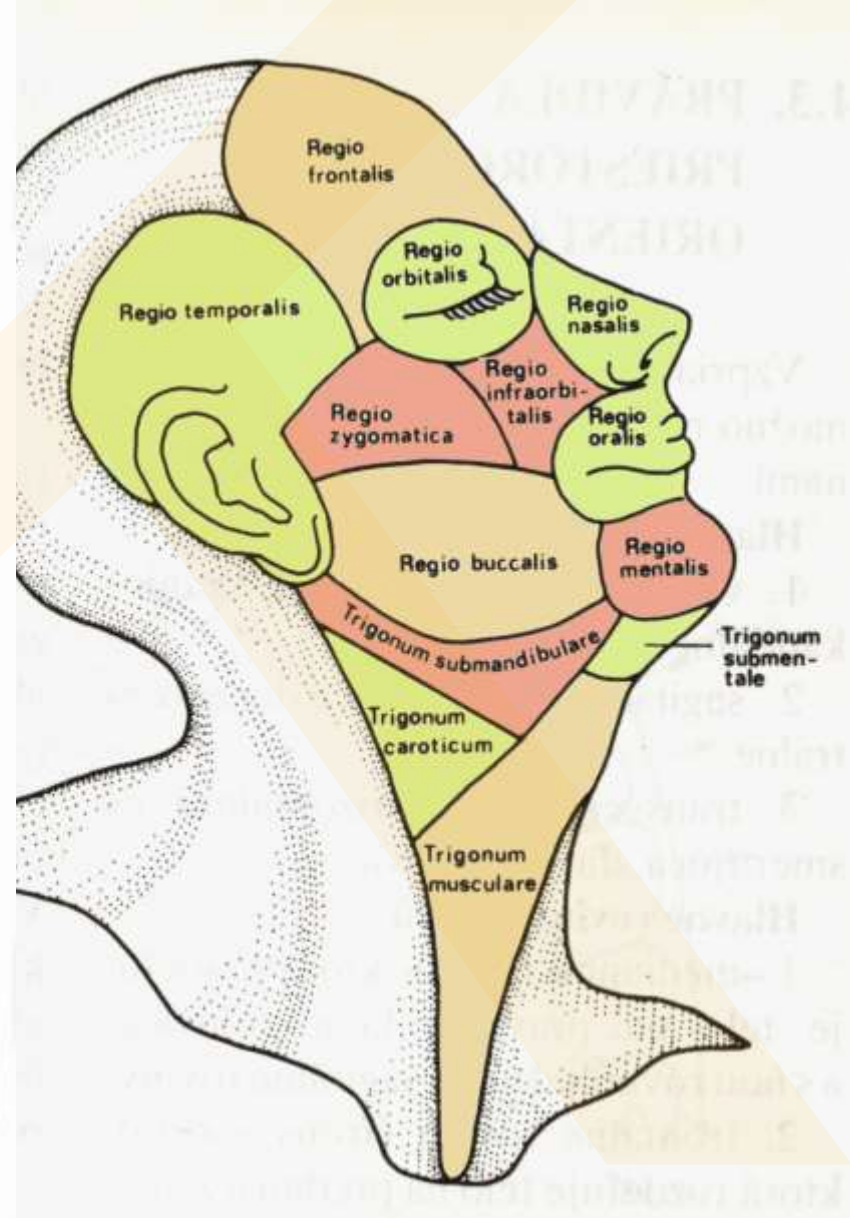
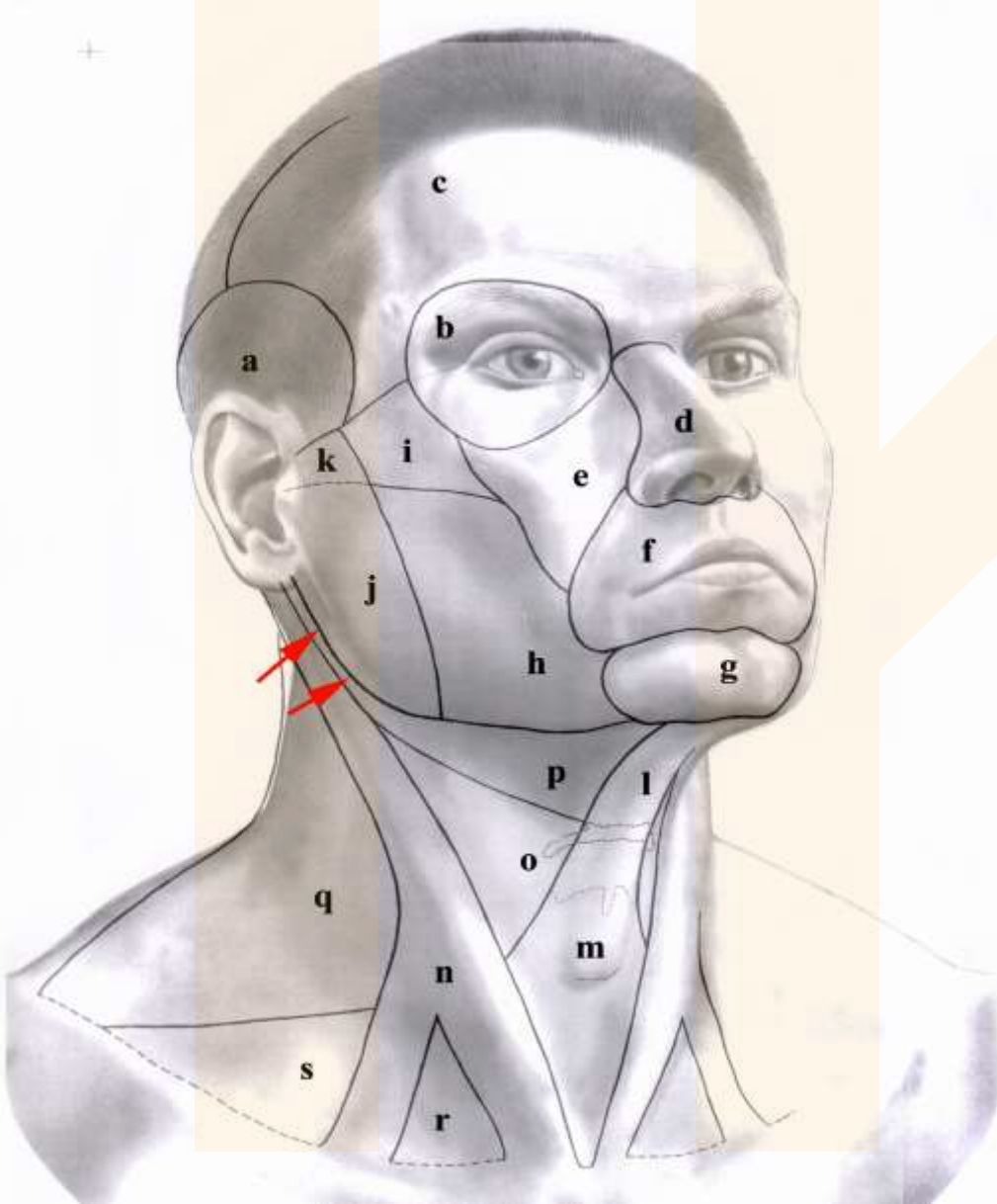
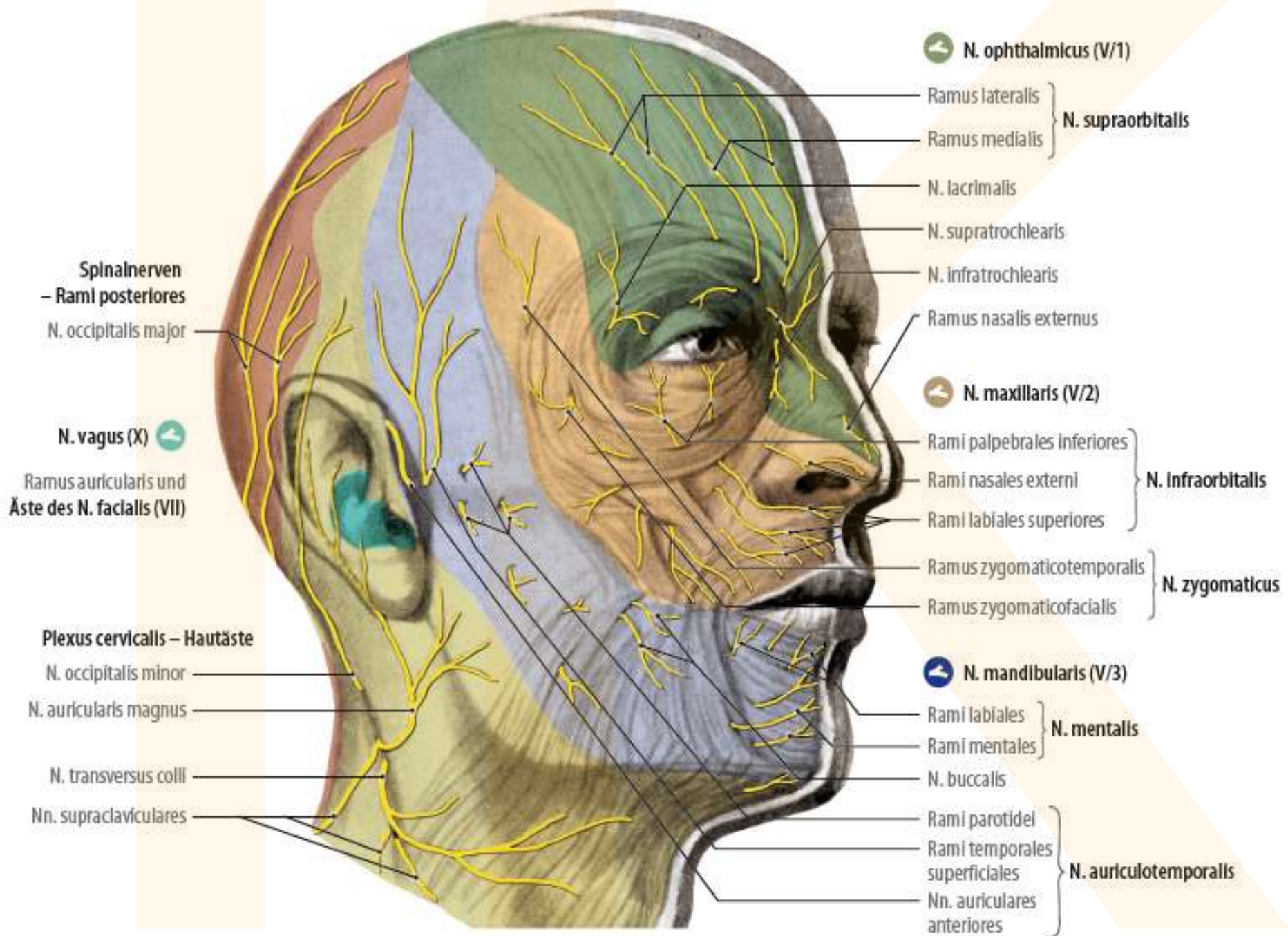


**TOPOGRAPHIC
REGIONS
and SPACES**

Topographic regions





Spinalnerven – Rami posteriores
 N. occipitalis major

N. vagus (X)
 Ramus auricularis und Äste des N. facialis (VII)

Plexus cervicalls – Hautäste
 N. occipitalis minor
 N. auricularis magnus
 N. transversus colli
 Nn. supraclaviculares

N. ophthalmicus (V/1)
 Ramus lateralis }
 Ramus medialis } **N. supraorbitalis**
 N. lacrimalis
 N. supratrochlearis
 N. infratrochlearis

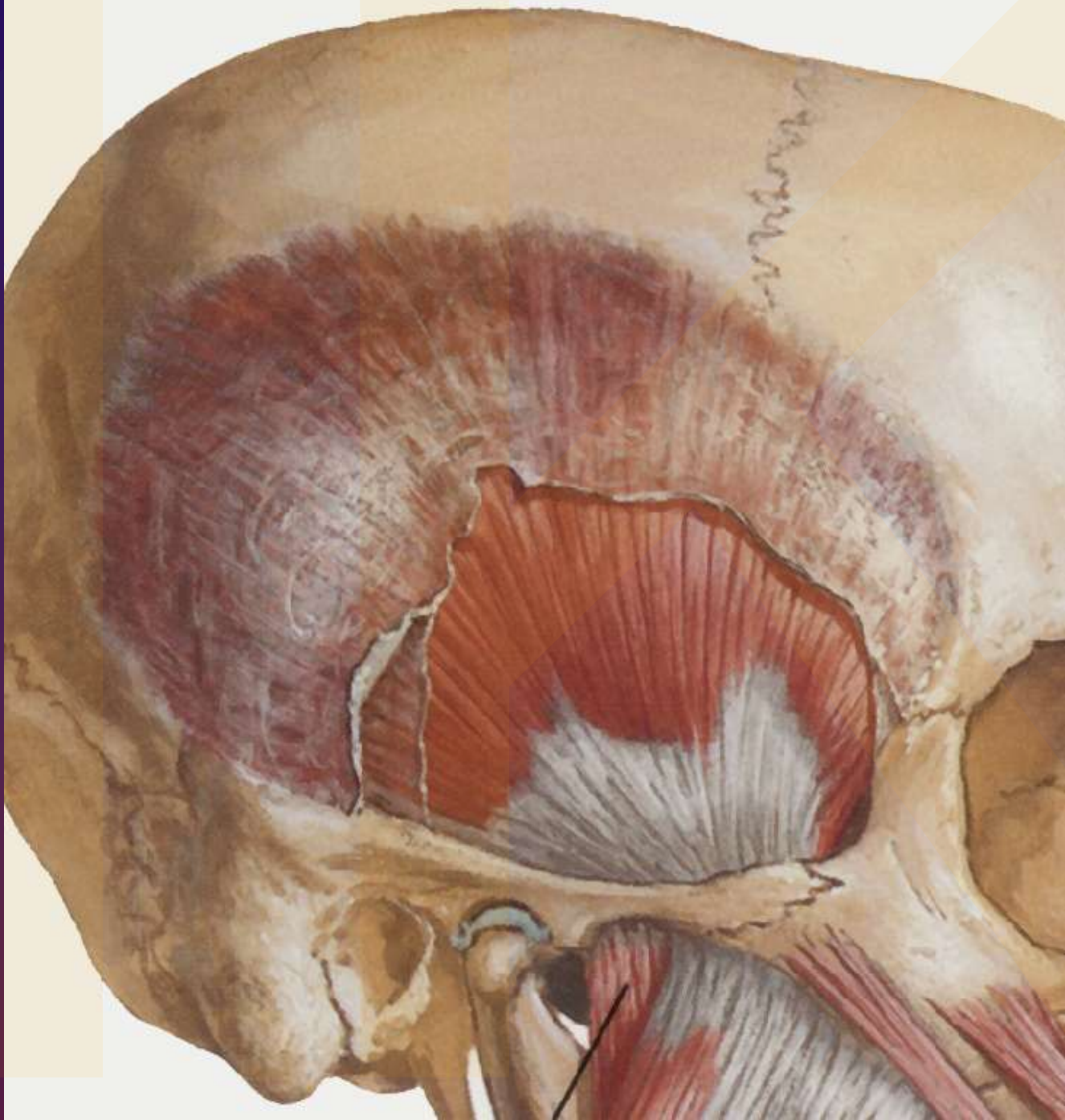
N. maxillaris (V/2)
 Rami palpebrales inferiores }
 Rami nasales externi } **N. infraorbitalis**
 Rami labiales superiores }
 Ramus zygomaticotemporalis } **N. zygomaticus**
 Ramus zygomaticofacialis }

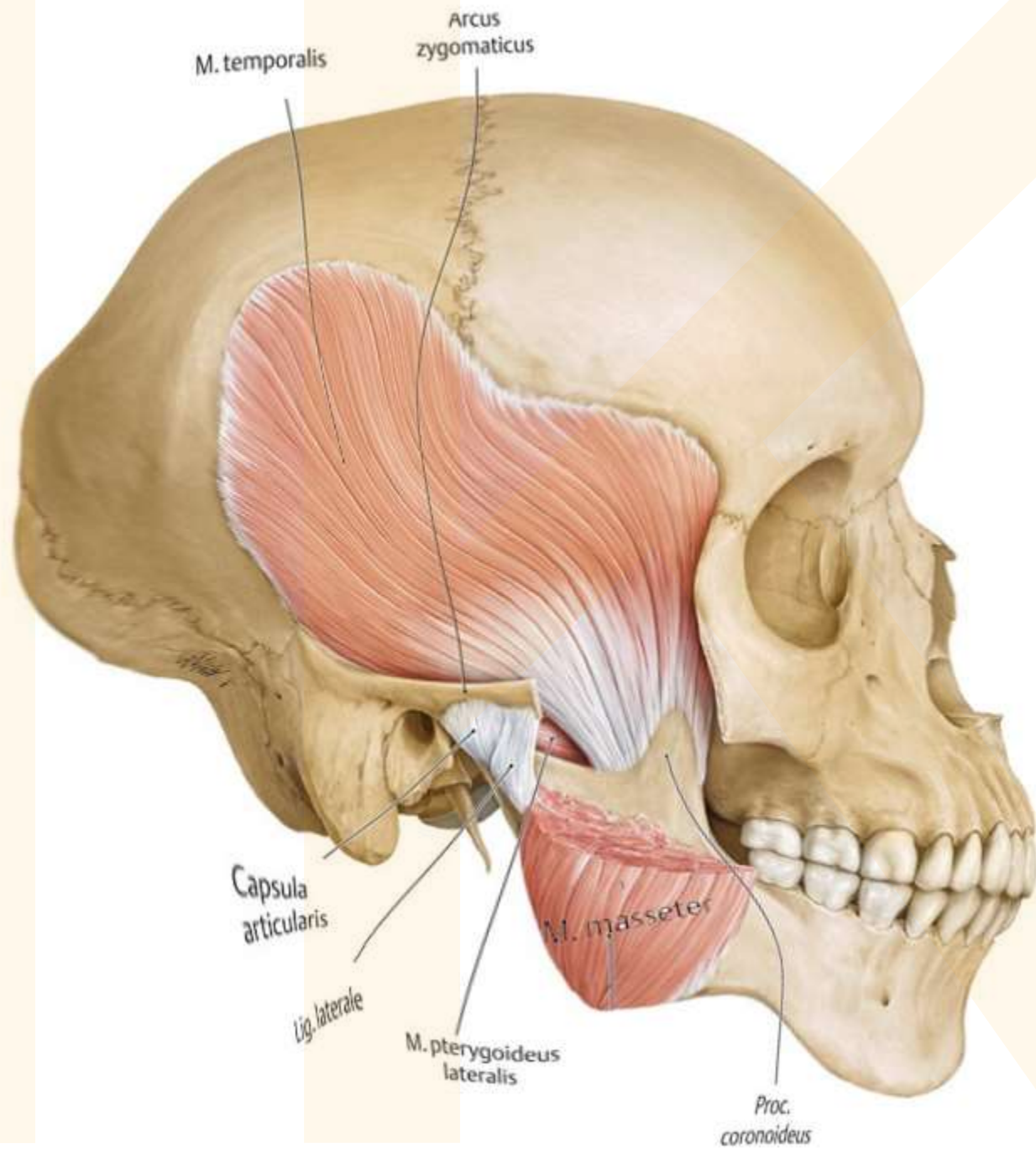
N. mandibularis (V/3)
 Rami labiales }
 Rami mentales } **N. mentalis**
 N. buccalis
 Rami parotidai }
 Rami temporales superficiales } **N. auriculotemporalis**
 Nn. auriculares anteriores }

