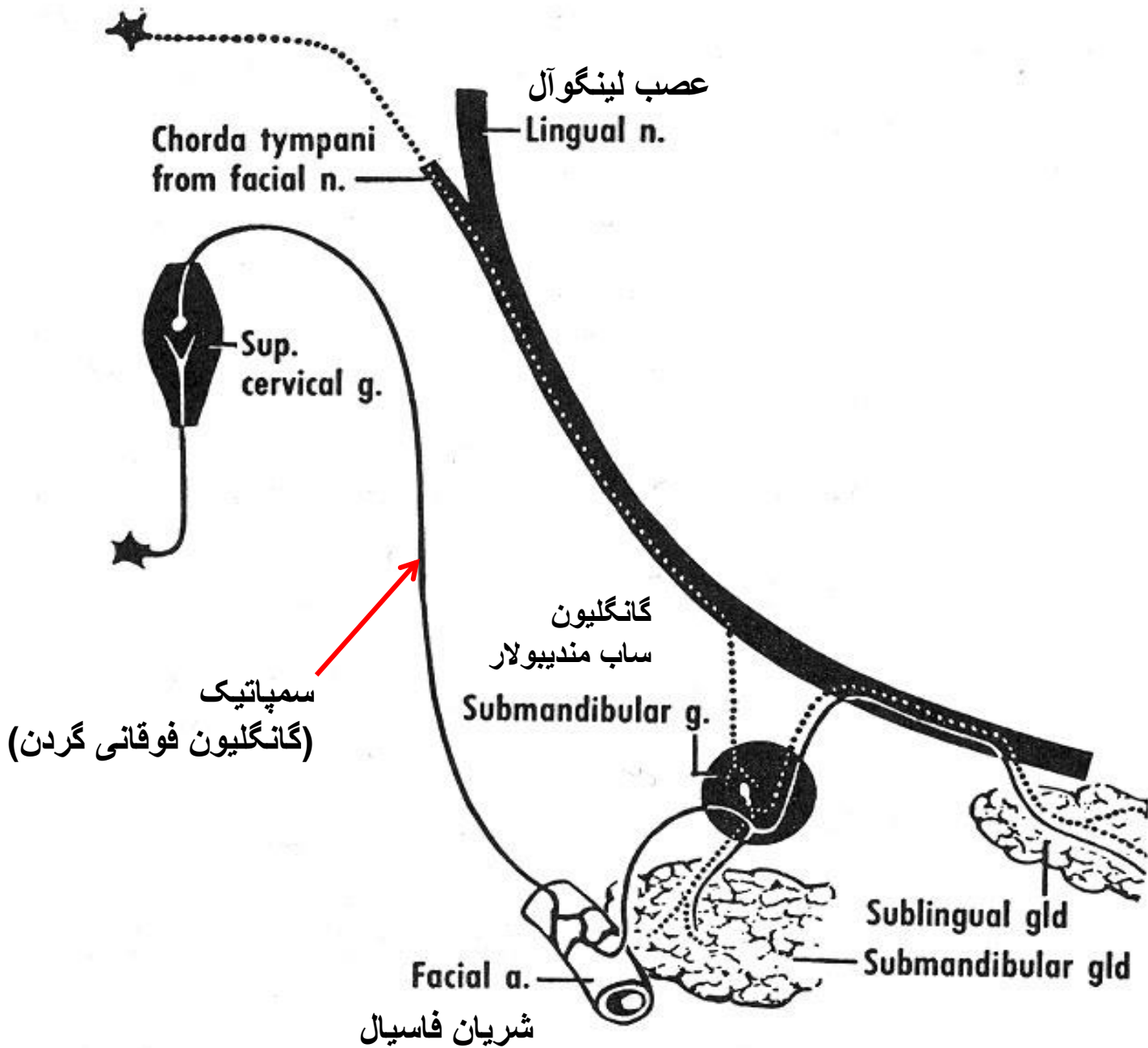
DIAGRAM TO SHOW WHY AN UPPER MOTOR NEURON LESION AFFECTS THE MUSCLES OF ONLY THE LOWER HALF OF THE FACE





(a) Parasympathetic efferents and sensory afferents





عصب لینگوآل

Lingual n.

Chorda tympani from facial n.

Sup. cervical g.

گانگلیون

ساب مندیبولار

Submandibular g.

Sublingual gland

Submandibular gland

Facial a.

شریان فاسیال

سمپاتیک

(گانگلیون فوقانی گردن)

هسته بزاقی فوقانی



عصب اینترمدیت



گانگلیون زانویی



پاراسمپاتیک

آورانهای چشمی

عصب کوردا تیمپانی



عصب لینگوال



گانگلیون ساب مندیبولار (سمپاتیک + پاراسمپاتیک)



غده ساب مندیبولار و ساب لینگوال

کوردا تیمپانی
(آورانهای چشمی)

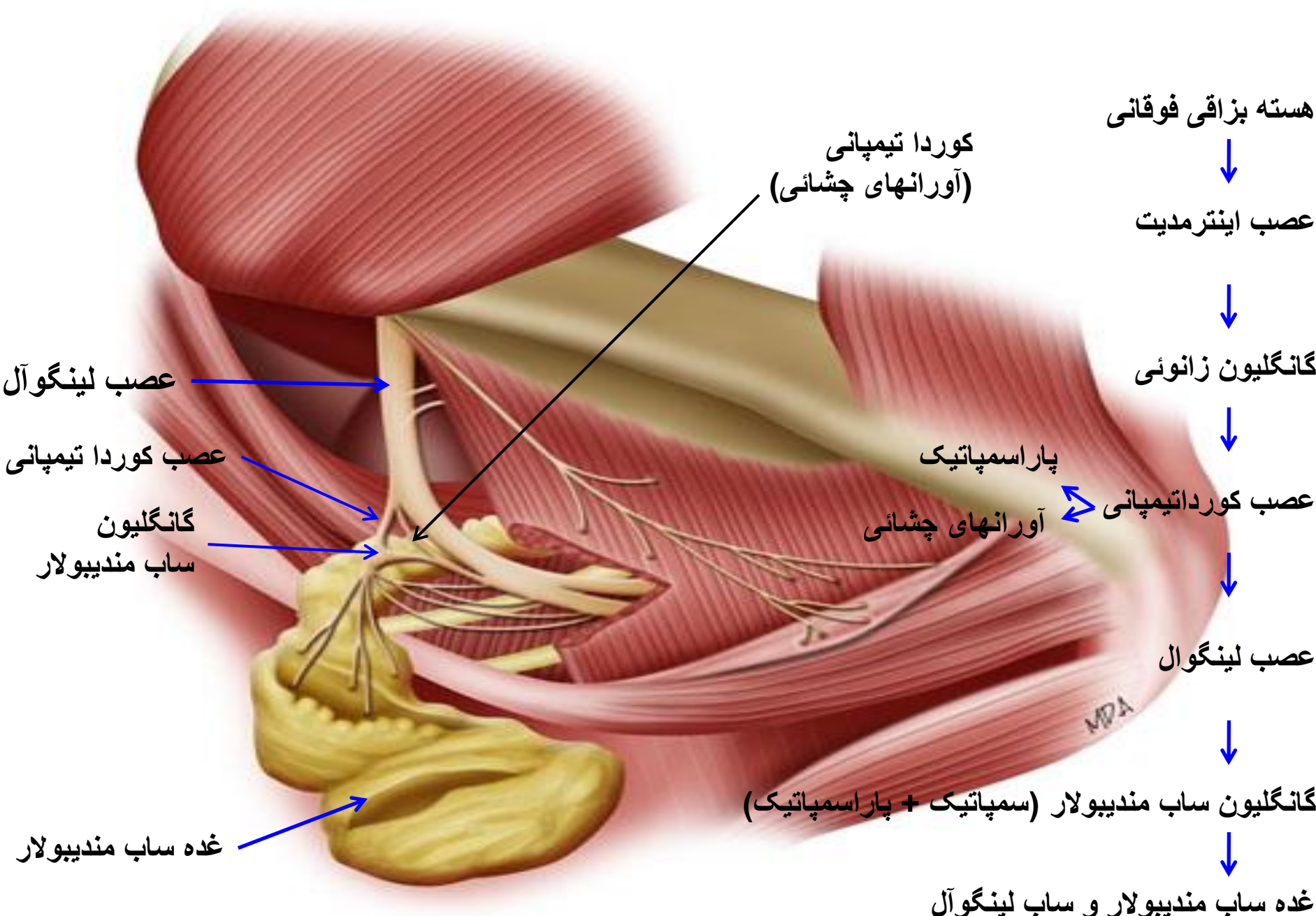
عصب لینگوال

عصب کوردا تیمپانی

گانگلیون

ساب مندیبولار

غده ساب مندیبولار



گانگلیون پتریگوپالاتین

عصب مجرای پتریگوئید
(عصب ویدین)

عصب پتروزال بزرگ
(پاراسمپاتیک)