Temporal space (fossa)

lies between **skin** and the **superficial temporal fascia** (*superficial part of the space*)

lies between **superficial temporal fascia** and (*squamous part of the temporal bone*)





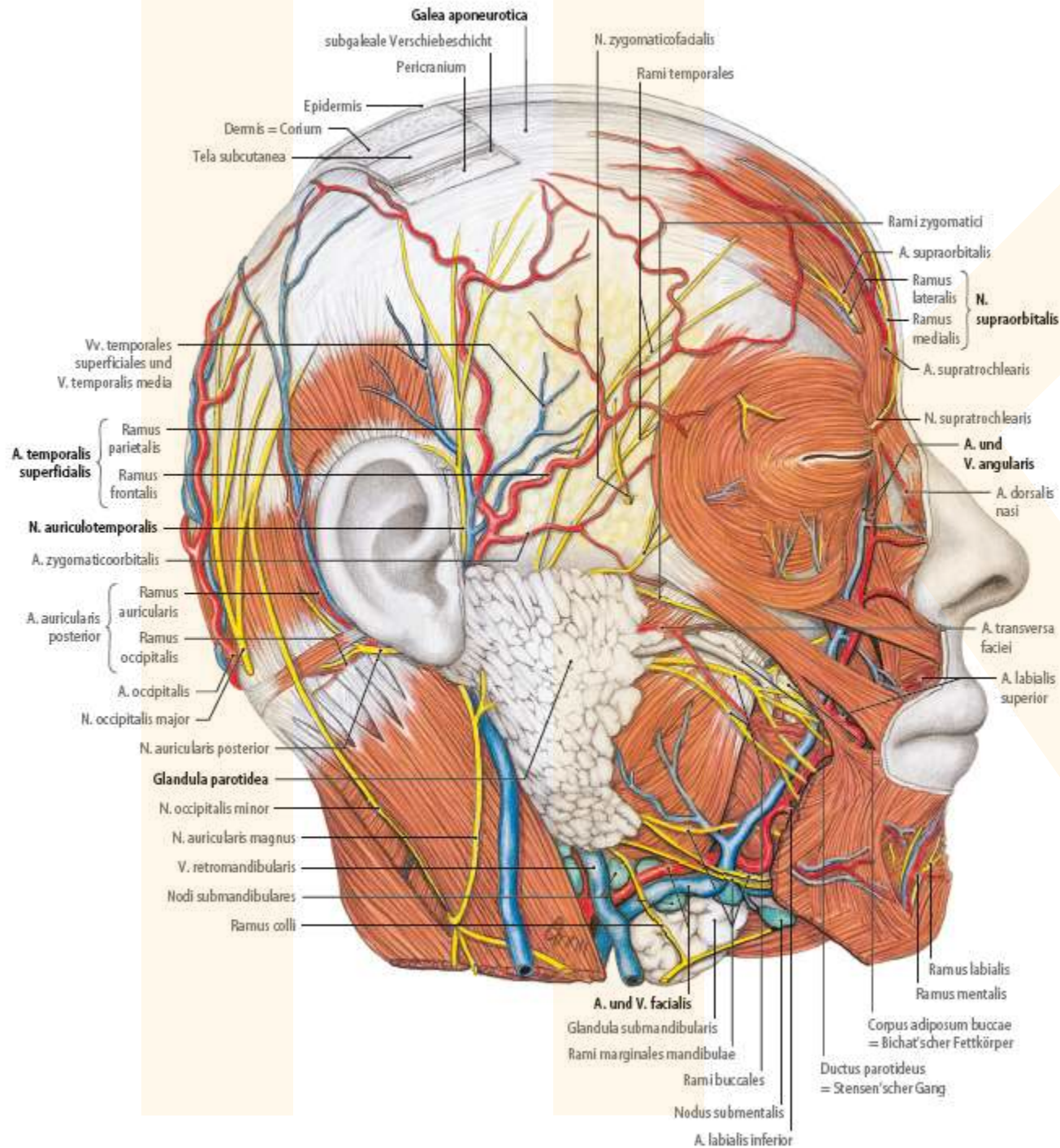
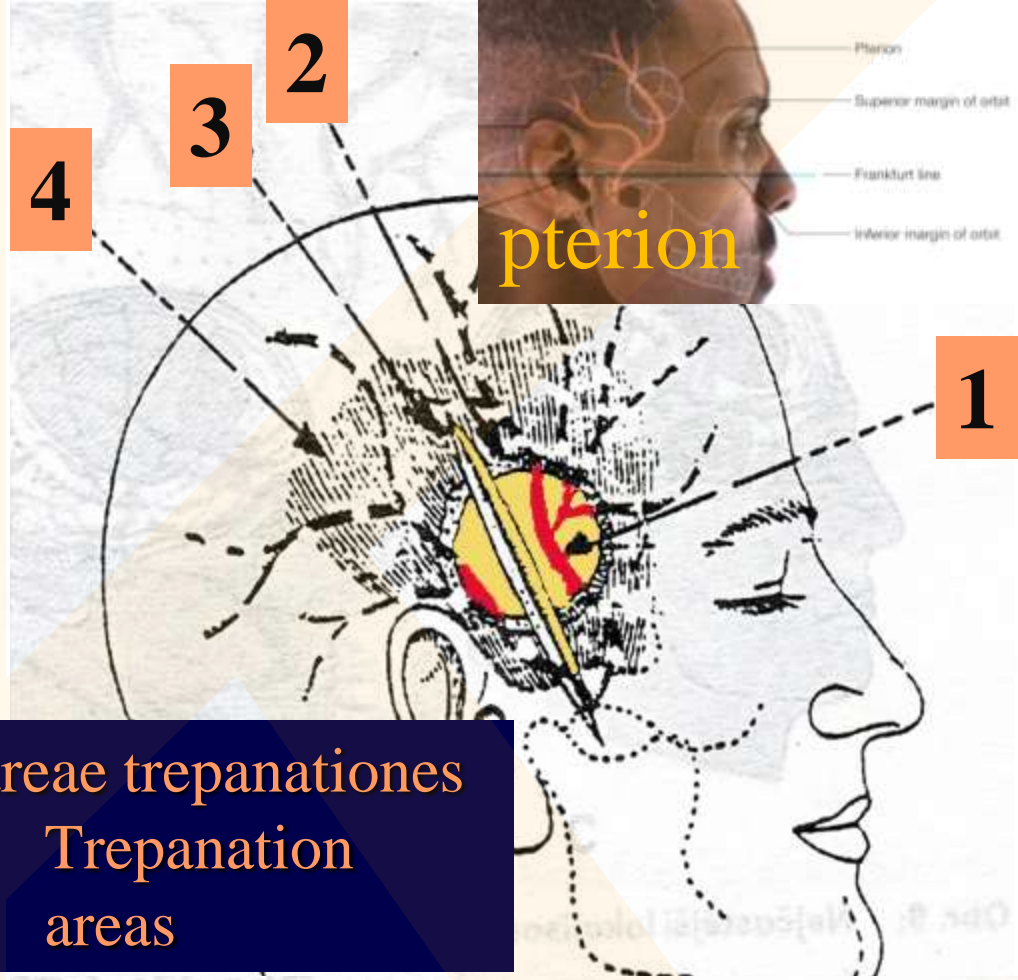
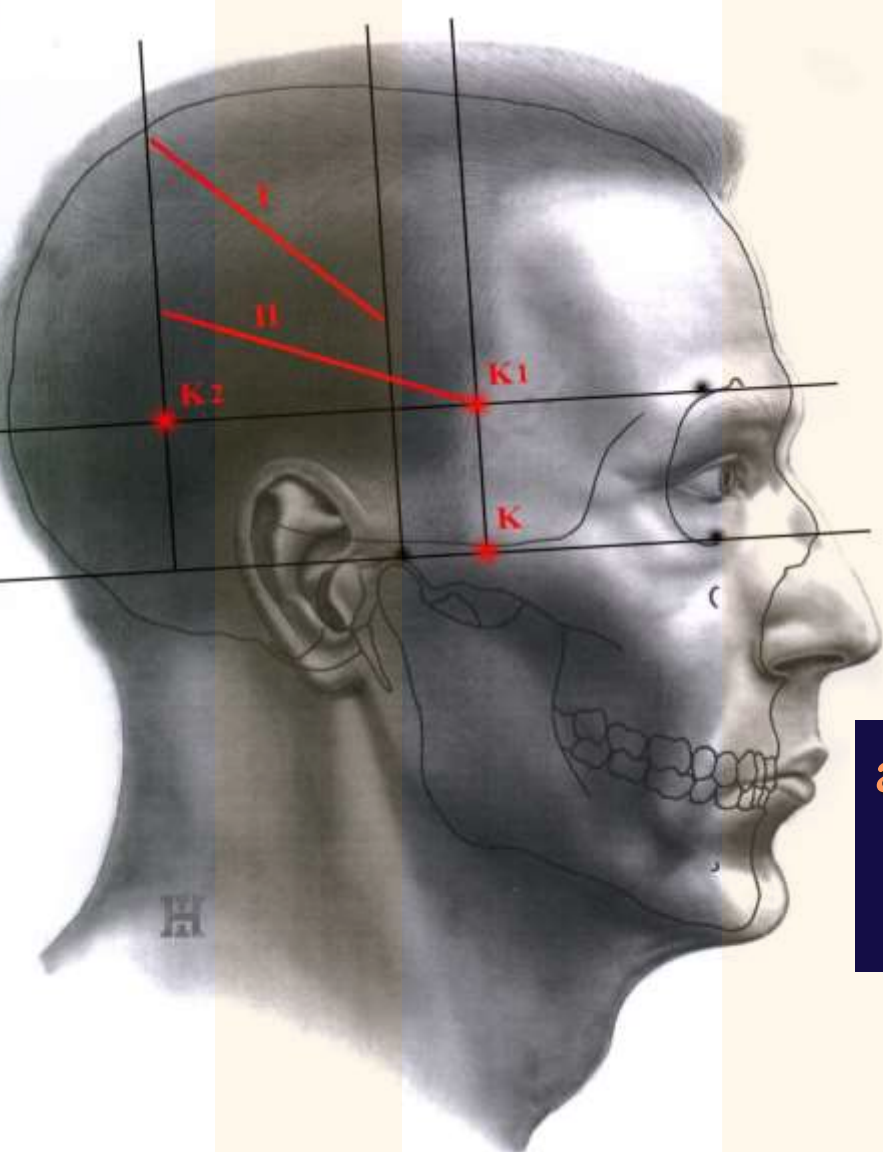




Figure 1. Bulging in the right temporal region with signs of fluctuation and pinna shift downwards, Facial edema and hyperemia.



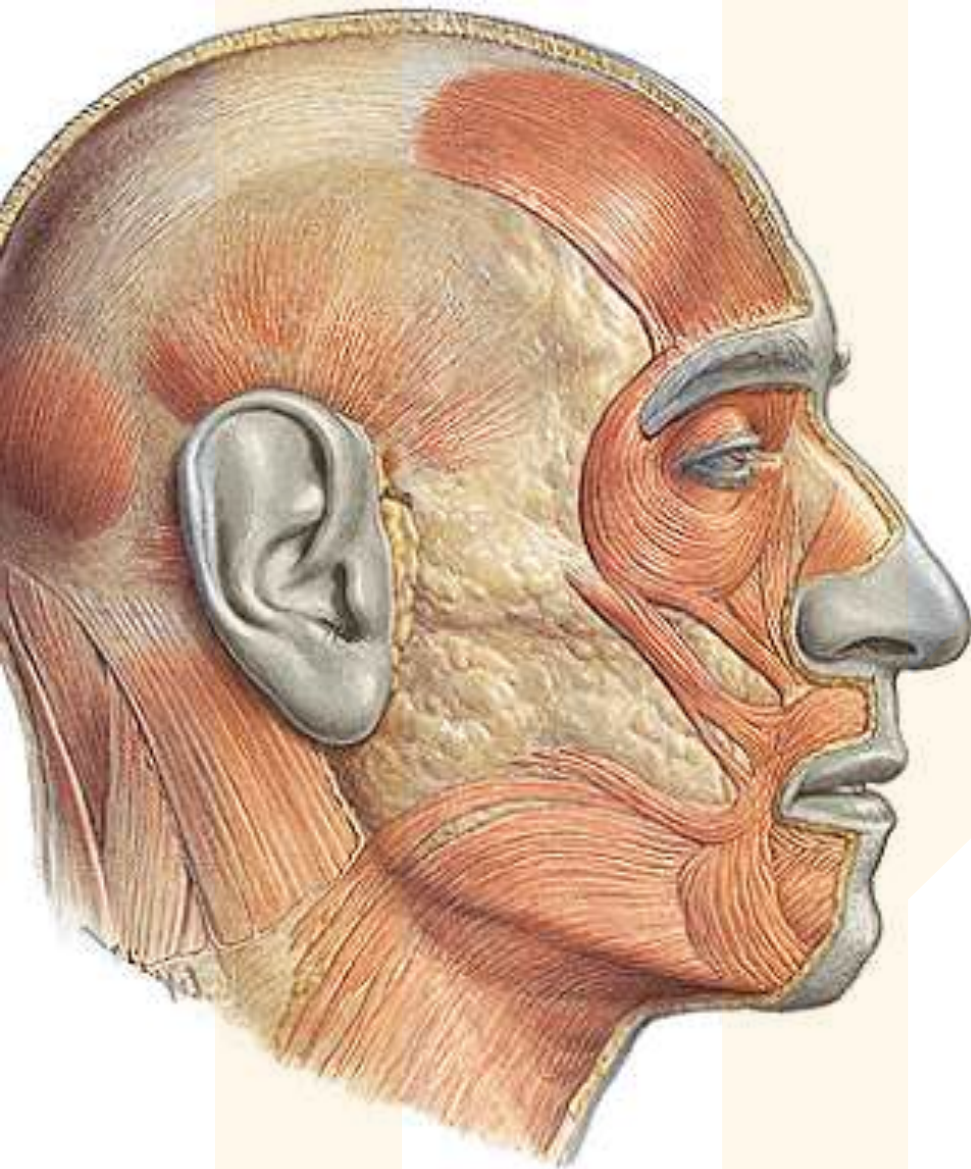
areae trepanationes
 Trepanation
 areas

- 1 - projekce arteria meningea media
- 2 - kruhem označené místo trepanace
- 3 - svislý řez měkkými tkáněmi na střed arcus zygomaticus
- 4 - musculus temporalis

Rudolph Ulrich Kroenlein
 (1847-1910) Swiss surgeon

I – sulcus centralis
II – fissura lateralis cerebri

Buccal region



Parotidomasseteric region



Laceration – CN VII. Is severed

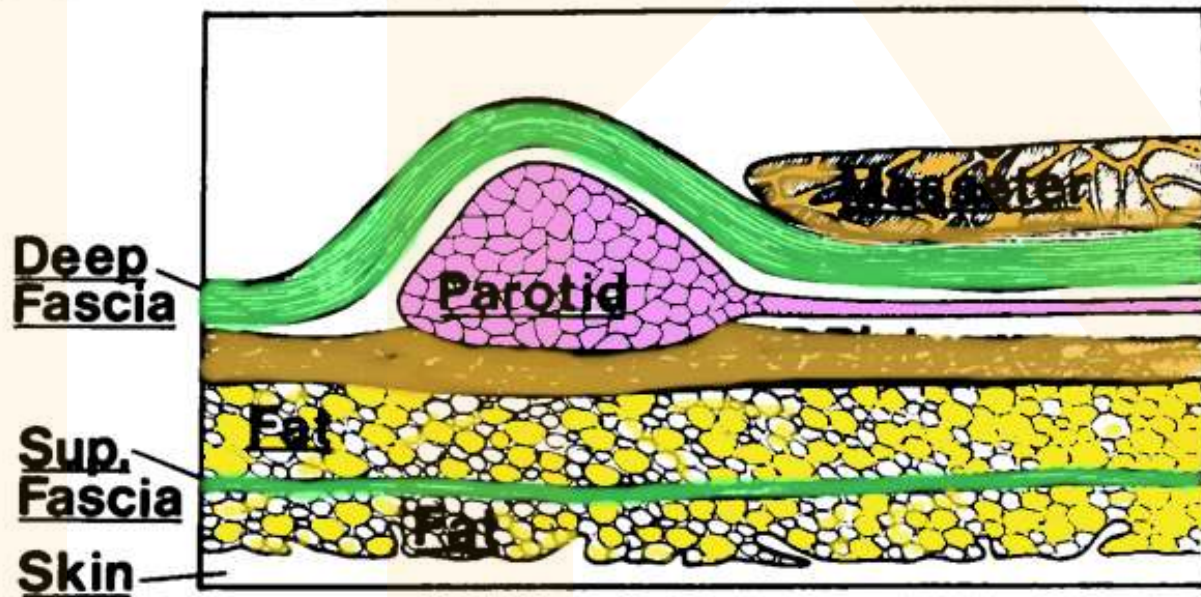
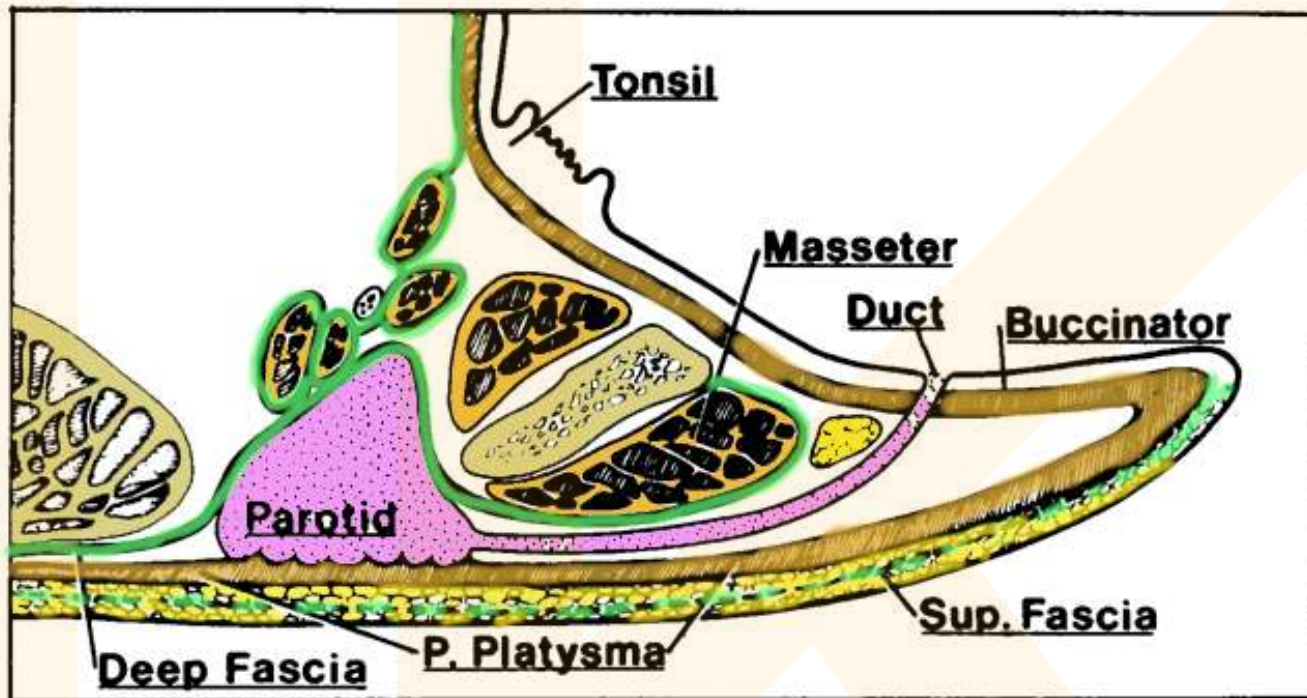
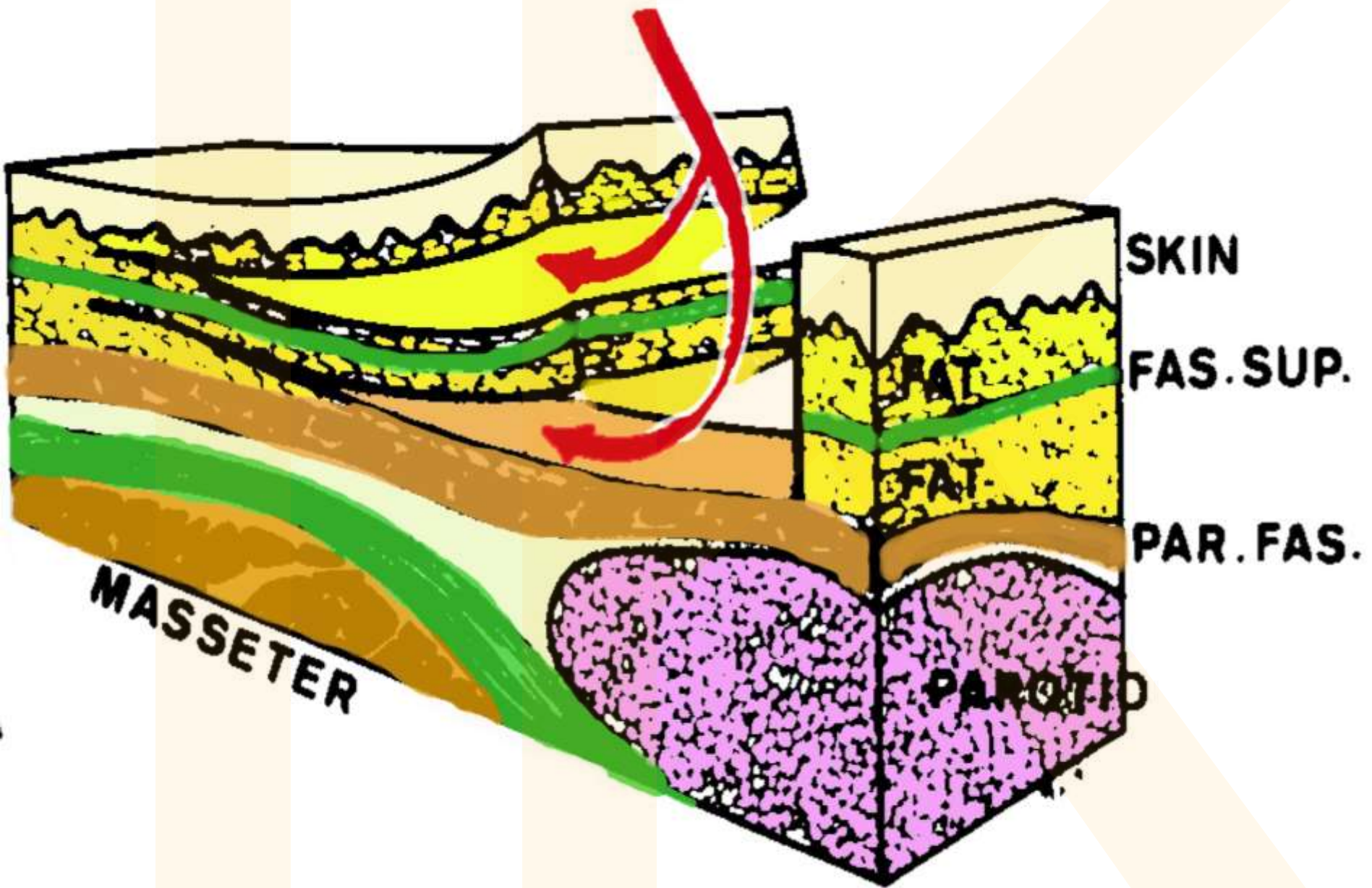
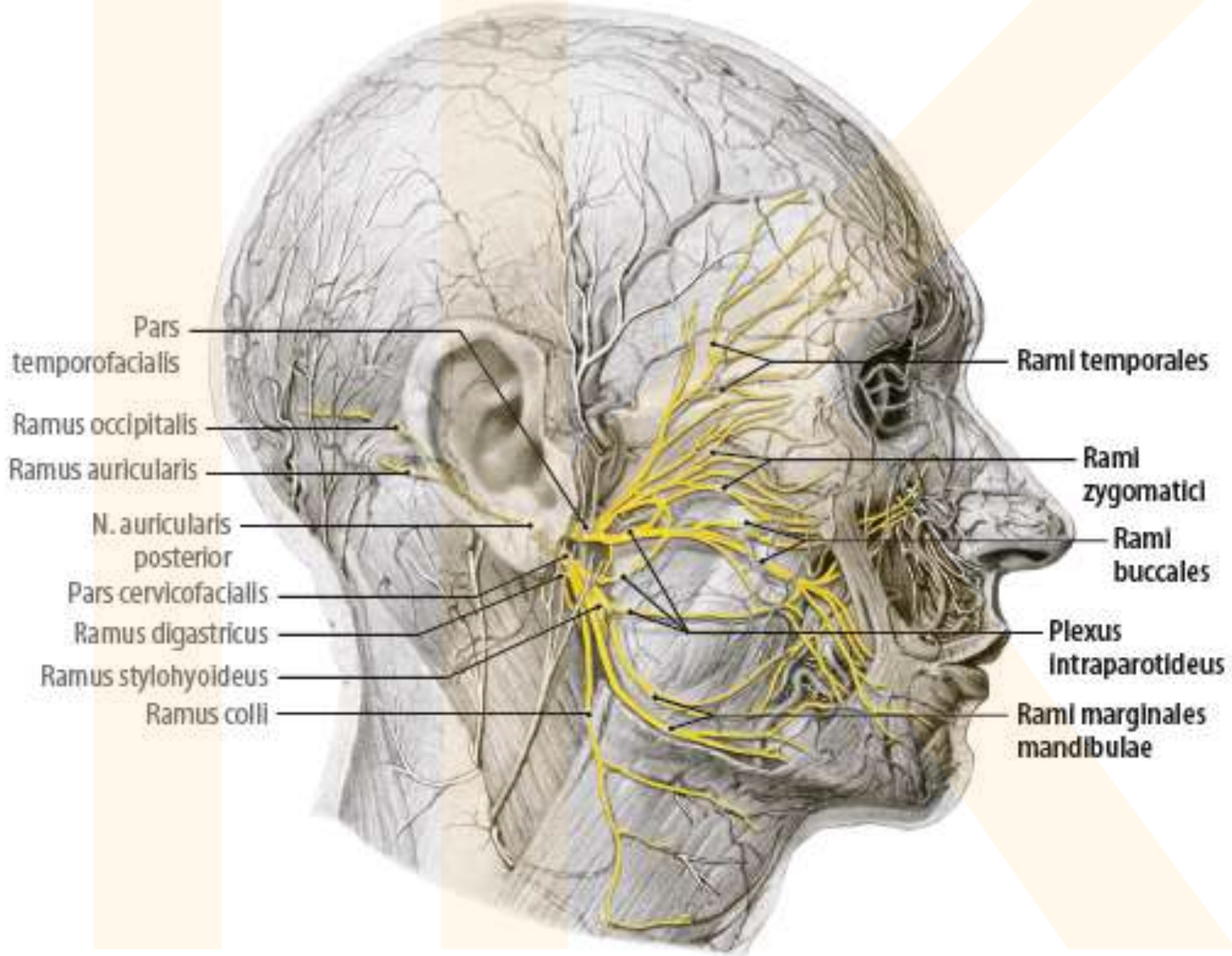


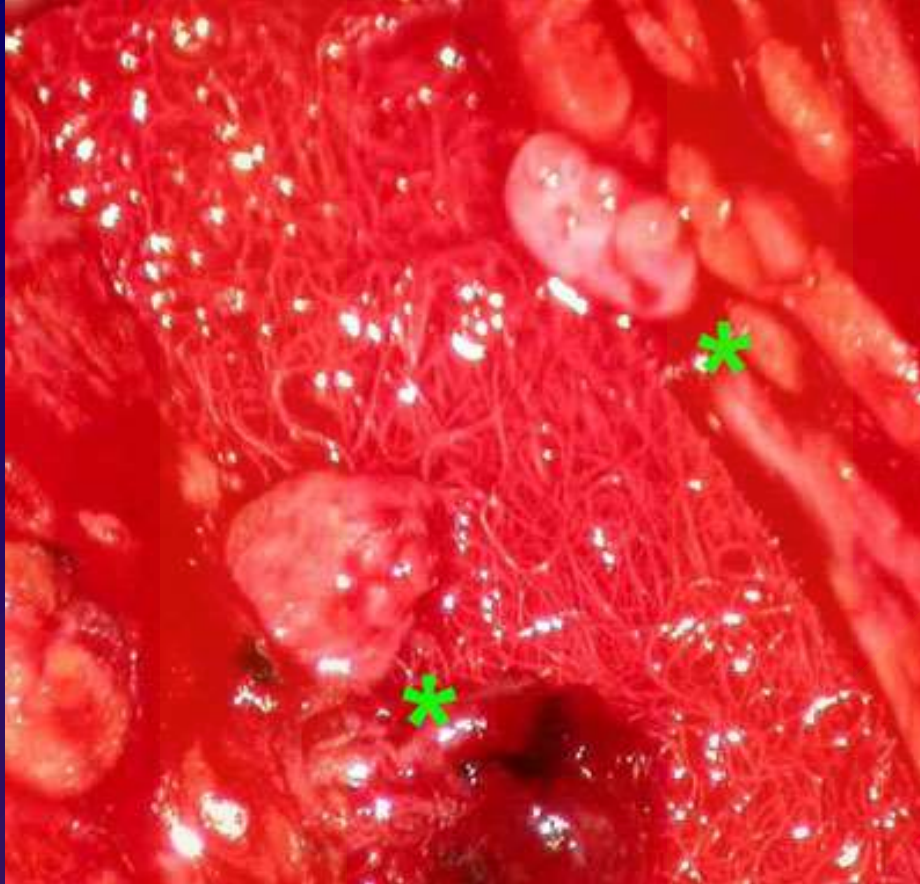
FIG. 4. Diagrammatic representation of the true anatomy of the masseter and parotid regions.





N. facialis je přerušen
CN VII is severed

Nervové pahýly sešity k sobě
Nerve stumps are connected



Nervové pahýly jsou označeny
hvězdičkou
Stumps of nerve are labelled

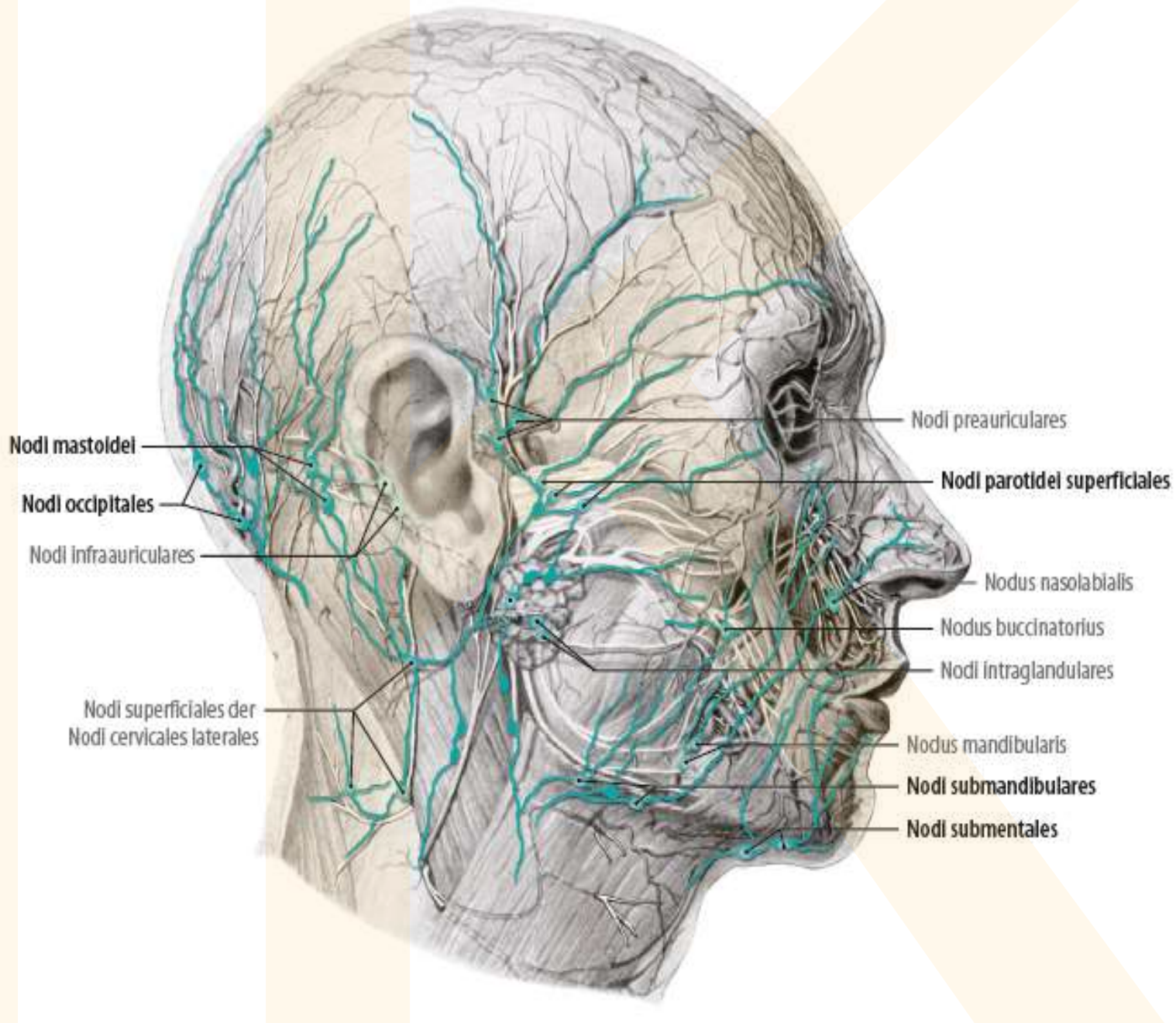


Nodi lymphoidel capitis:

- Nodi occipitales
- Nodi mastoidei
- Nodi parotidei superficiales
- Nodi parotidei profundi
 - Nodi preauriculares
 - Nodi infraauriculares
 - Nodi intraglandulares
- Nodi faciales
 - Nodus buccinatorius
 - Nodus nasolabialis
 - [Nodus malaris]
 - Nodus mandibularis
- Nodi submentales
- Nodi submandibulares
- [Nodi linguales]
- (Nodi lymphoidei colli

■ Abb. 3.16)

[] nicht sichtbar



Infratemporal space (fossa)