سمپاتیک
شریان کاروتید داخلی

هسته بزاقی فوقانی

عصب اینترمدیت

گانگلیون زانویی

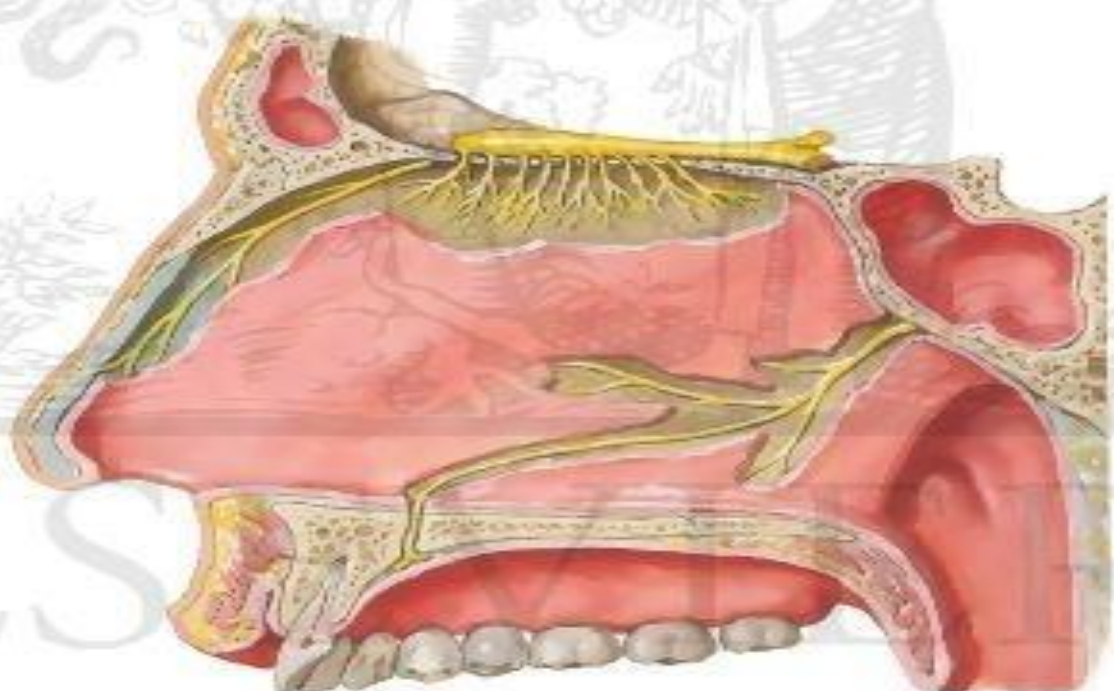
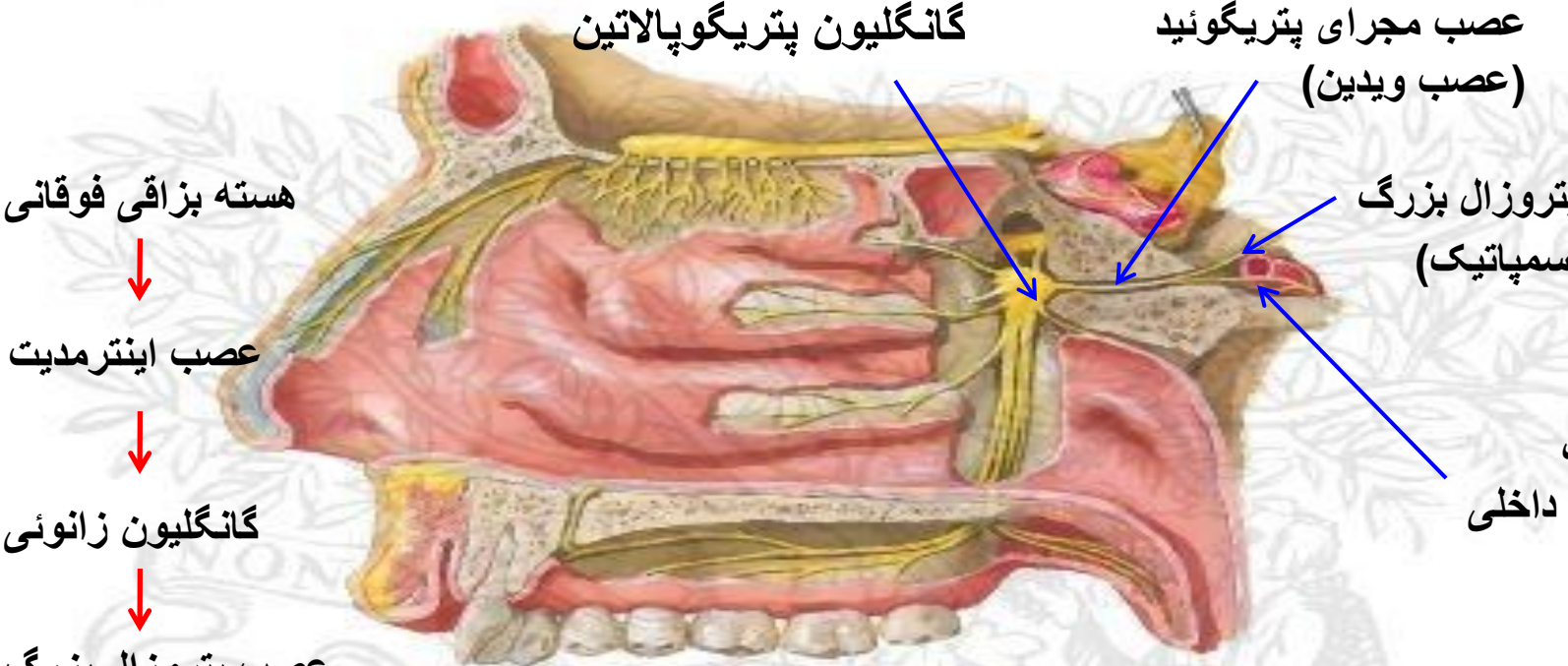
عصب پتروزال بزرگ

+

سمپاتیک

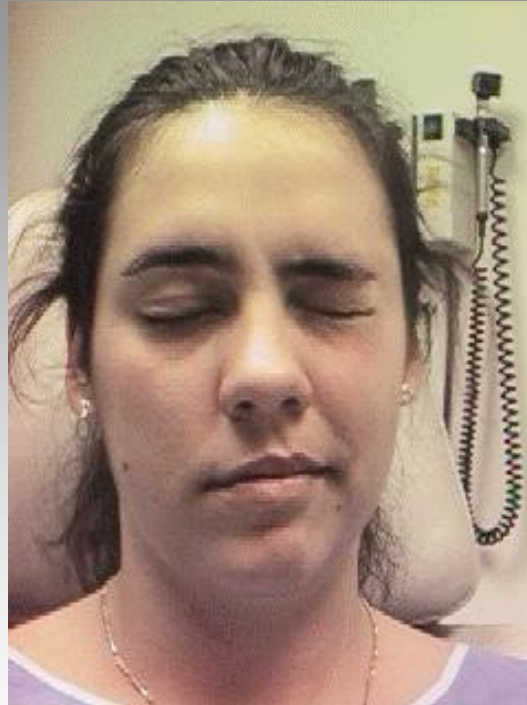
عصب مجرای پتریگوئید

گانگلیون پتریگوپالاتین



F. Nasser

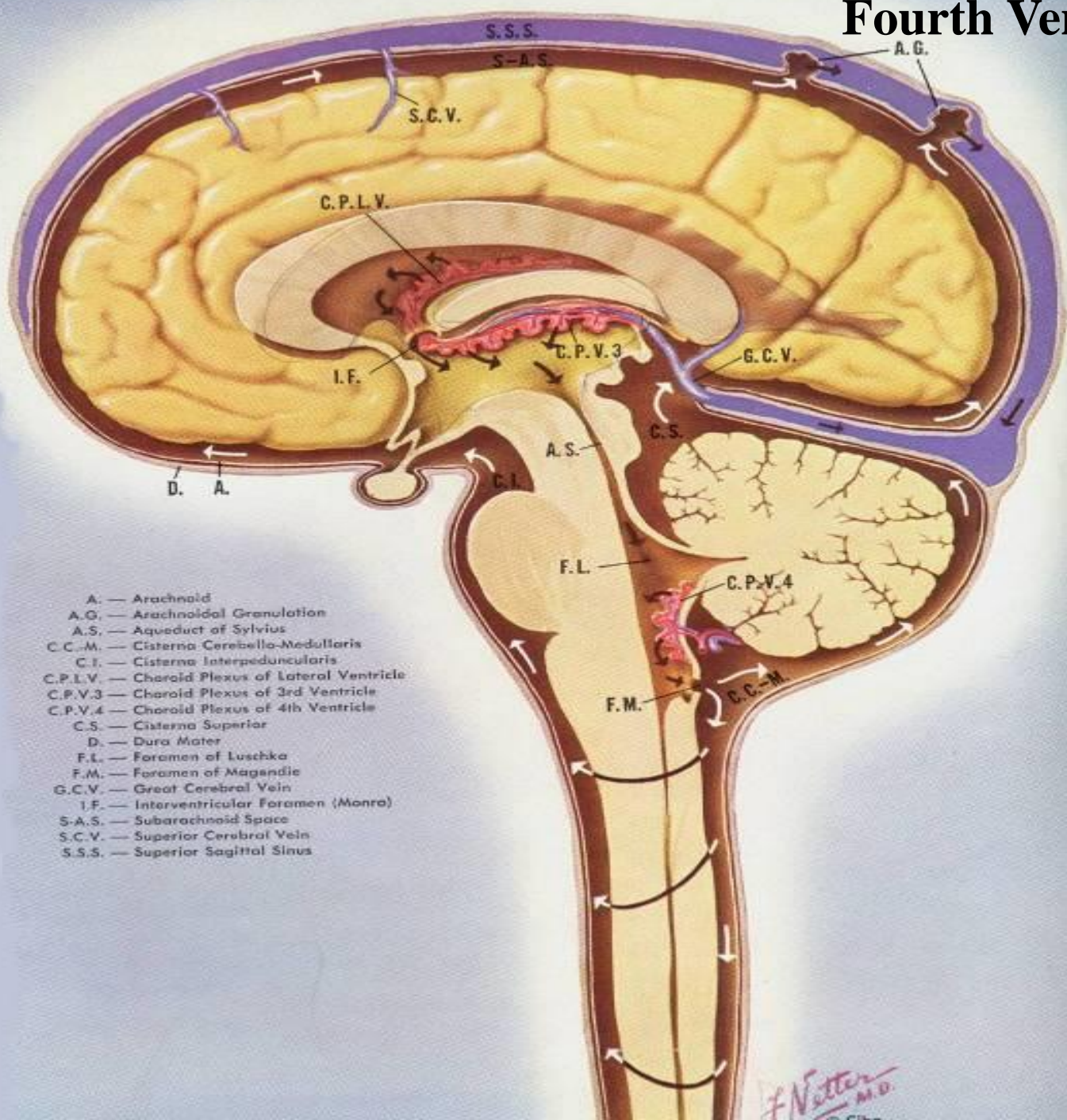
Facial Palsy (Bell's Palsy)



Right facial paralysis

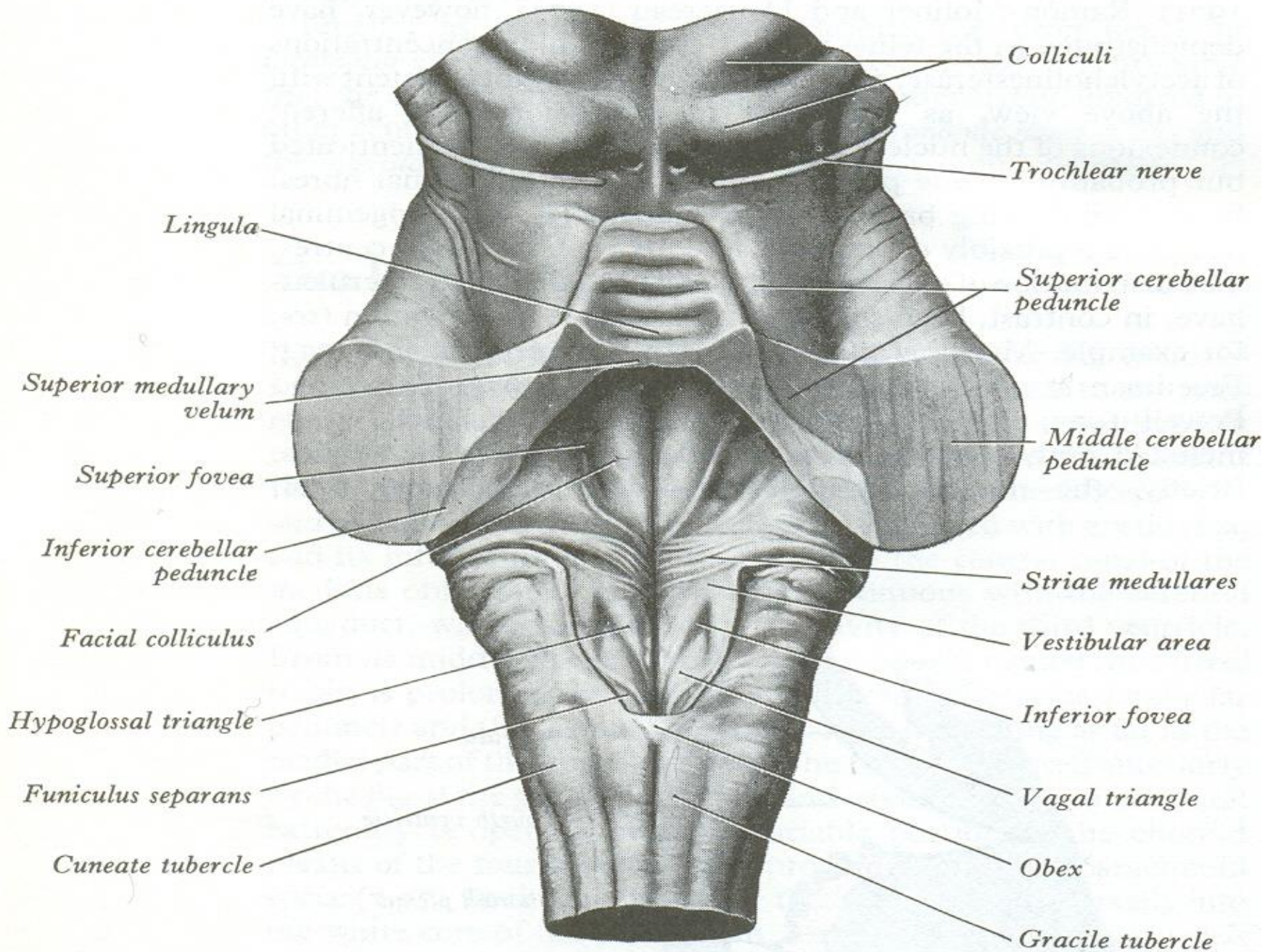
Fourth Ventricle

بطن چهارم

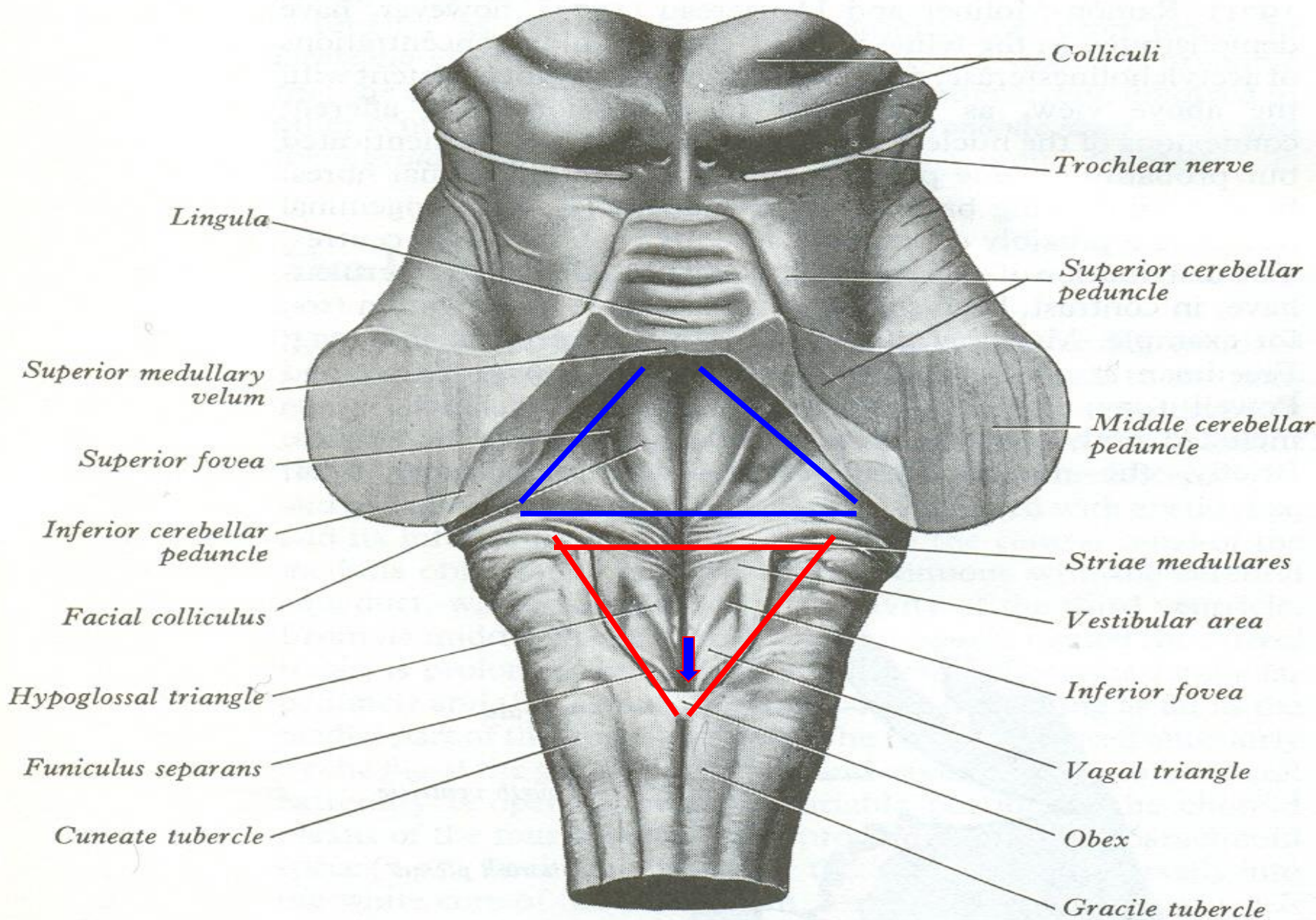


- A. — Arachnoid
- A.G. — Arachnoid Granulation
- A.S. — Aqueduct of Sylvius
- C.C.-M. — Cisterna Cerebello-Medullaris
- C.I. — Cisterna Interpeduncularis
- C.P.L.V. — Choroid Plexus of Lateral Ventricle
- C.P.V.3 — Choroid Plexus of 3rd Ventricle
- C.P.V.4 — Choroid Plexus of 4th Ventricle
- C.S. — Cisterna Superior
- D. — Dura Mater
- F.L. — Foramen of Luschka
- F.M. — Foramen of Magendie
- G.C.V. — Great Cerebral Vein
- I.F. — Interventricular Foramen (Monro)
- S-A.S. — Subarachnoid Space
- S.C.V. — Superior Cerebral Vein
- S.S.S. — Superior Sagittal Sinus