**lateral pterygoid plate – base
of the skull – tuber of the
maxilla**

upper part of the pterygomandibular space

Fossa
Infratemporalis

Infratemporal fossa



Fossa infratemporalis

Infratemporal fossa

Spatium pterygomandibulare
mm. pterygoidei

Fossa infratemporalis ossea

Fossa pterygopalatina

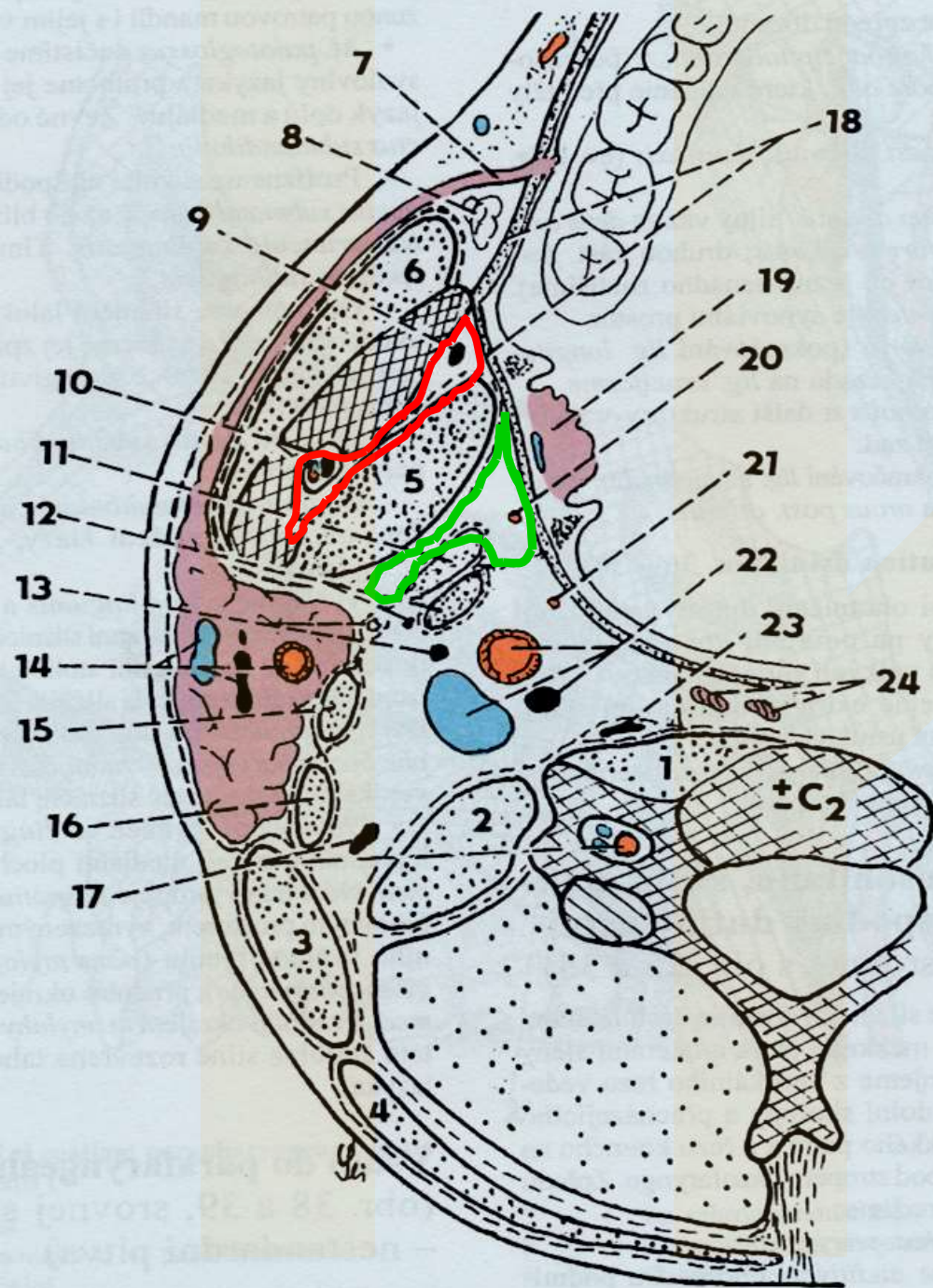
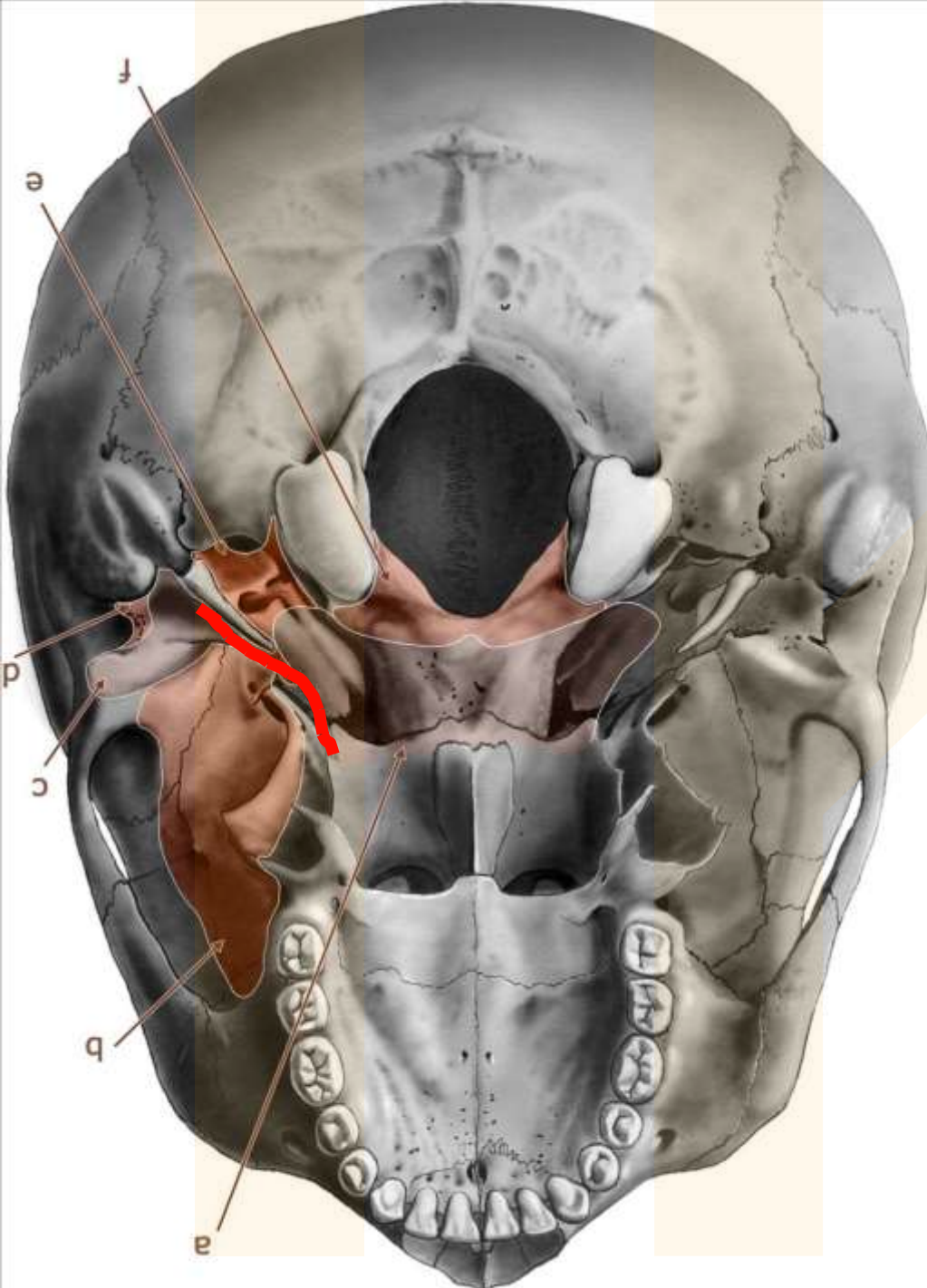


Fig. 20 Spatium parapharyngeum et regio faciei, sectio transversalis (schéma)

- | | | |
|----|---|--|
| 1 | — | m. longus colli et m. longus capitis |
| 2 | — | mm. scaleni |
| 3 | — | m. sternocleidomastoideus |
| 4 | — | m. trapezius |
| 5 | — | m. pterygoideus med. |
| 6 | — | m. masseter |
| 7 | — | ductus parotideus |
| 8 | — | corpus adiposum buccae |
| 9 | — | n. lingualis |
| 10 | — | n. et a. alveolaris inf. |
| 11 | — | m. styloglossus |
| 12 | — | m. stylopharyngeus et n. glossopharyngeus |
| 13 | — | n. hypoglossus et lig. stylohyoideum |
| 14 | — | a. carotis ext., n. facialis (plexus parotideus) et v. retromandibularis |
| 15 | — | m. stylohyoideus |
| 16 | — | m. digastricus |
| 17 | — | n. accessorius et a. vertebralis |
| 18 | — | m. buccinator et m. constrictor pharyngis sup. |
| 19 | — | tonsilla palatina et v. tonsillaris |
| 20 | — | a. palatina ascendens |
| 21 | — | a. pharyngea ascendens |
| 22 | — | a. carotis int., n. vagus et v. jugularis int. |
| 23 | — | ganglion cervicale superius |
| 24 | — | nodi lymphatici retropharyngei |



Stěny infratemporální jámy Walls of the infratemporal fossa

Sup.:

Ala major ossis
sphenoidalis

Med.:

Lamina medialis
processus
pterygoideus +
pharynx

Ventr.:

Tuber maxillae

Lat.:

Ramus mandibulae

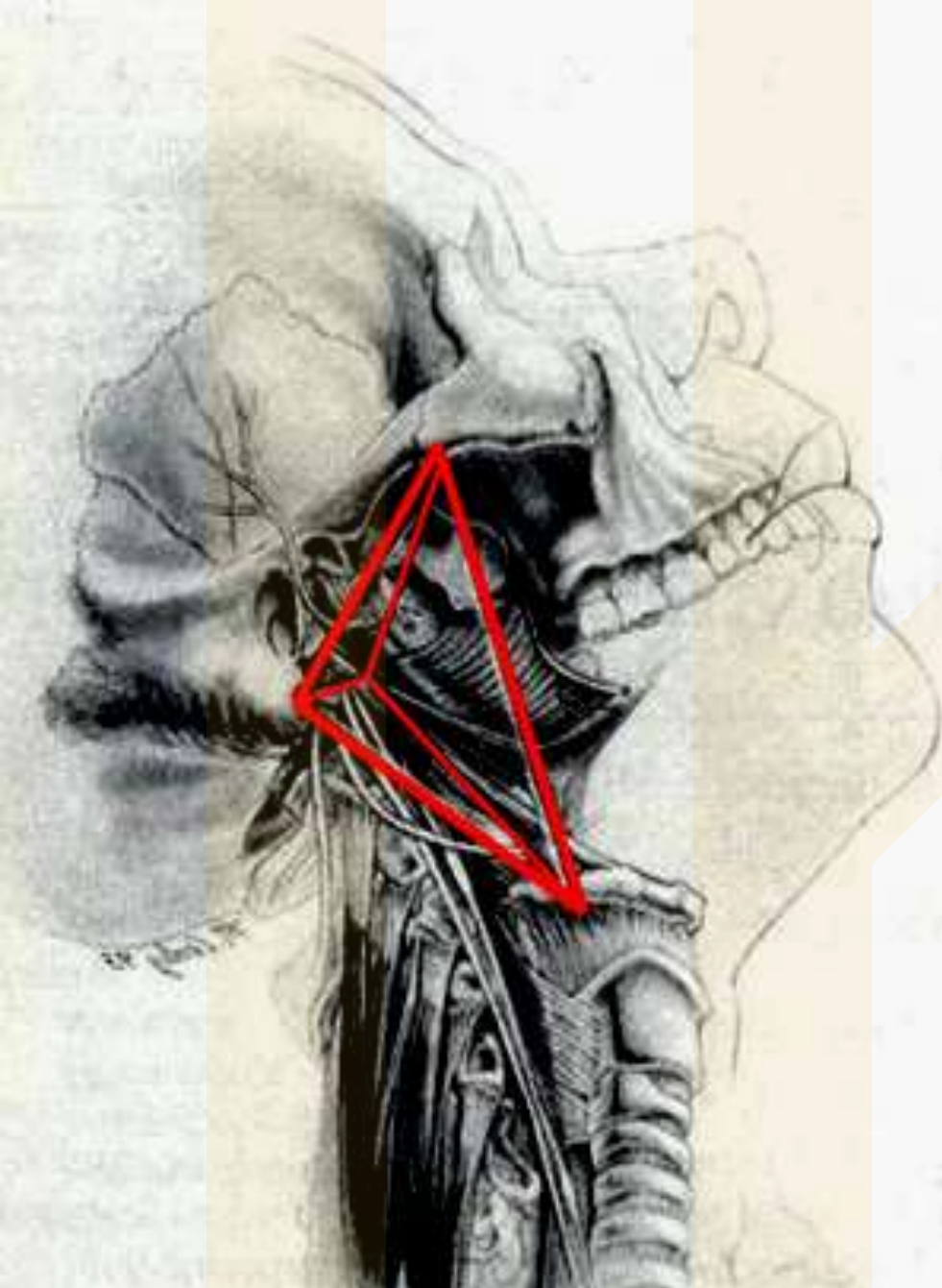
Dors.:

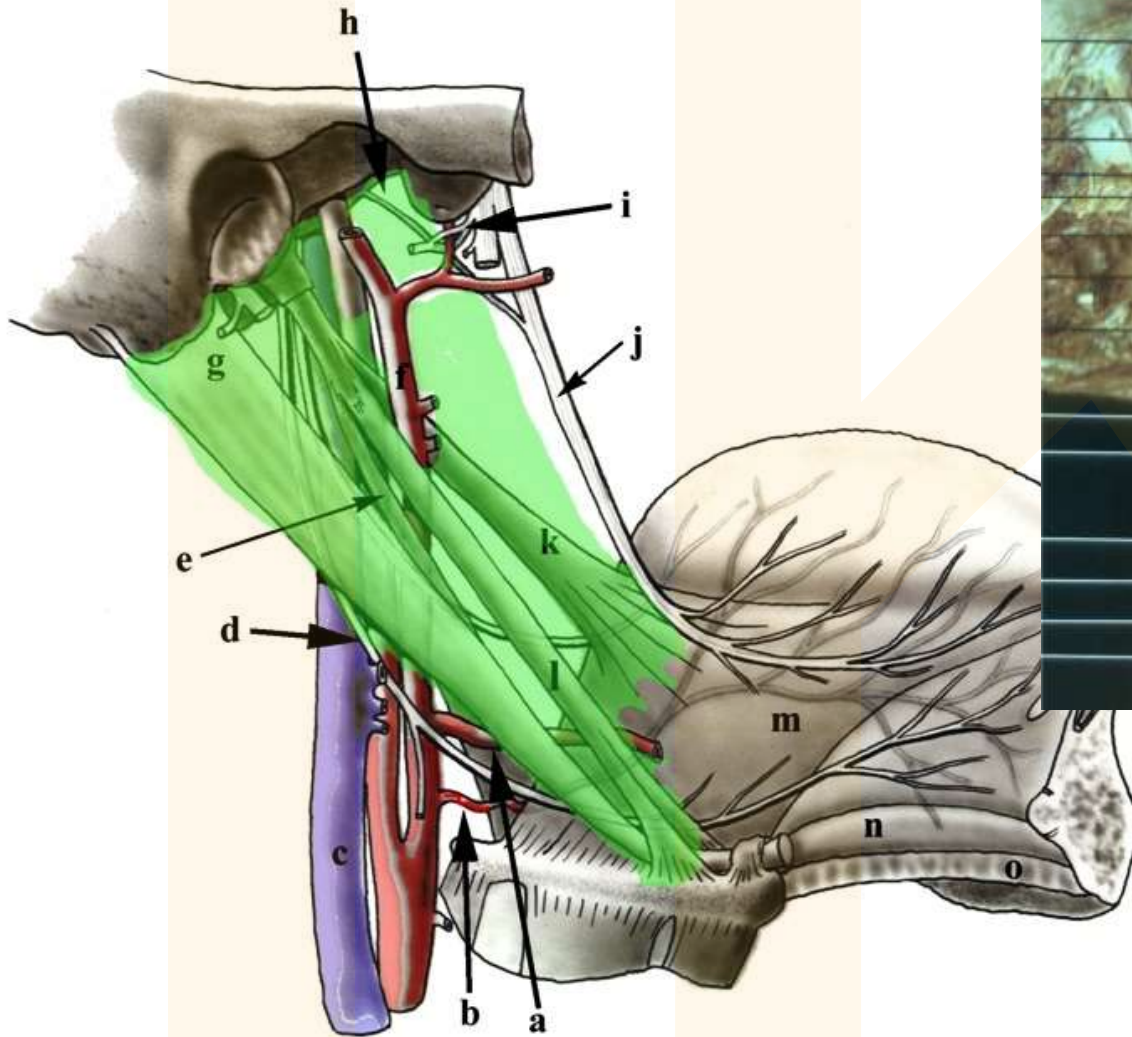
Septum styloideum

Spatium parapharyngeale Parapharyngeal space

Deep cervical space
Looks like pyramid on top
(level of hyoid bone)

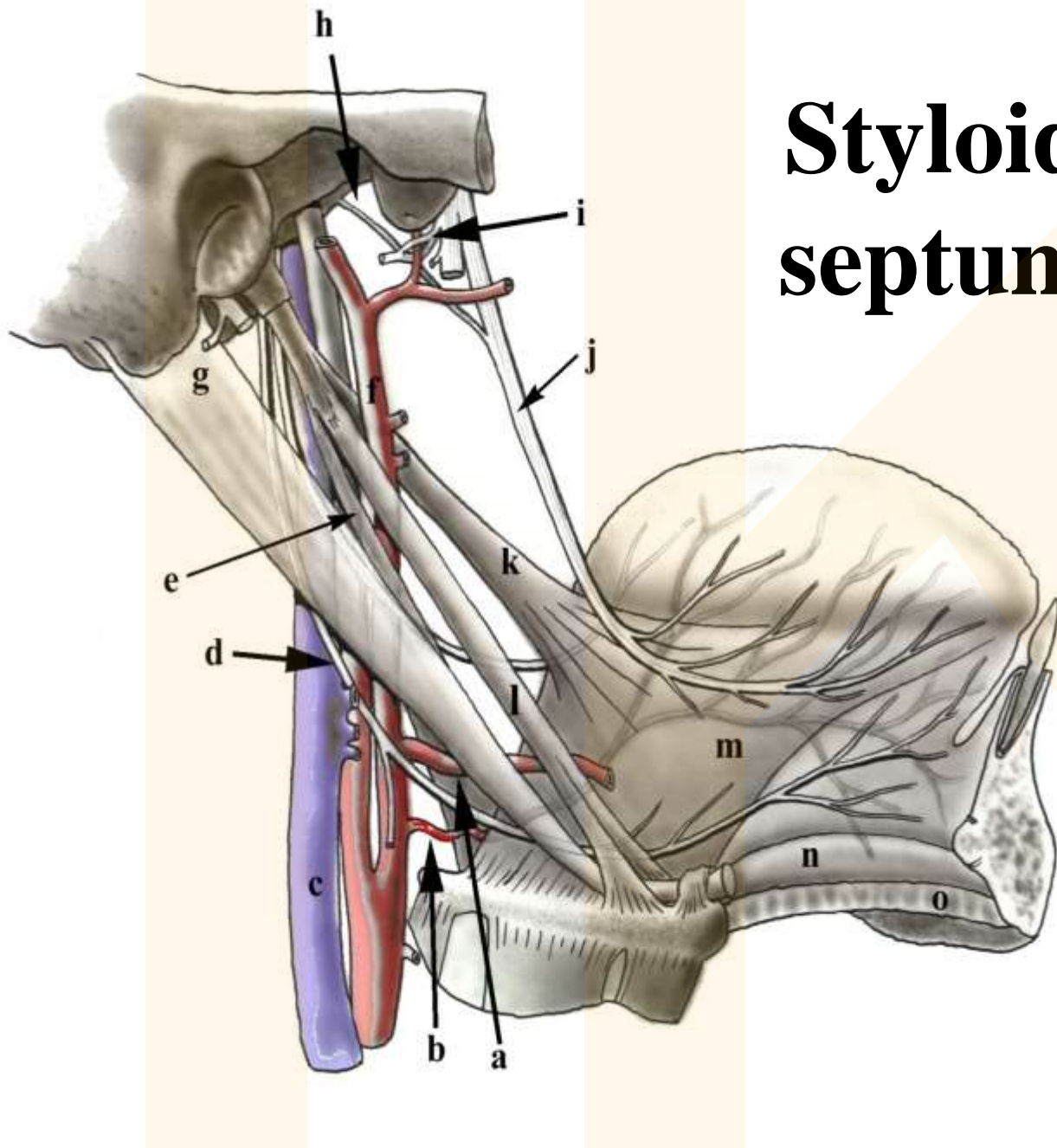
Pre – and retrostyloid
compartments





Styloidní
 septum

Styloid
 septum



Styloid septum

Internal jugular vein

lies

dorsally and ventrally from ICA behind m.