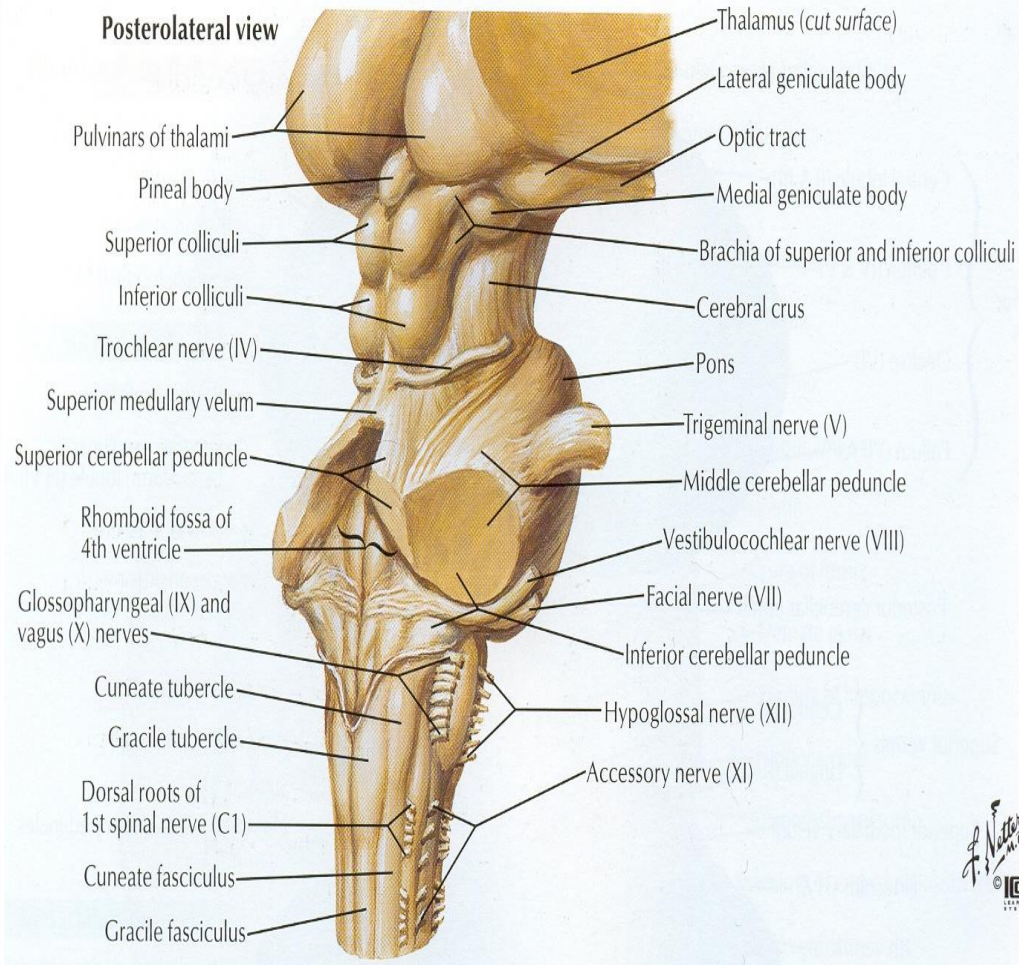
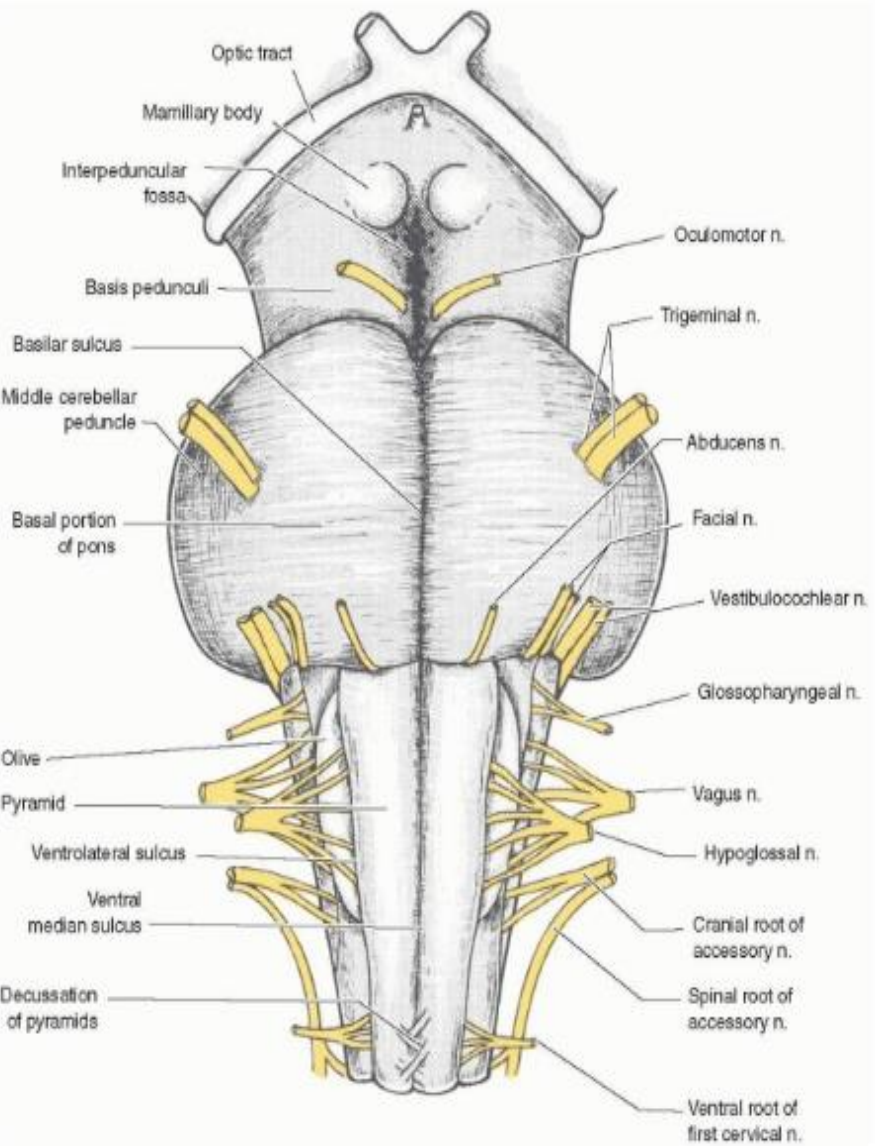
F. Netter M.D.

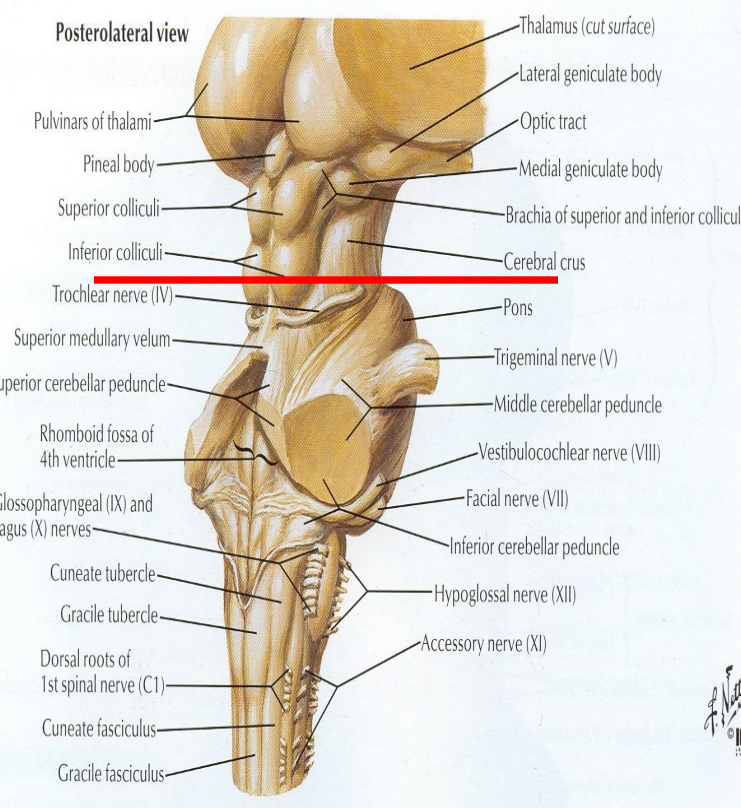
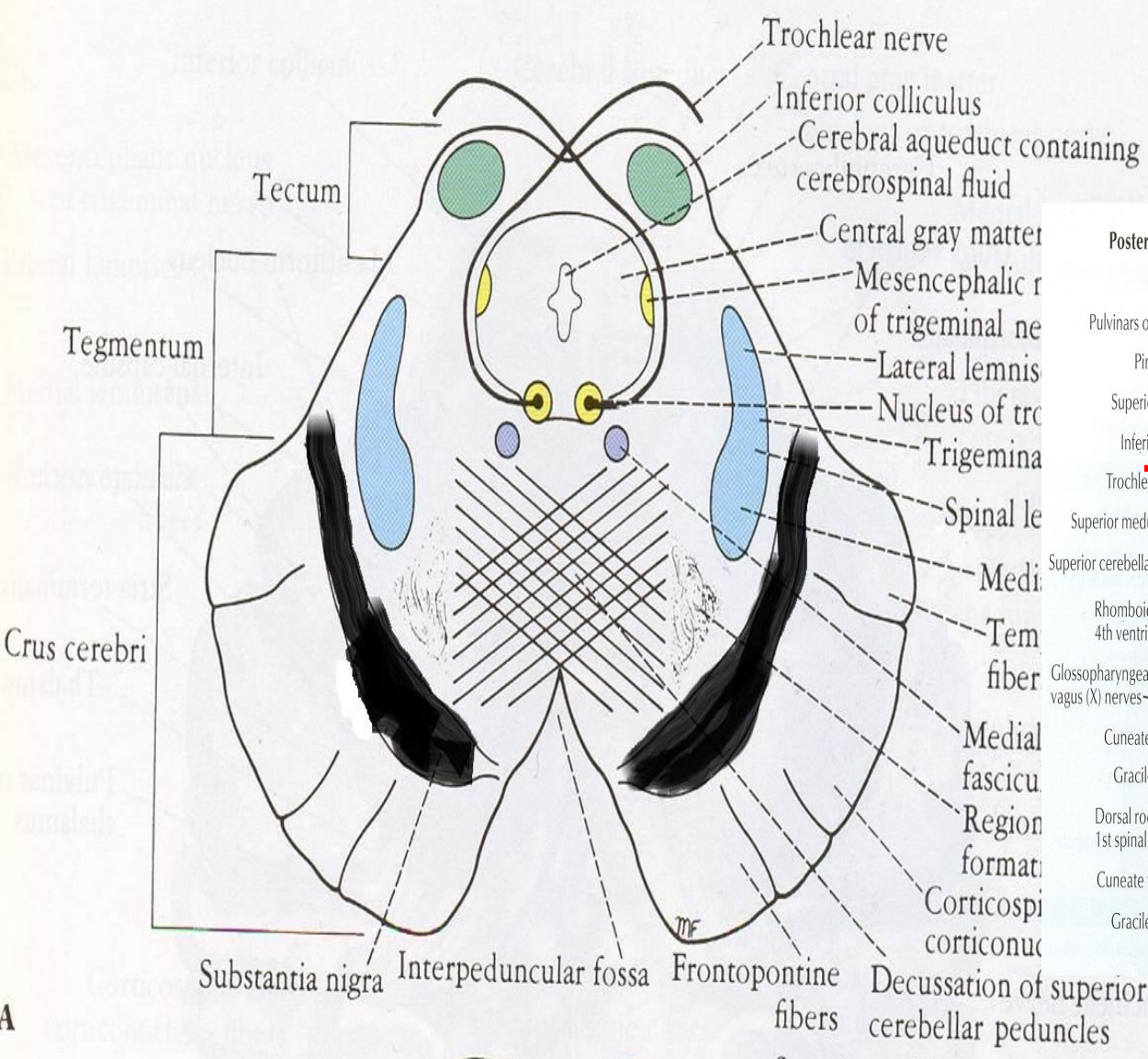


7.89 The rhomboid fossa, or 'floor' of the fourth ventricle.



7.89 The rhomboid fossa, or 'floor' of the fourth ventricle.

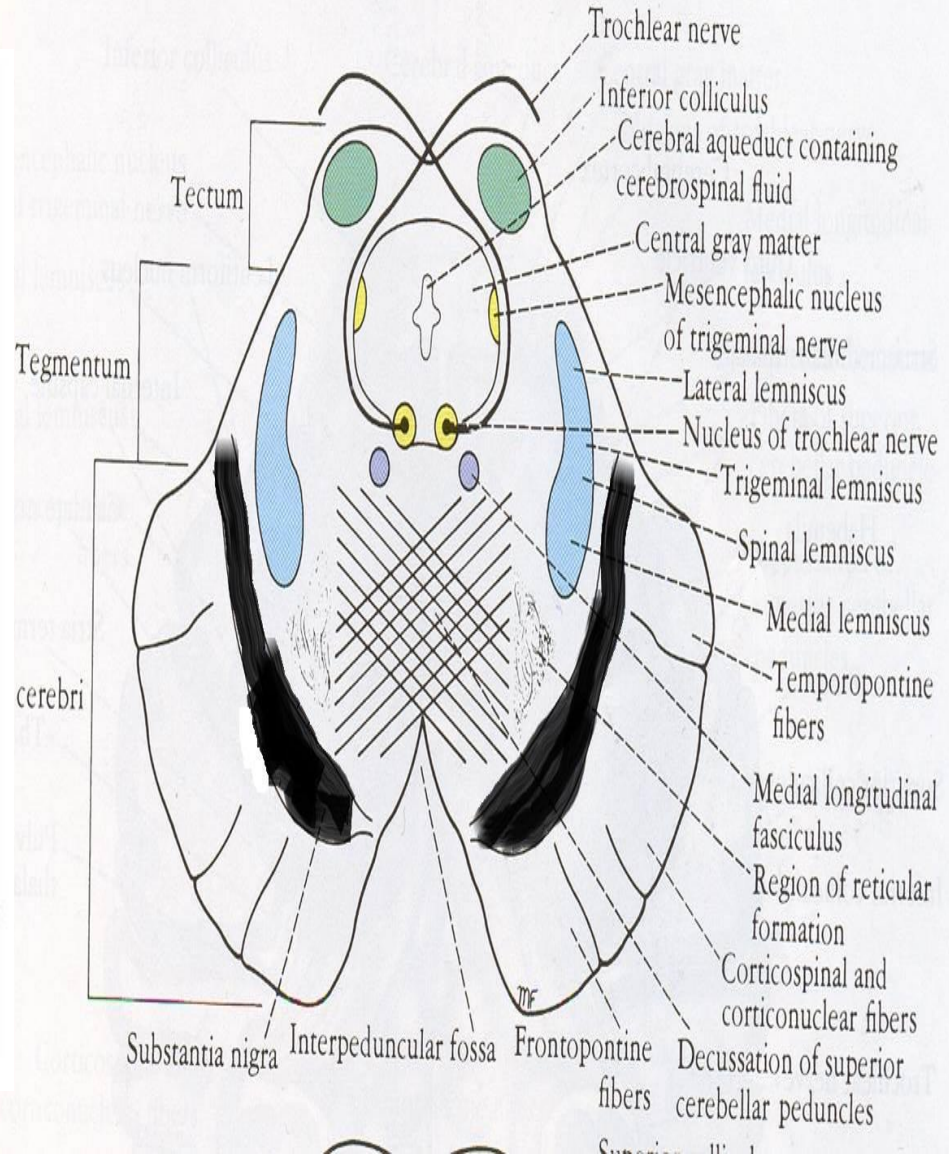
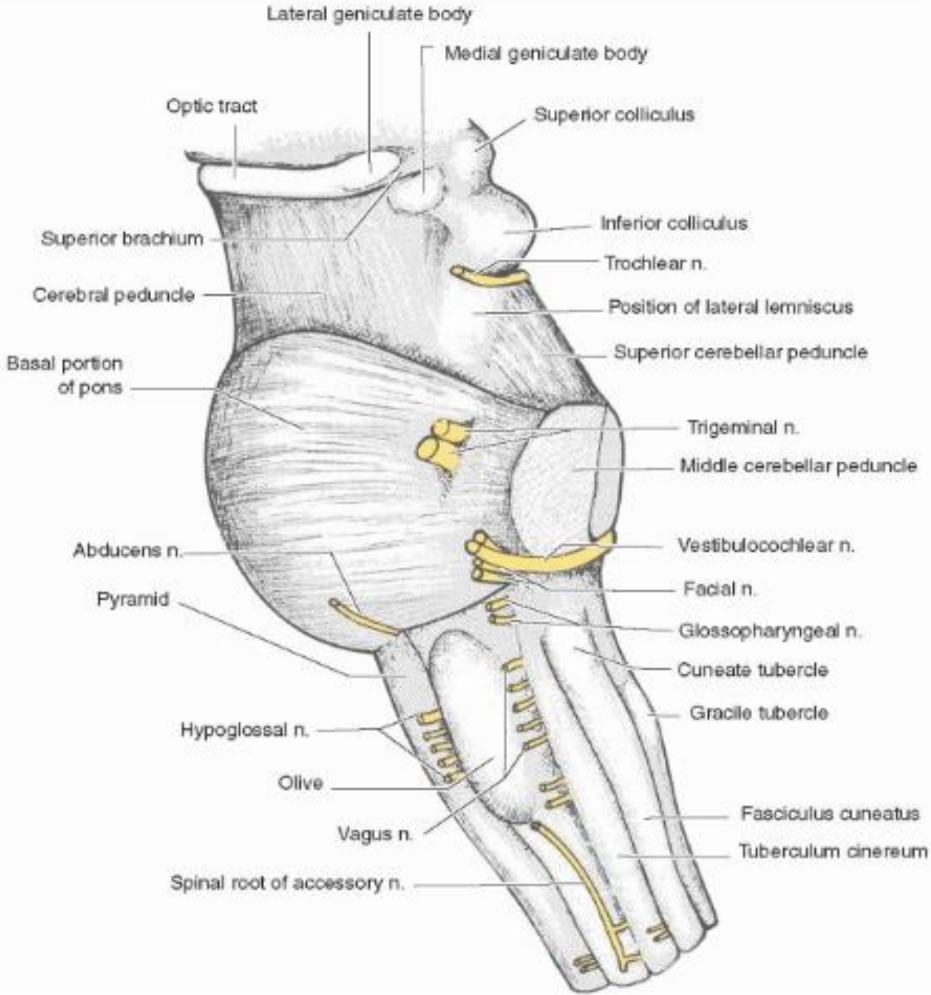