stylohyoideus and m. styloglossus

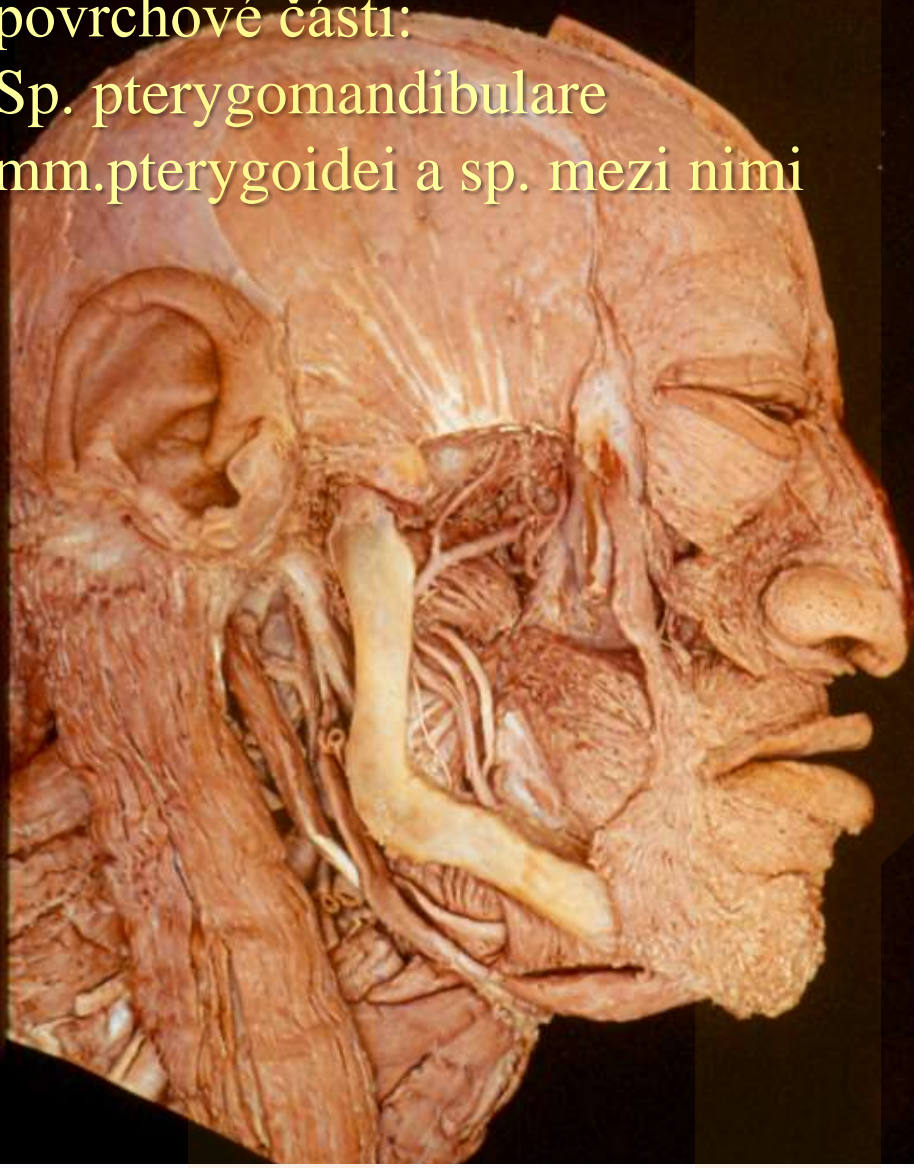
External carotid artery

lies

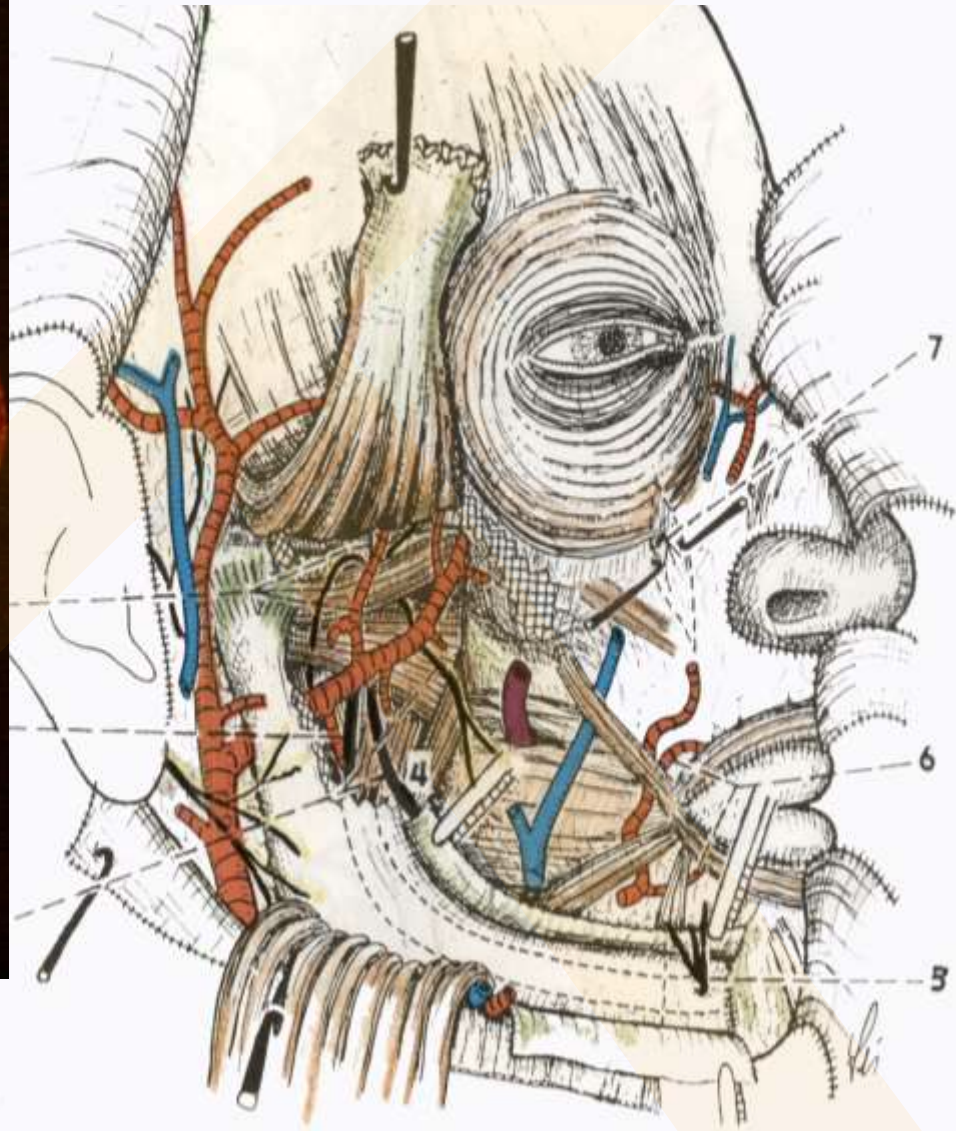
Ventrally and laterally from IJV and between m. stylohyoideus and m. styloglossus



povrchové části:
 Sp. pterygomandibulare
 mm. pterygoidei a sp. mezi nimi

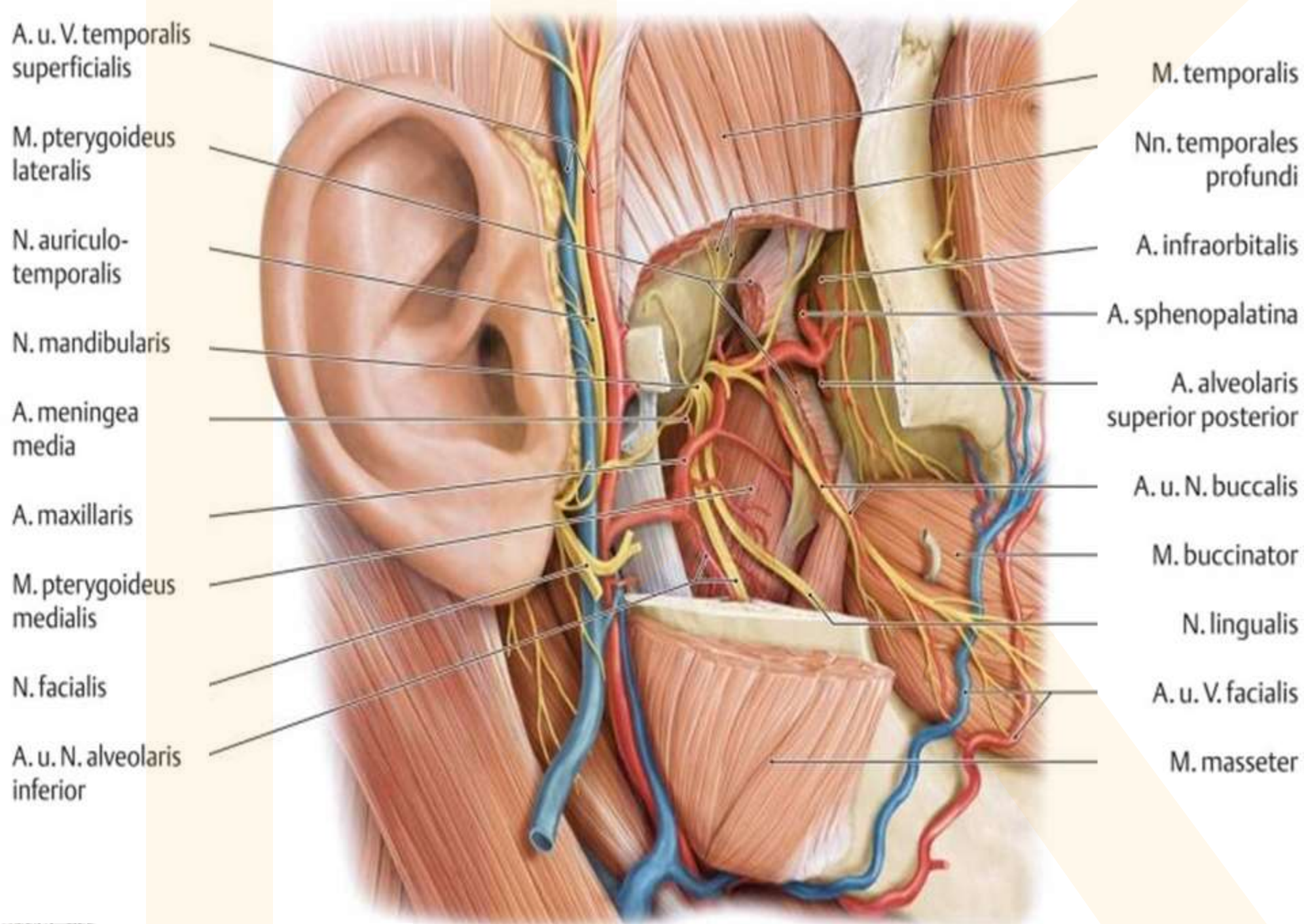


- 1 - a. et nn. temporales prof.
- 2 - a. et n. alveolaris inf.
- 3 - n. lingualis et n. buccalis
- 4 - m. pterygoideus med.



- 5 - n. mentalis
- 6 - a. labialis sup. et inf.
- 7 - n. infraorbitalis
- - resection line

Vrstvy layers



A. u. V. temporalis superficialis

M. pterygoideus lateralis

N. auriculo-temporalis

N. mandibularis

A. meningea media

A. maxillaris

M. pterygoideus medialis

N. facialis

A. u. N. alveolaris inferior

M. temporalis

Nn. temporales profundi

A. infraorbitalis

A. sphenopalatina

A. alveolaris superior posterior

A. u. N. buccalis

M. buccinator

N. lingualis

A. u. V. facialis

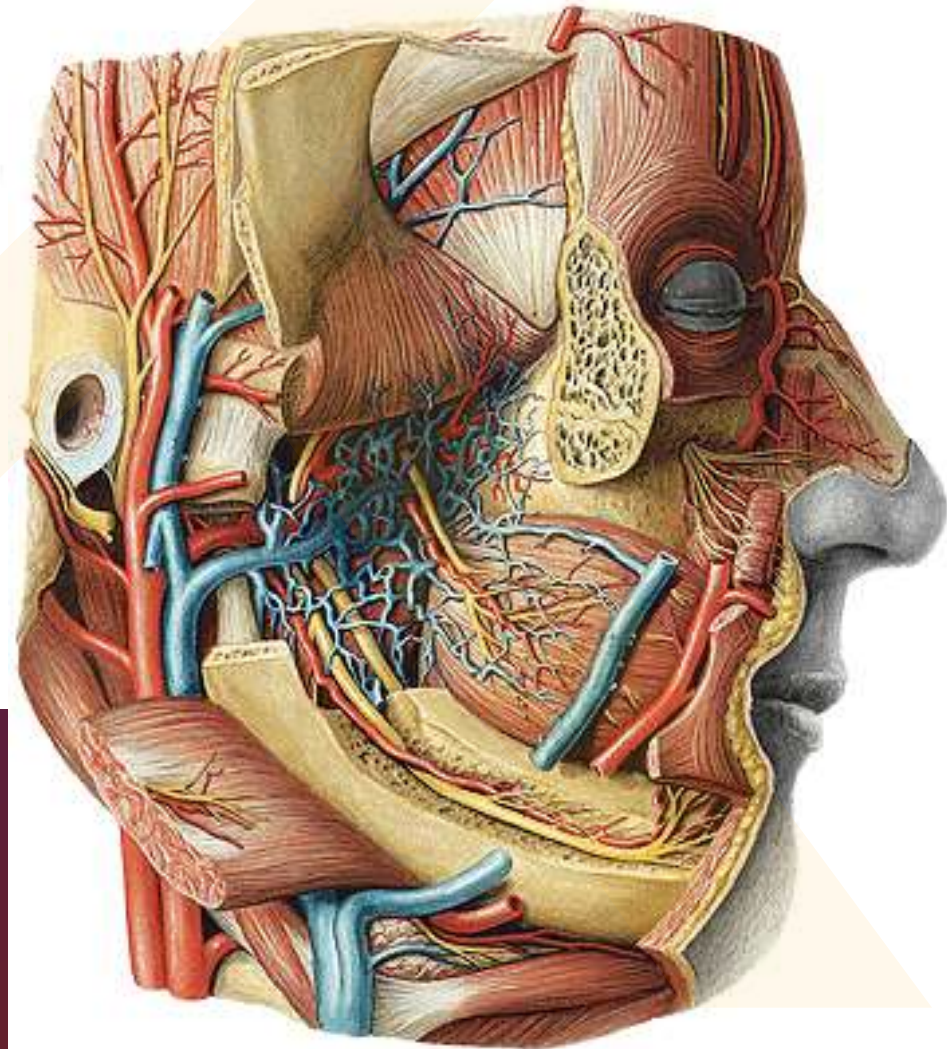
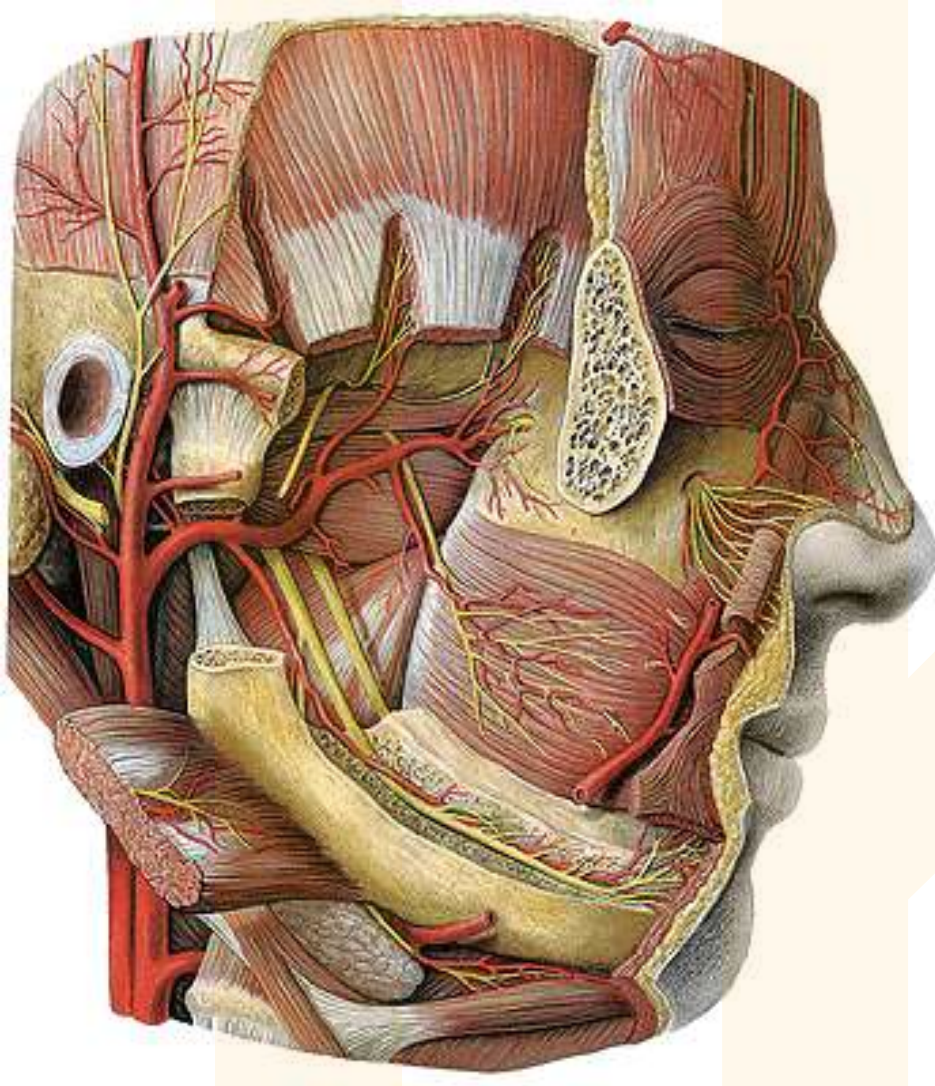
M. masseter