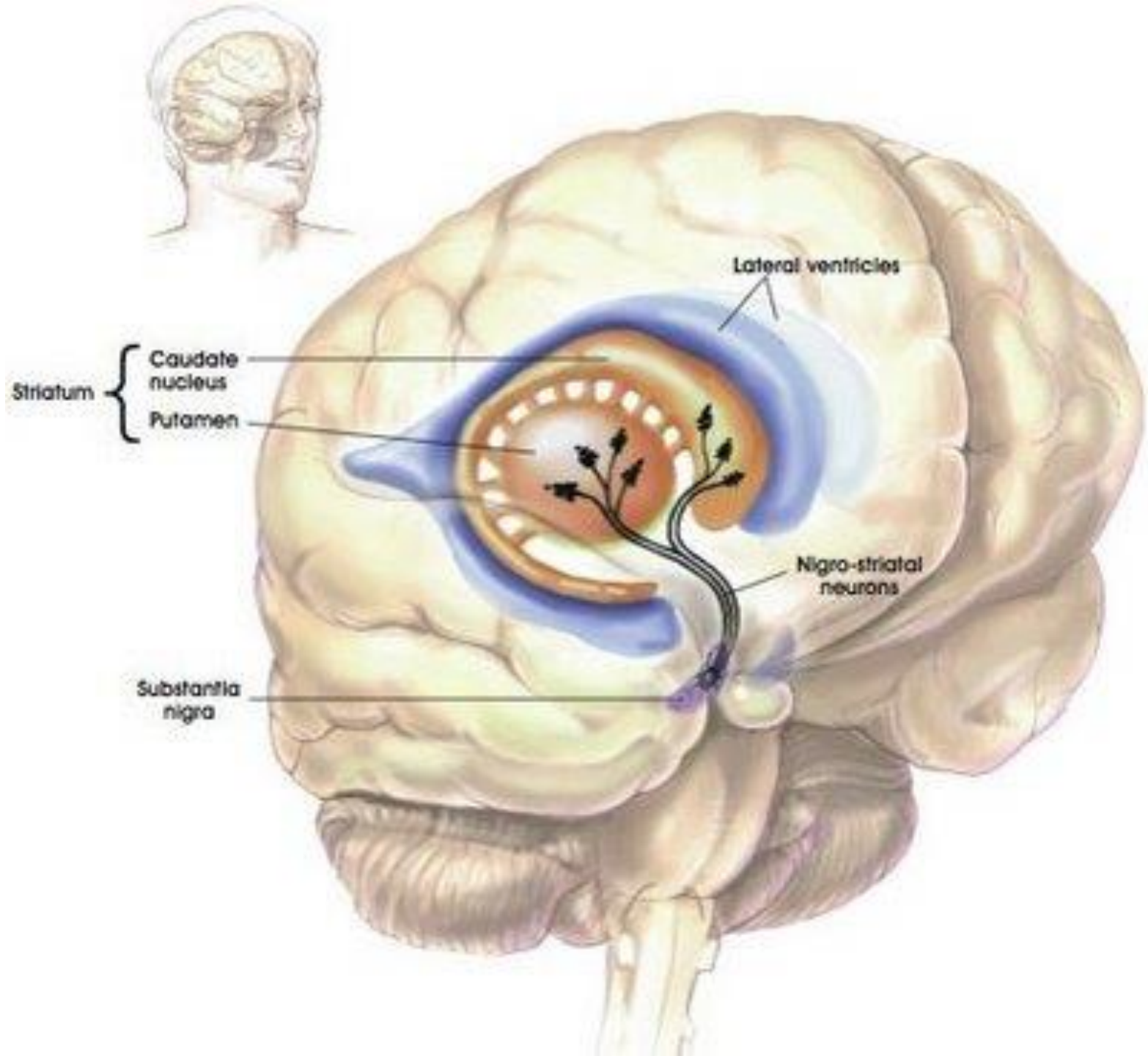


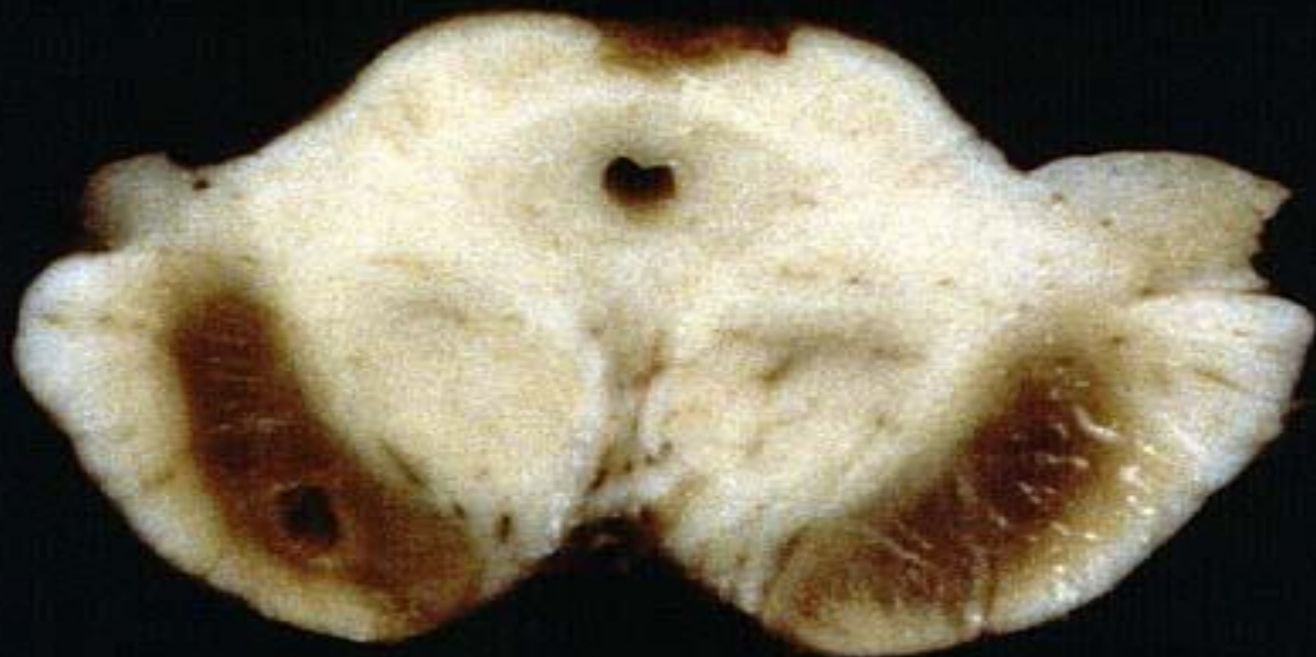
A

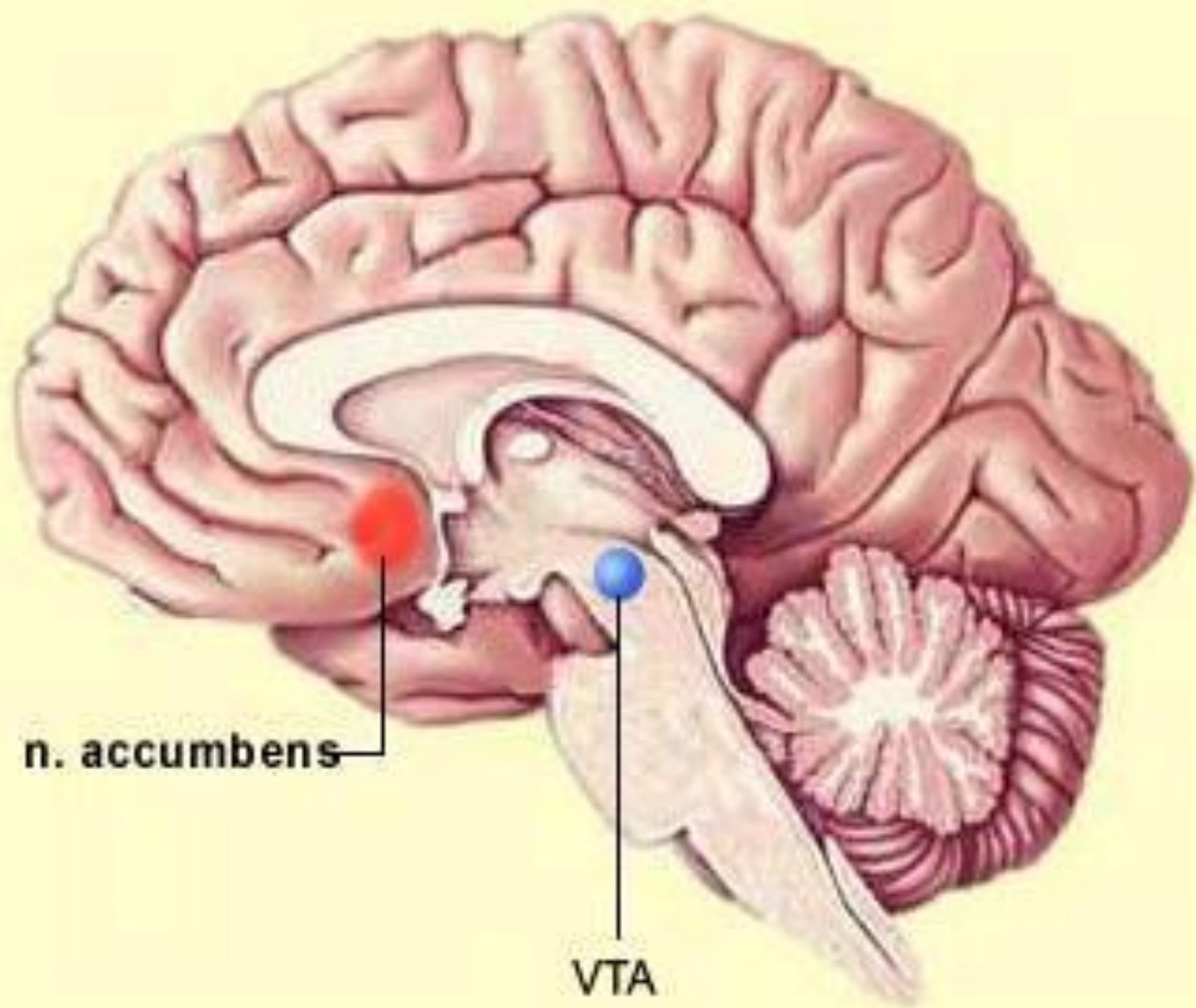
Dr. N. S. ...

Trochlear N.(GSE)



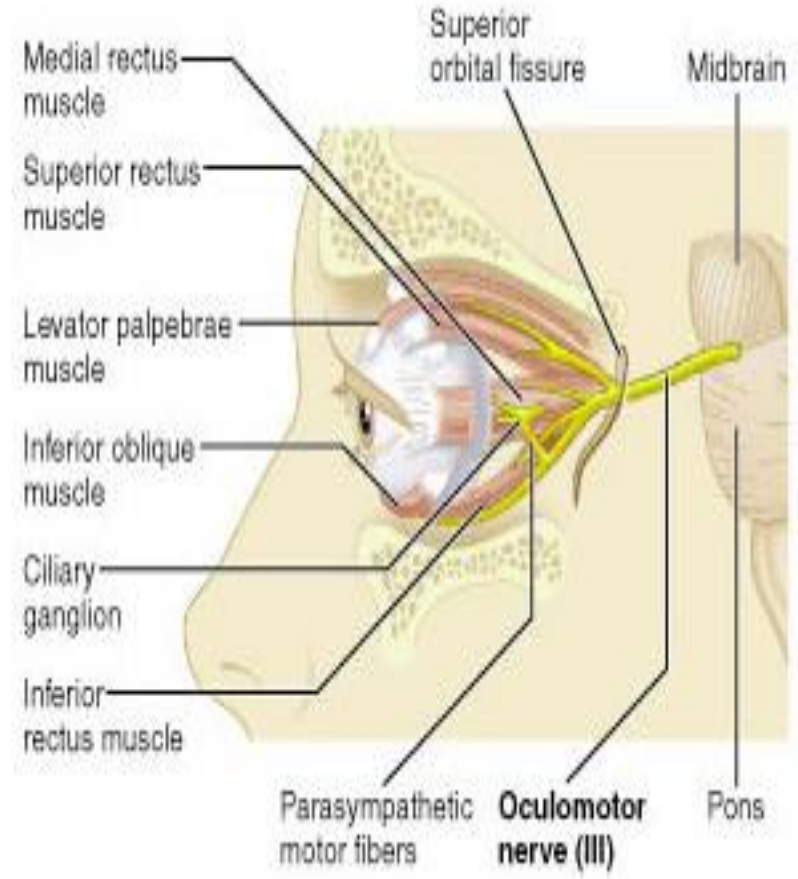
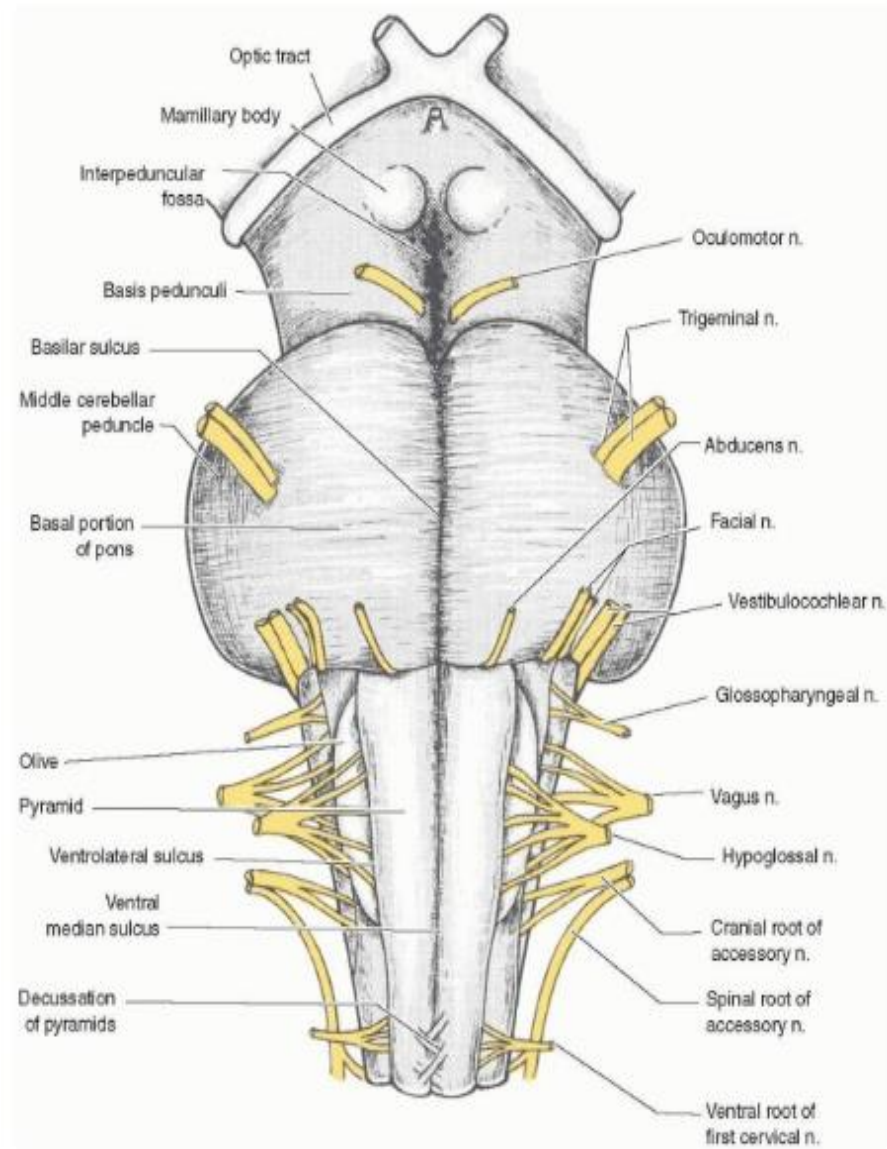


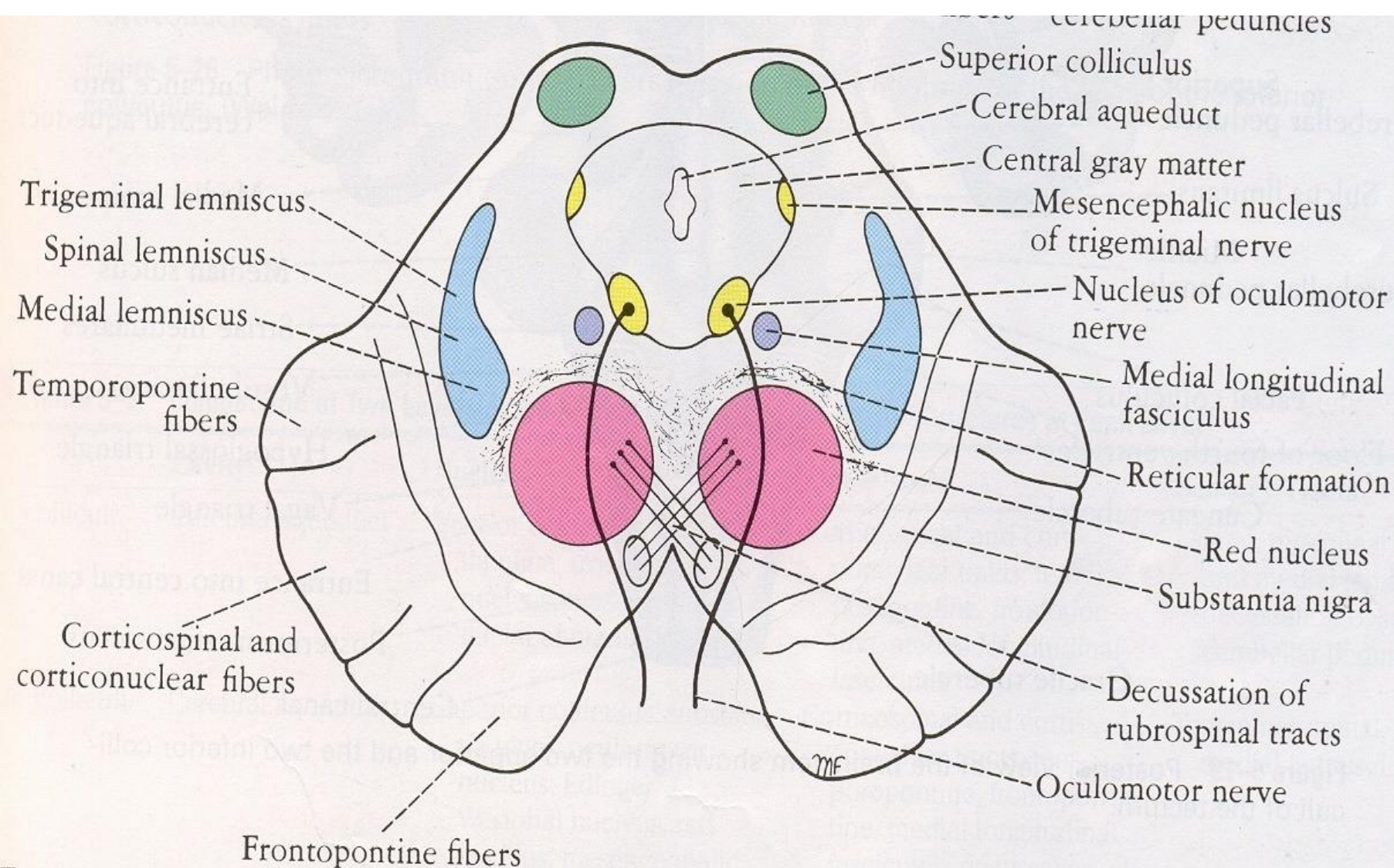






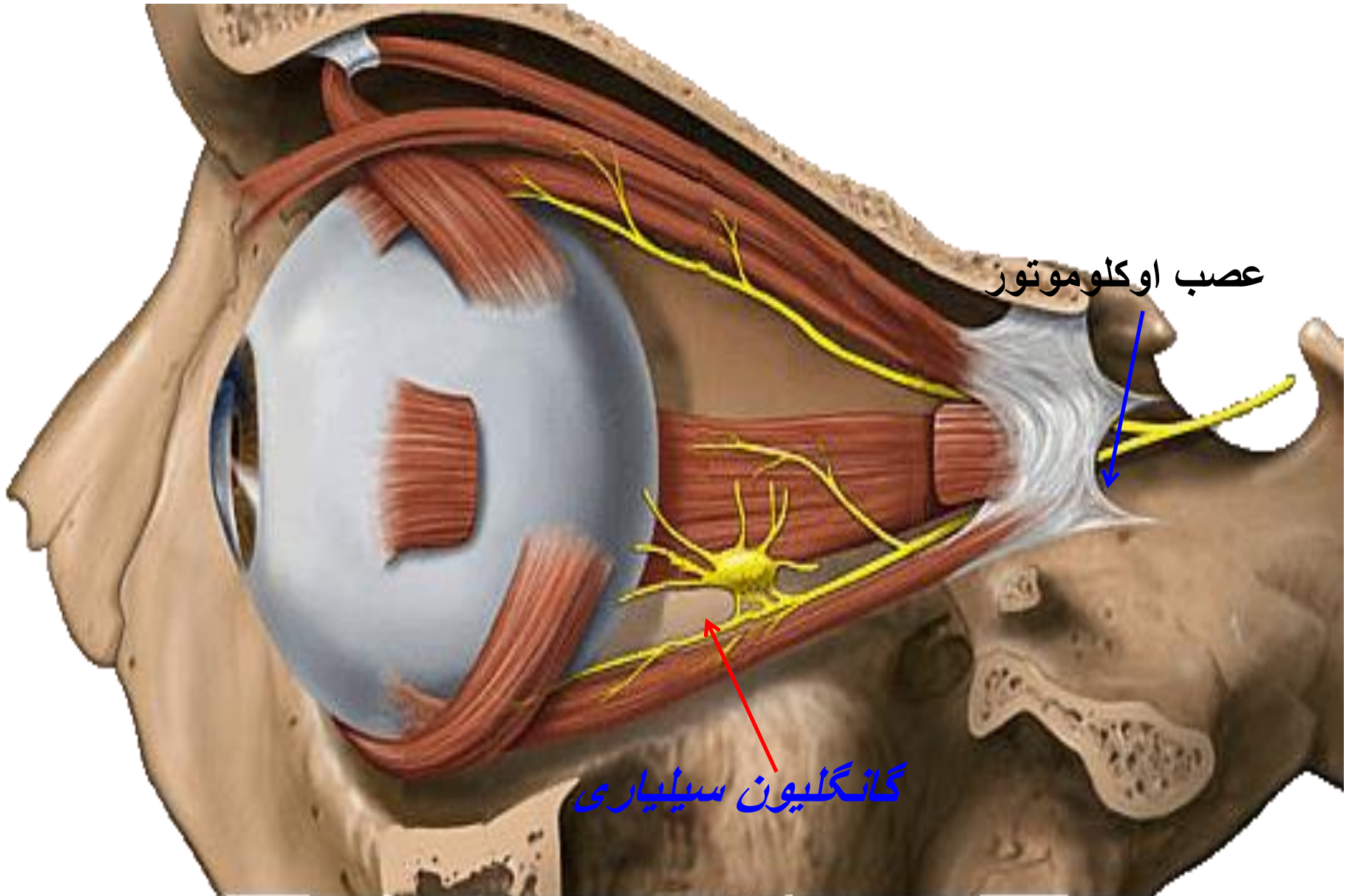
Oculomotor N.(GSE,GVE)