Fossa infratemporalis

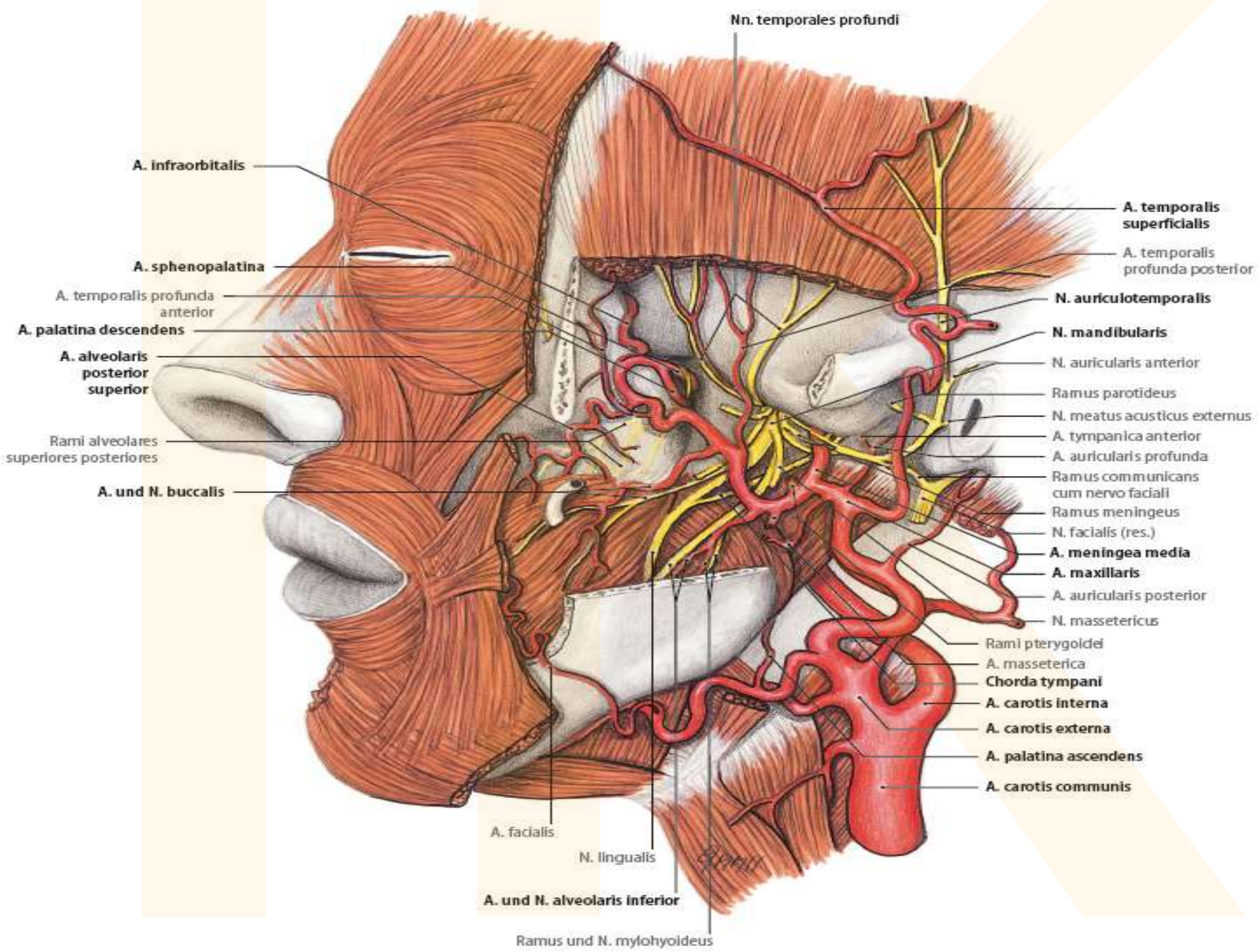
„Povrchová vrstva“

Infratemporal fossa

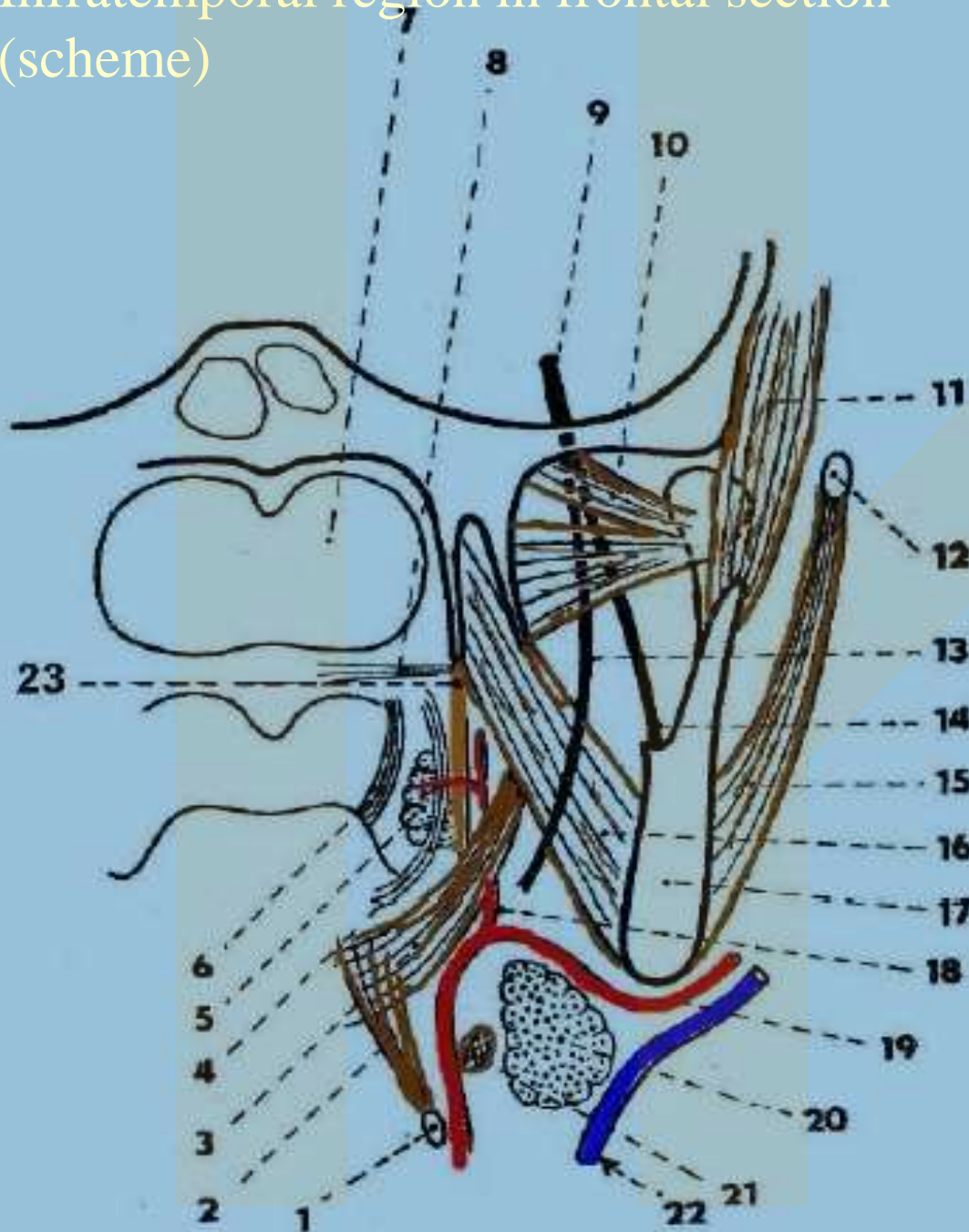
“superficial layer“



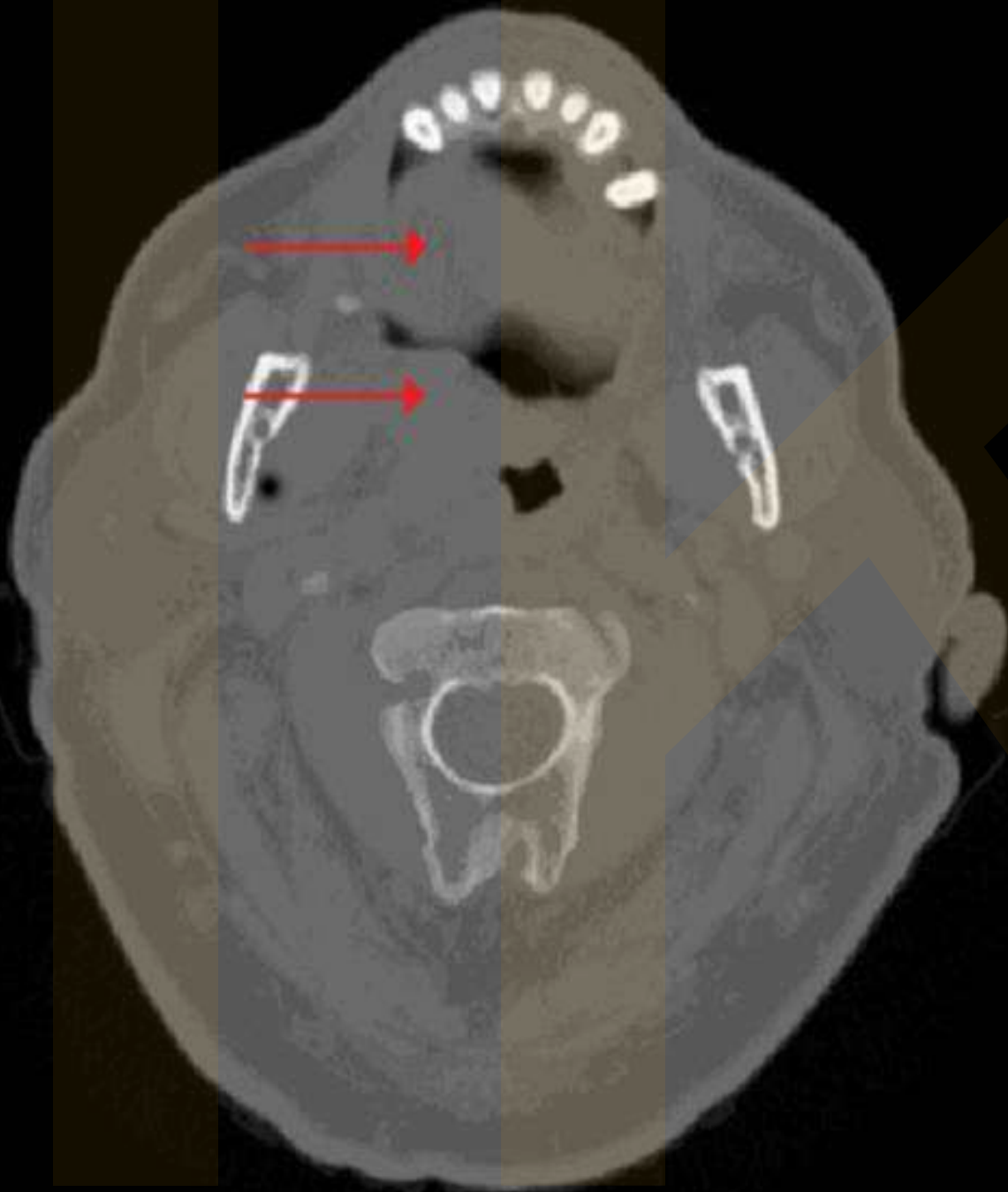
Tepny a žilní pleteně
Arteries and plexiform-like veins



Infratemporal region in frontal section (scheme)

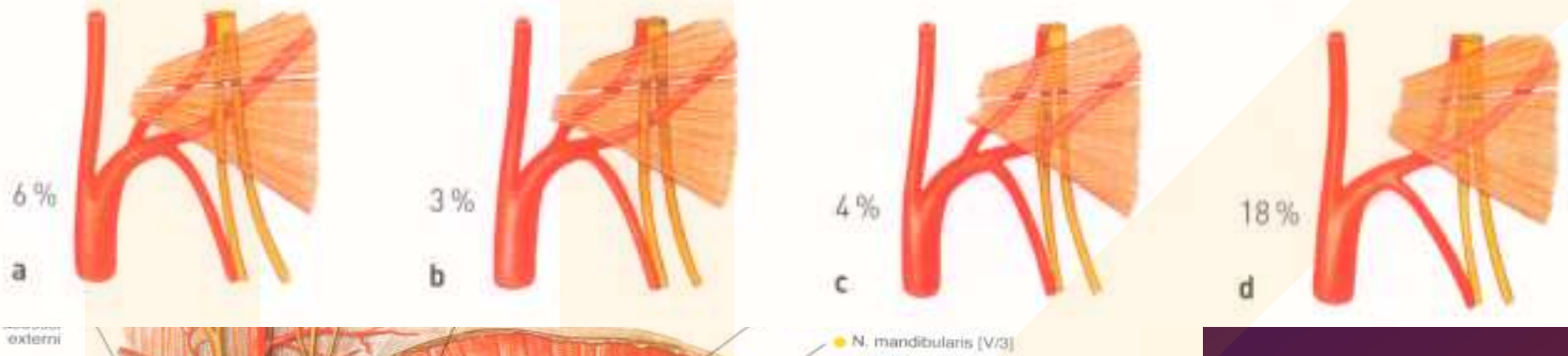


Obr. 45. **Regio infratemporalis** na schematickém frontálním řezu. Pohled zpředu. Mediálně od m. pterygoideus medialis je regio paratonsillaris, laterálně v dolní části je spatium pterygomandibulare, nahoře regio infratemporalis. 1 — os hyoideum, 2 — m. hyoglossus, 3 — m. styloglossus, 4 — m. palatoglossus, 5 — tonsilla palatina, 6 — m. palatopharyngeus, 7 — nasopharynx, 8 — m. tensor veli palatini, 9 — n. mandibularis (V_3), 10 — m. pterygoideus lateralis, 11 — m. temporalis, 12 — arcus zygomaticus, 13 — n. lingualis, 14 — n. alveolaris inferior, 15 — m. masseter, 16 — m. pterygoideus medialis, 17 — ramus mandibulae, 18 — a. palatina ascendens, 19 — a. facialis, 20 — glandula submandibularis, 21 — m. digastricus, 22 — v. facialis. 23 - m. constr. pharyngis (Podle Hefta.)

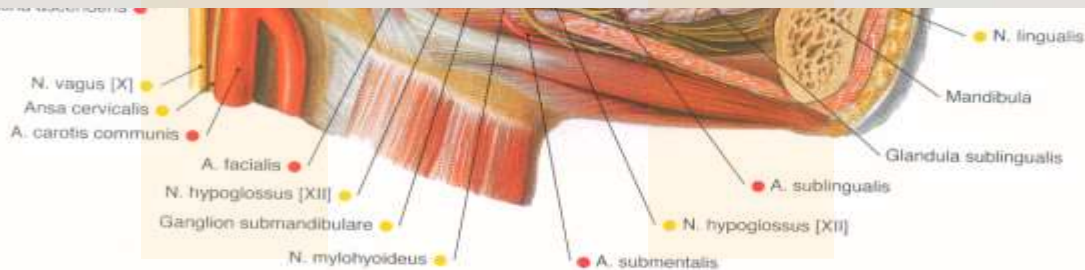


Absces
v
infratemporál
ní jámě

Abscess
inside
infratemporal
fossa



- a** The maxillary artery, *A. maxillaris*, passes medially to the lateral pterygoid muscle, *M. pterygoideus lateralis*, the lingual nerve, *N. lingualis*, and the inferior alveolar nerve, *N. alveolaris inferior*.
- b** The maxillary artery, *A. maxillaris*, passes between the lingual nerve, *N. lingualis*, and the inferior alveolar nerve, *N. alveolaris inferior*.
- c** The maxillary artery, *A. maxillaris*, passes through a loop formed by the inferior alveolar nerve, *N. alveolaris inferior*.
- d** The middle meningeal artery, *A. meningea media*, branches off distal to the inferior alveolar artery, *A. alveolaris inferior*.



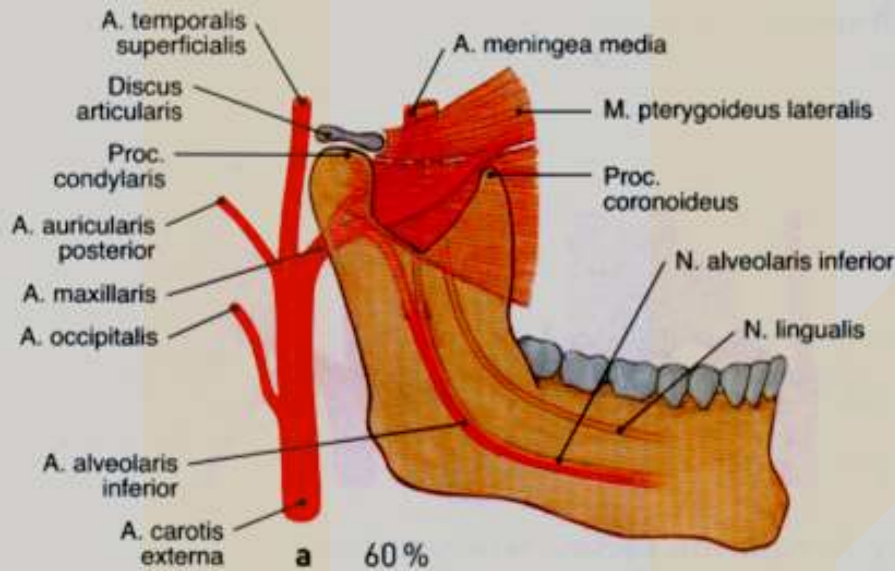
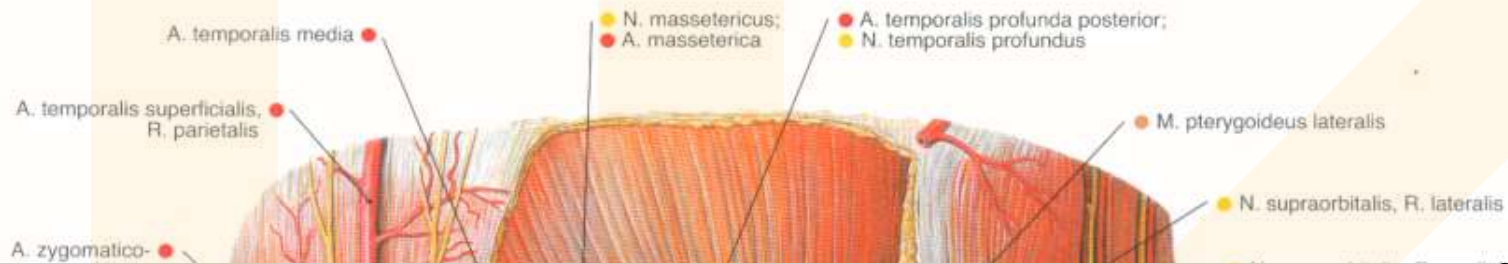
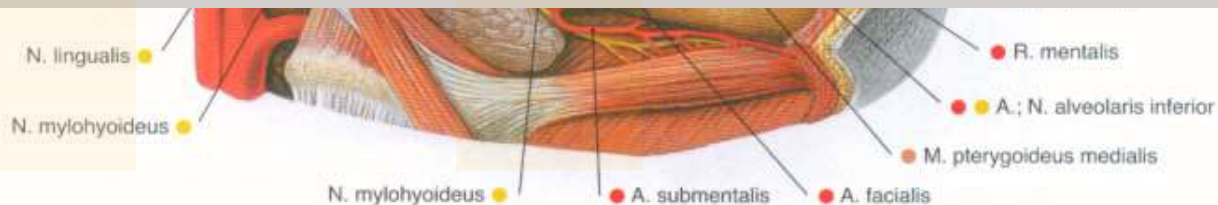