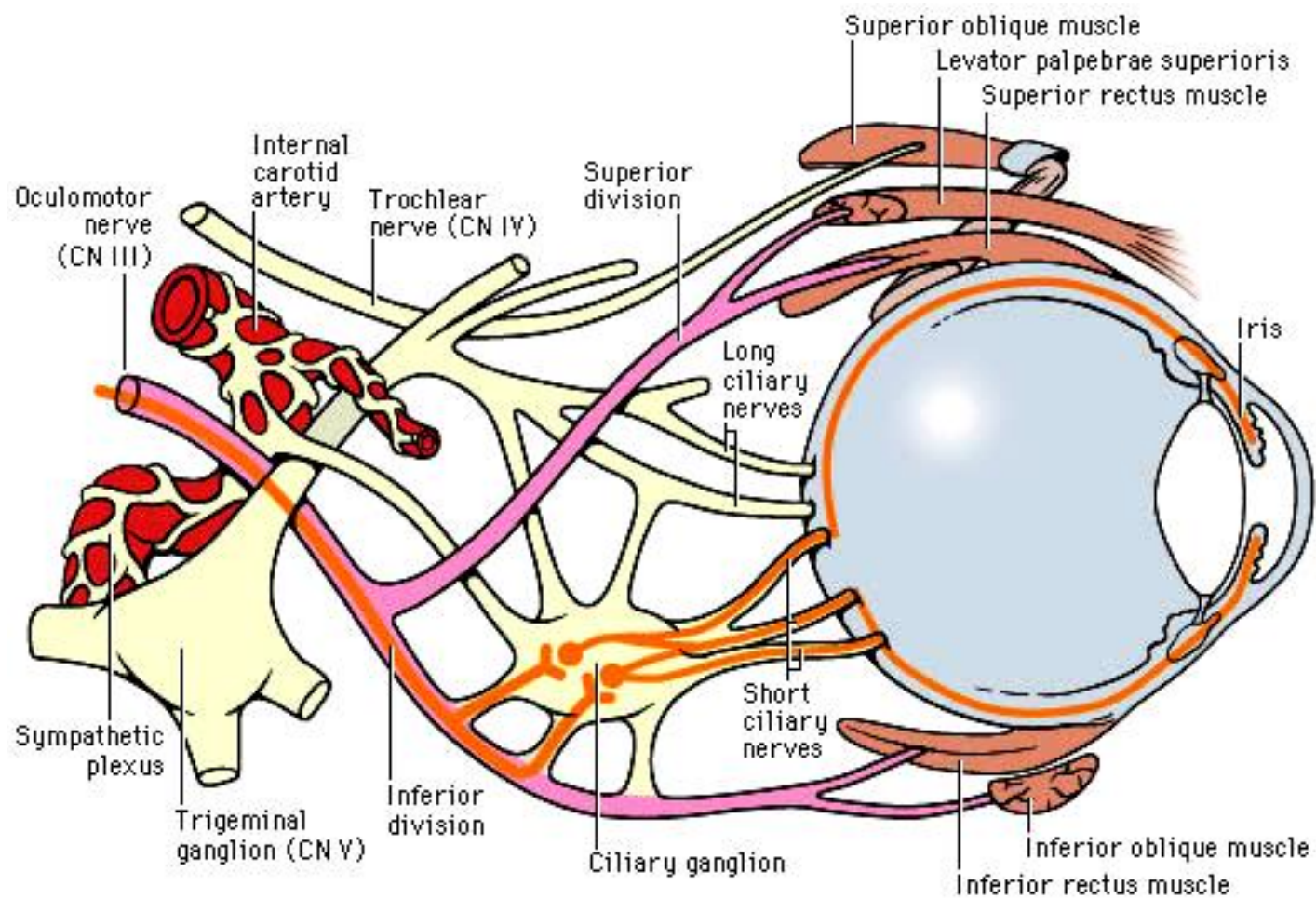
B

Figure 5-18 Transverse sections of the midbrain. **A.** At the level of the inferior colliculus. **B.** At the level of the superior colliculus. Note that trochlear nerves completely decussate within the superior medullary velum.



عصب اوکلموتور

گانگلیون سیلیاری

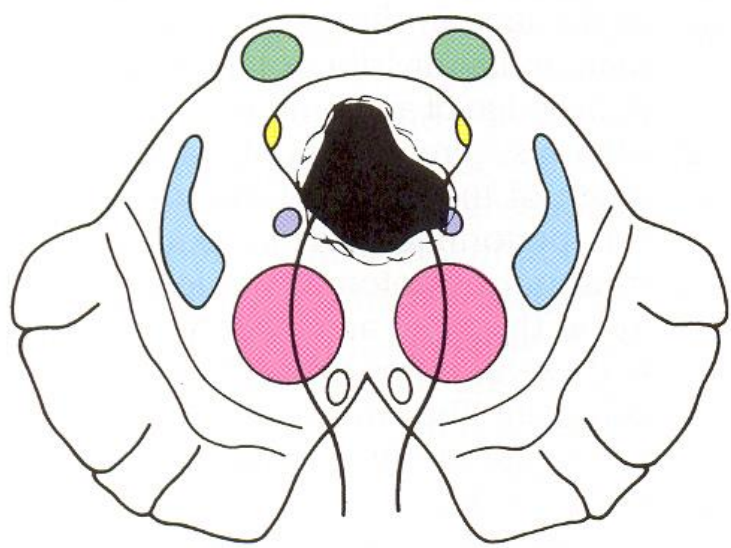


فلج عصب زوج 3 (اوكلوموتور)

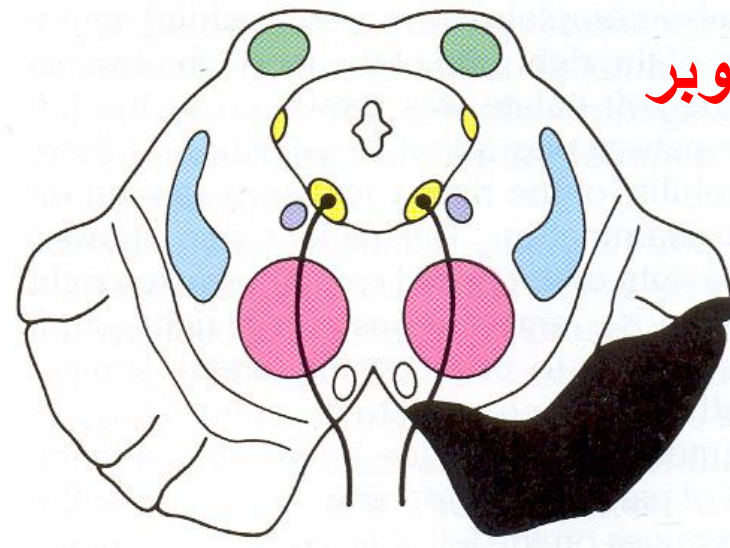




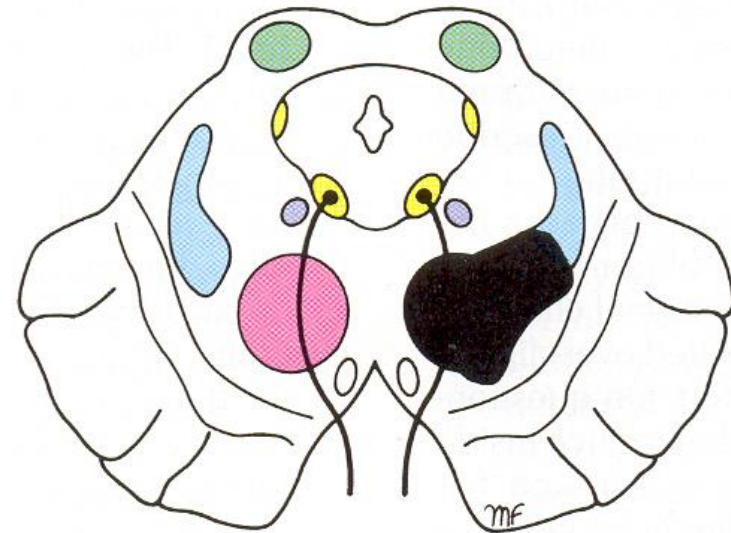
سندرم وبر



A



B



C

سندرم بندیکت

Figure 5-26 Pathology of the midbrain. **A.** Tumor of the midbrain blocking the cerebral aqueduct. **B.** Weber's syndrome, involving the oculomotor nerve and the crus cerebri following occlusion of the blood supply to the midbrain. **C.** Benedikt's syndrome, involving the red nucleus and the medial lemniscus following occlusion of the blood supply to the midbrain.

پروردگارا:

از هر نقص منزّه و پاکیزه ایی چه بزرگ است شان تو ،
پاکی تو را سزااست که چه بزرگ است آنچه از آفریدگان تو می بینیم
و چه کوچک و ناچیز است هر بزرگی در جنب قدرت تو
و چه هولناک است آنچه از ملکوت تو می بینیم
و چه حقیر است آنچه که می بینیم در برابر آنچه از سلطنت تو از ما
پنهان است
و چه فراخ و فراگیرنده است نعمت تو در این سرای
و چه کوچک است در جنب نعمتهای آن سرا