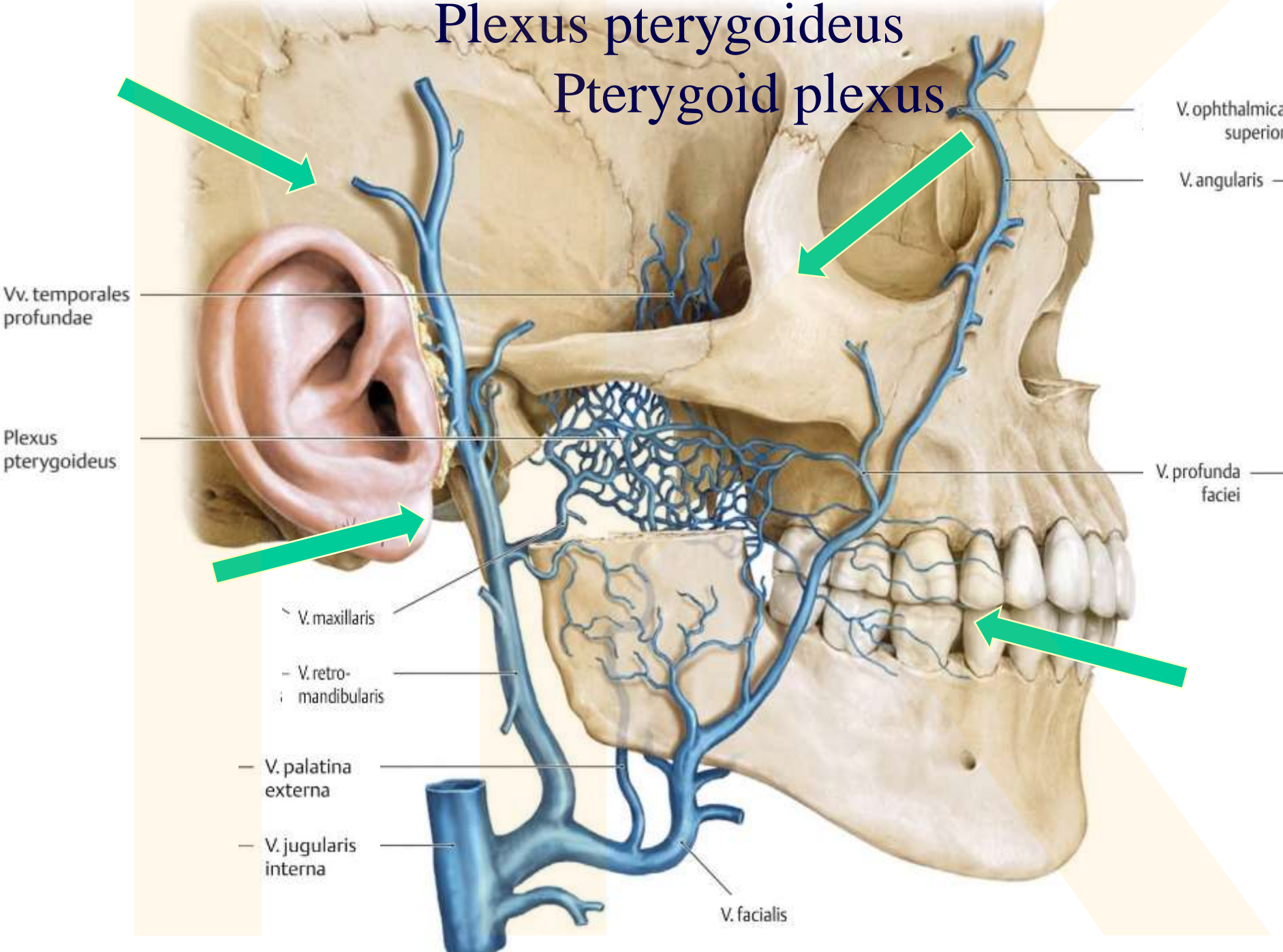
Fig. 135 a-c Variations of the middle meningeal artery, A. meningea media.

- a** The middle meningeal artery, A. meningea media, branches off proximal to the inferior alveolar artery, A. alveolaris inferior.
- b** The middle meningeal artery, A. meningea media, branches off across from the inferior alveolar artery, A. alveolaris inferior.
- c** The middle meningeal artery, A. meningea media, branches off distal to the inferior alveolar artery, A. alveolaris inferior.



Plexus pterygoideus

Pterygoid plexus



Pterygoid plexus

and its

tributaries:

n ophthalmica sup.

p ophthalmica inf.

n infraorbitalis

rete foraminis ovalis

(through foramen ovale – rete
and through foramen
spinosum)

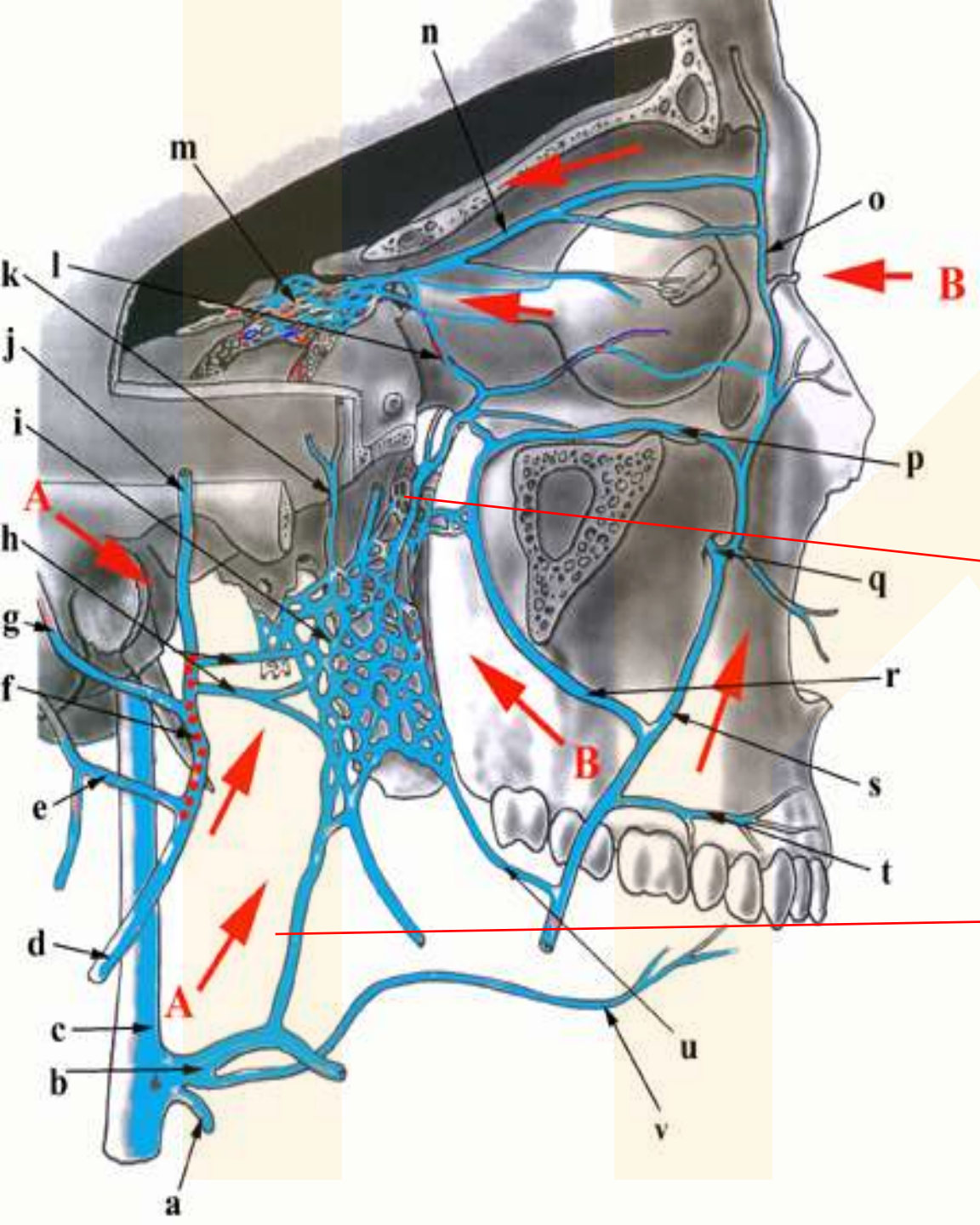
r profunda faciei

u buccalis

alveolaris inferior

... retromandibularis

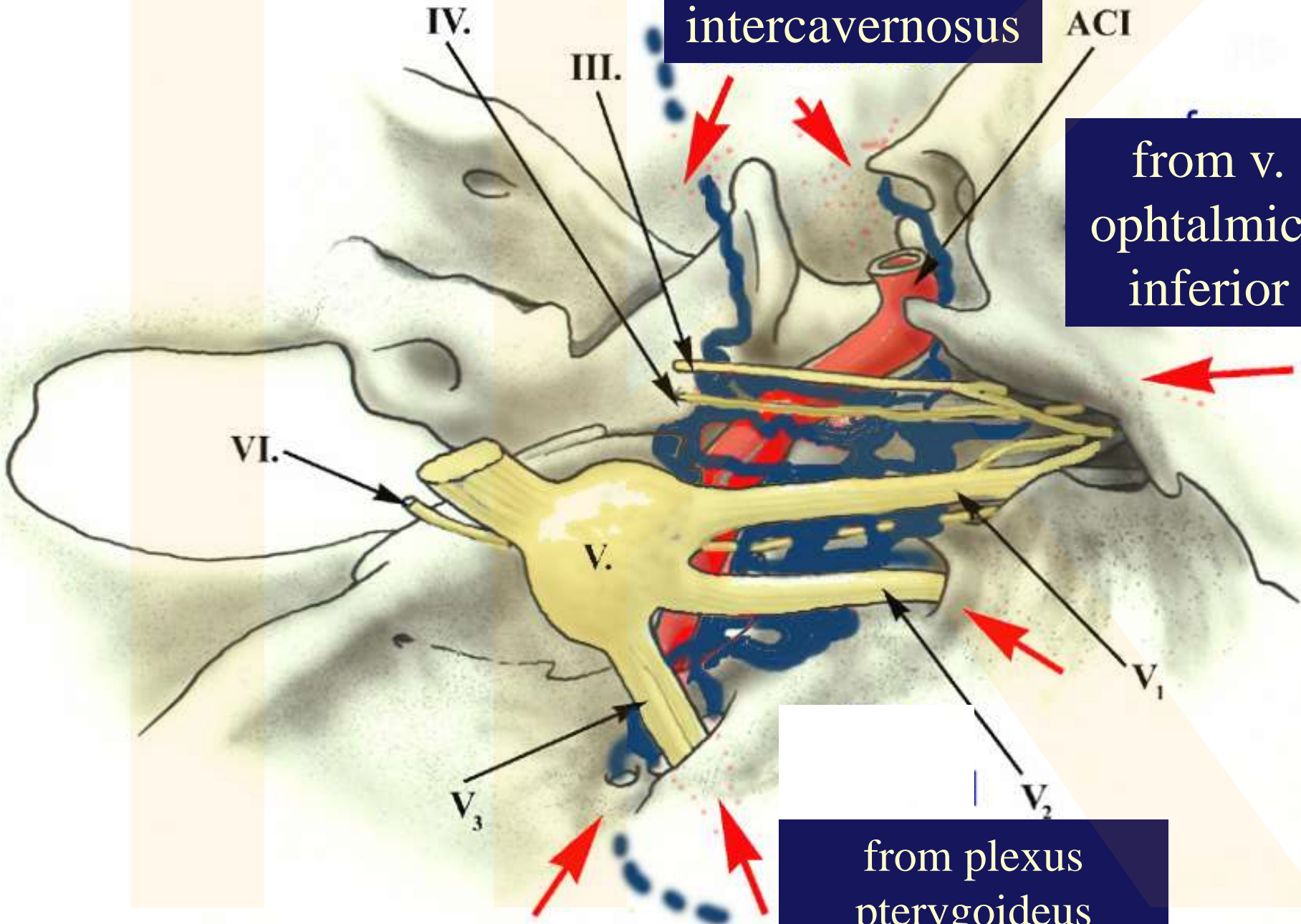
h maxillaris



Plexus
intercavernosus

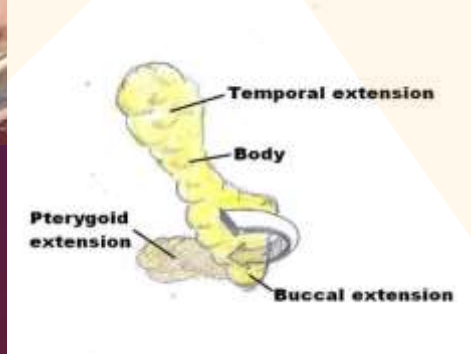
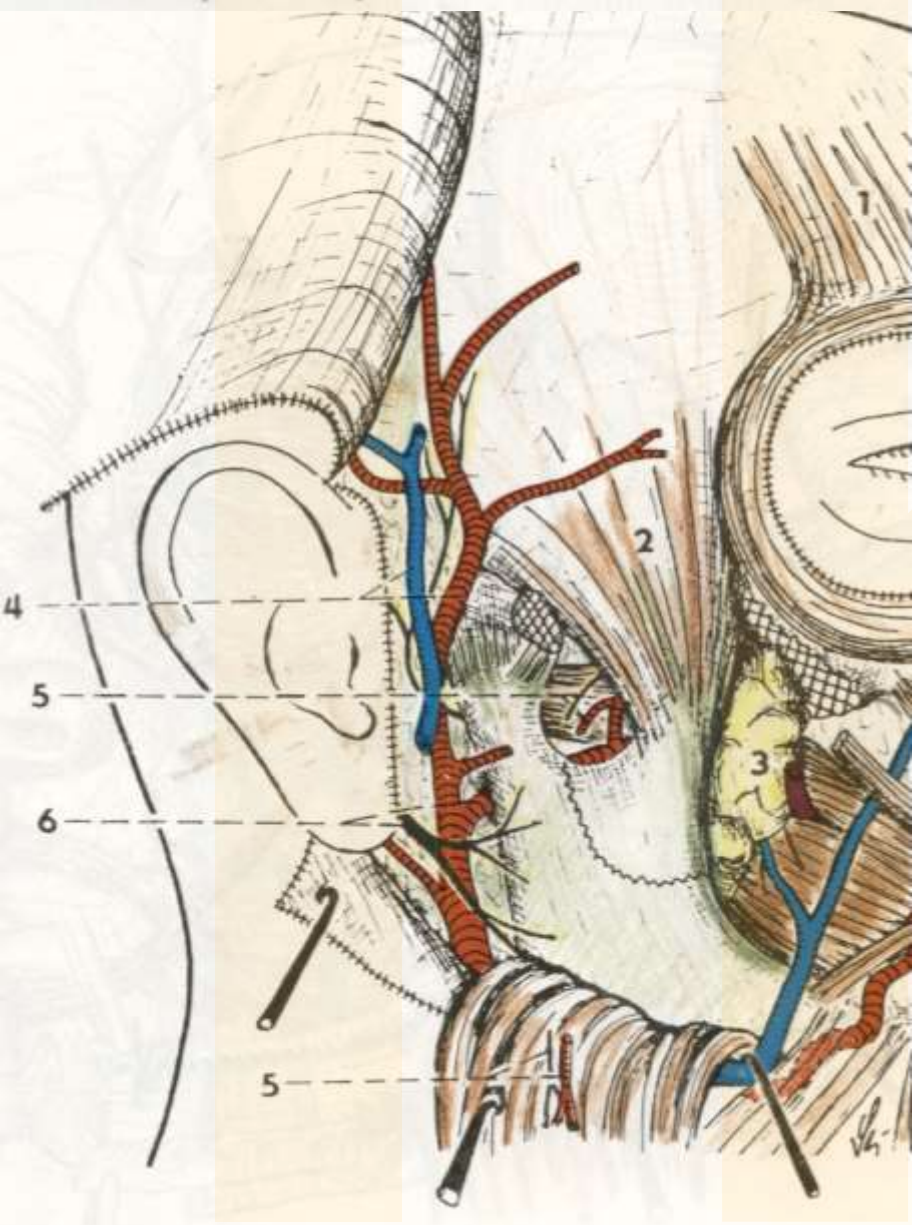
ACI

from v.
ophtalmica
inferior

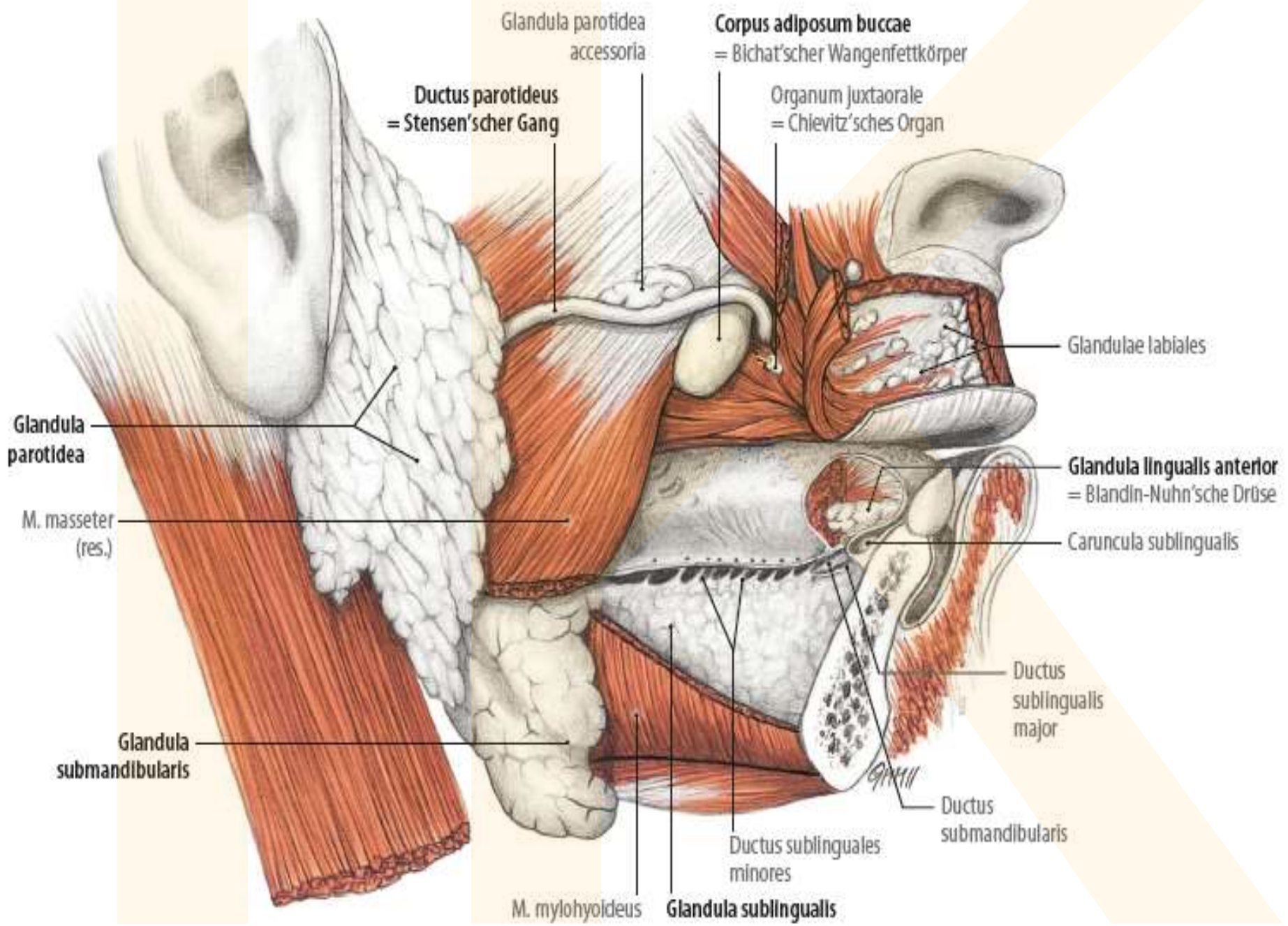


from plexus
pterygoideus

- 1 - m. frontalis
 - 2 - m. temporalis
 - 3 - corpus adiposum buccae
 - 4 - vasa temporalia superfic.
 - 5 - a. et n. massetericus
 - 6 - a. maxillaris et n. VII.
- ⚡ - resection line

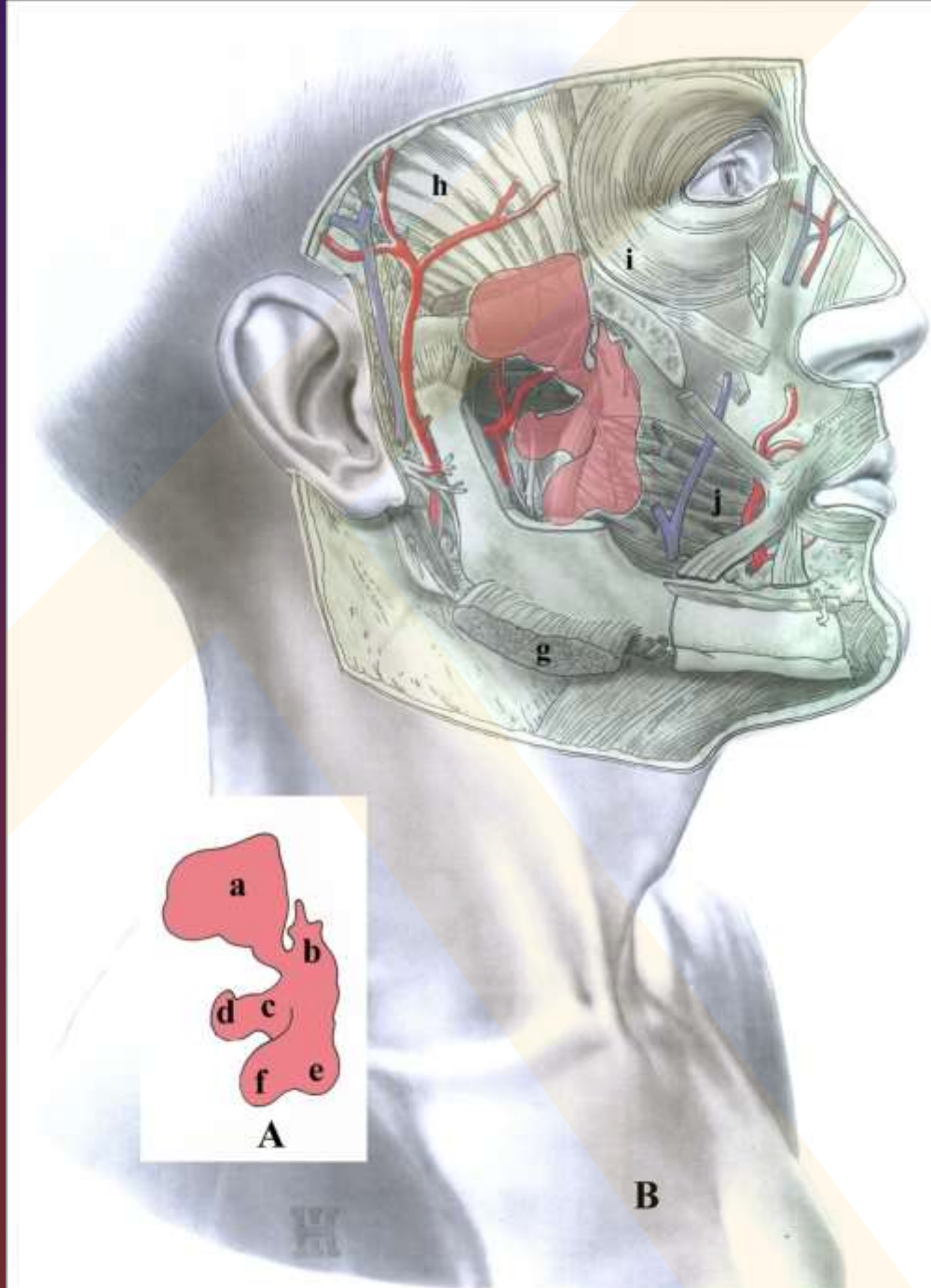


Bichatův polštář kříží ductus parotidicus
 Bichat's fat pad is crossed by parotid duct

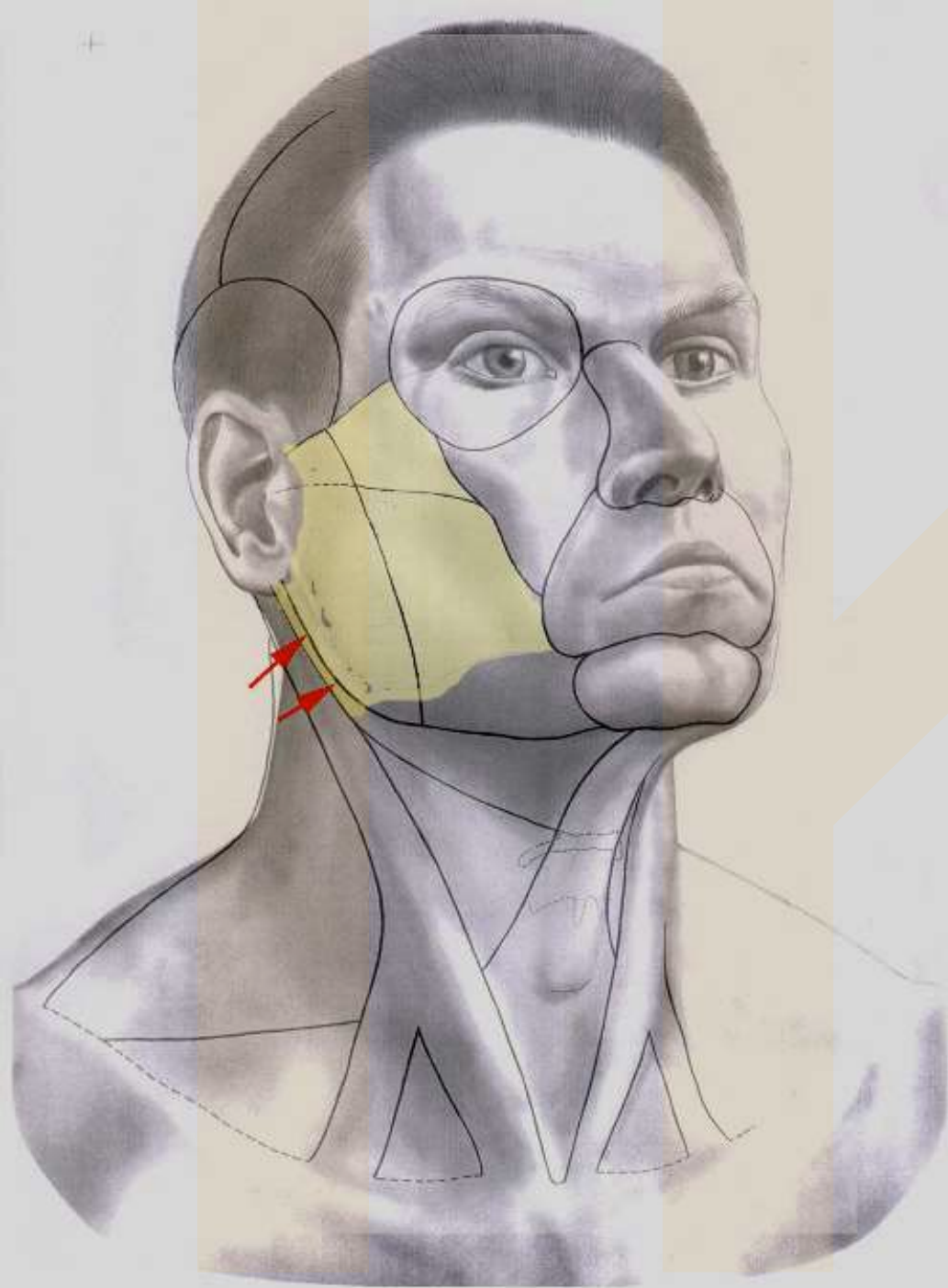


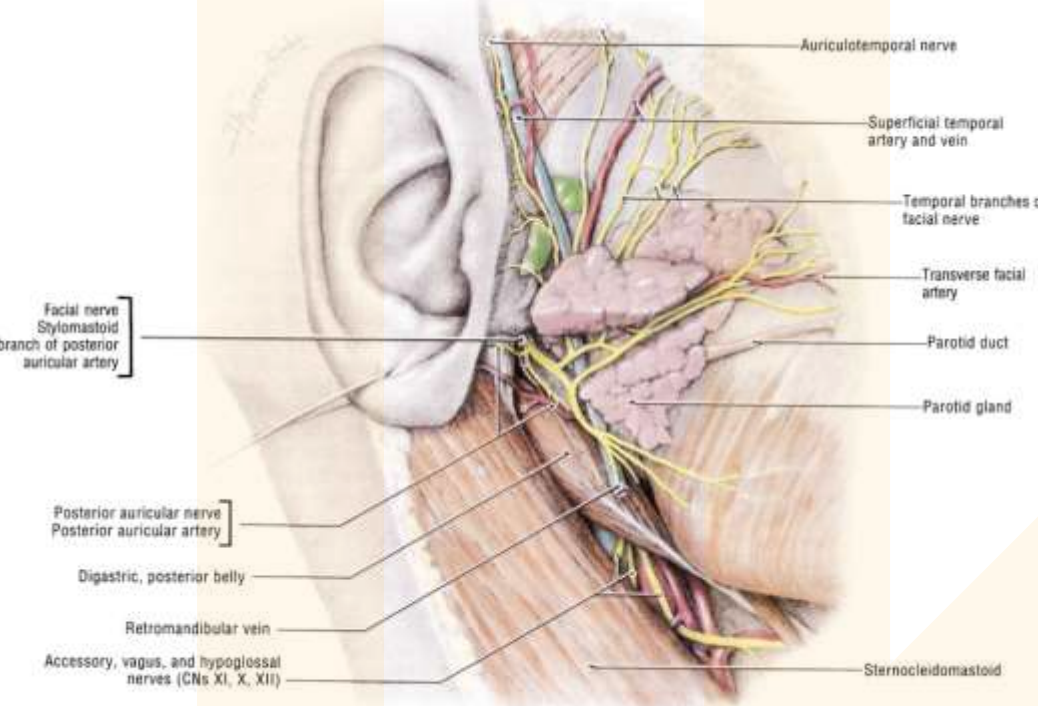
Fat pad

Bichat
cushion

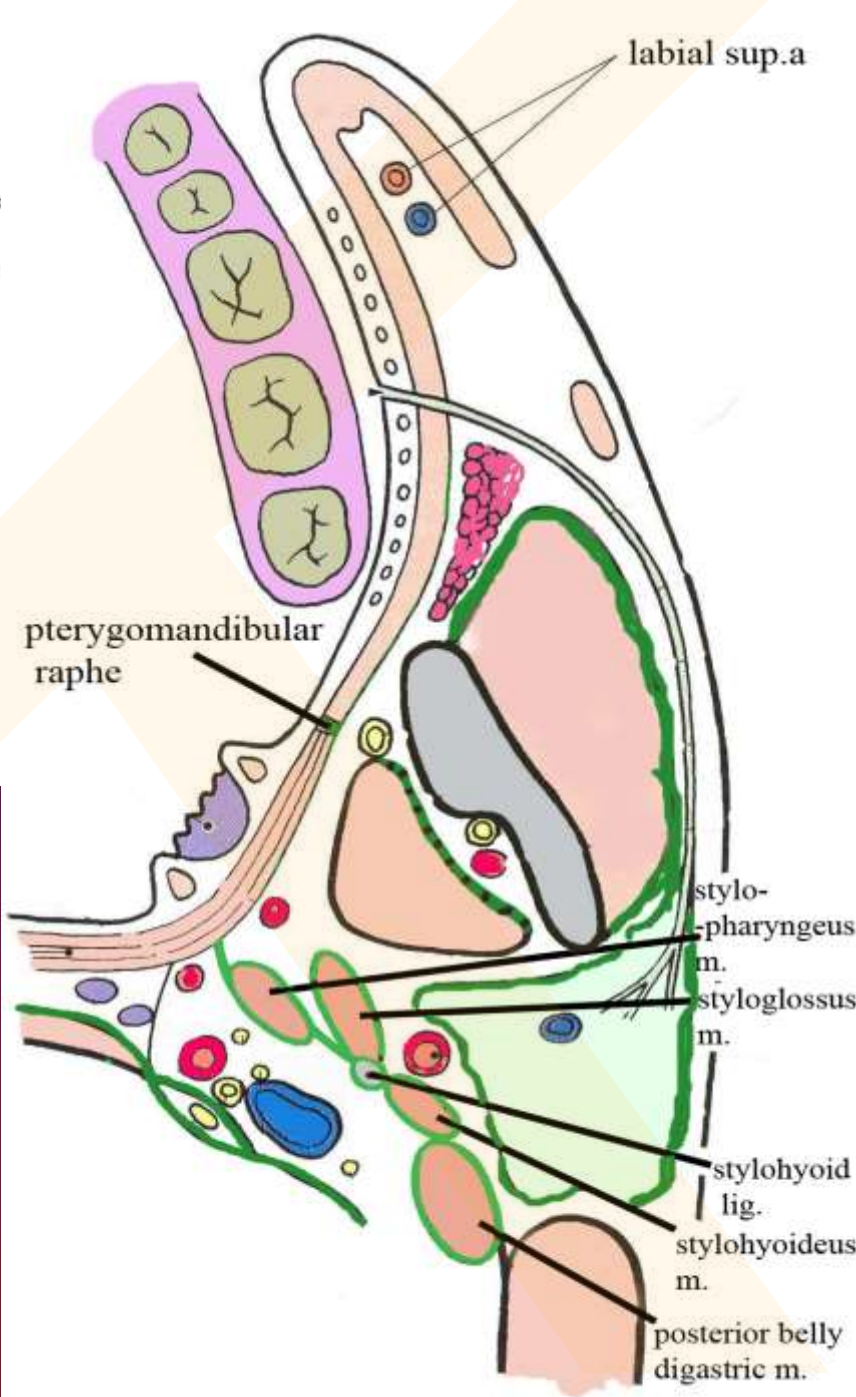


Approach through retrostyloid fossa





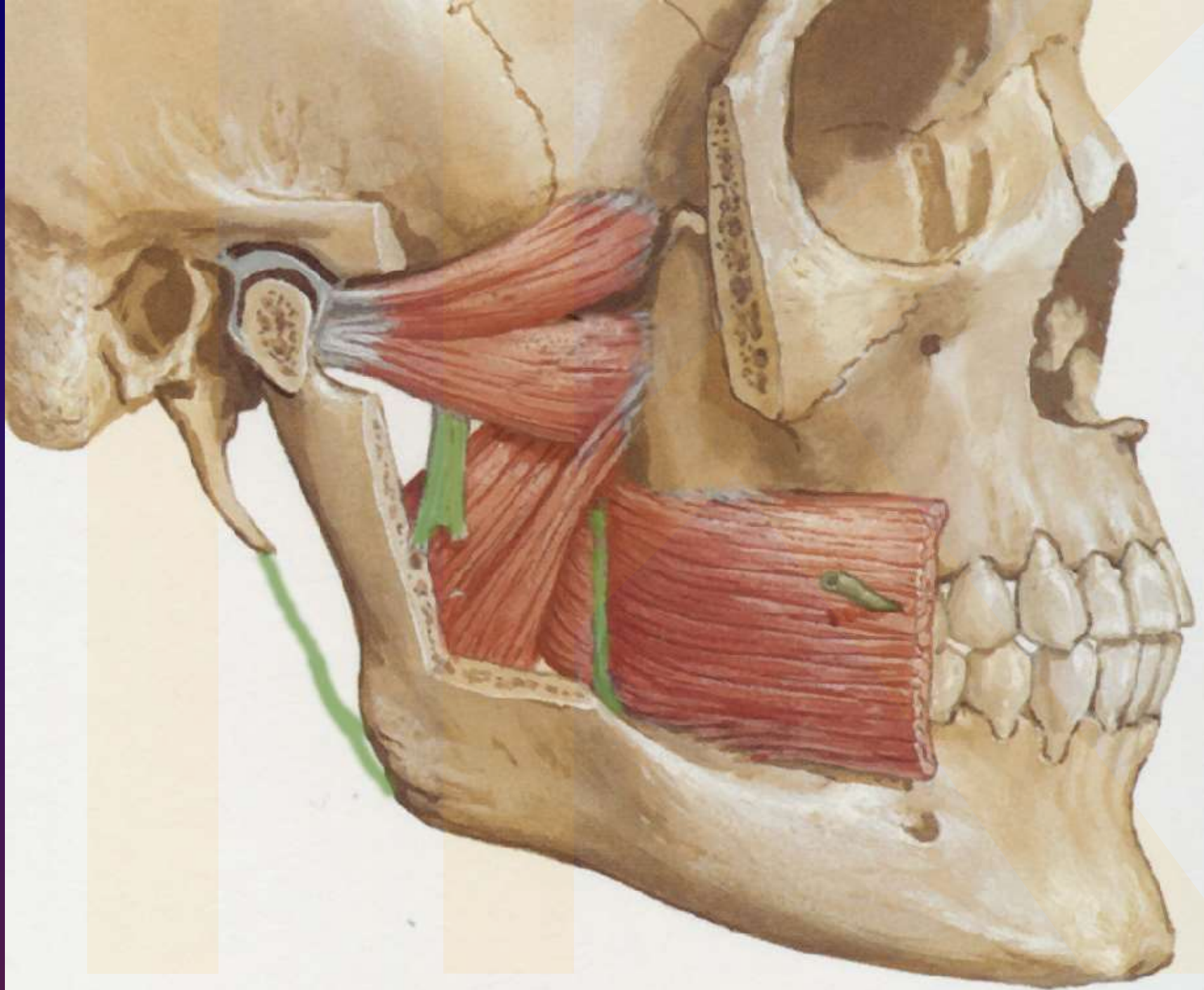
Dissection of the parotid region. Part of the parotid gland has been removed to expose the branches of the facial nerve (CN VII).



**Fossa
retromandibularis
retromandibular
fossa**

Pterygomandibular space

**lies between medial pterygoid
muscle and ramus of the
mandible**

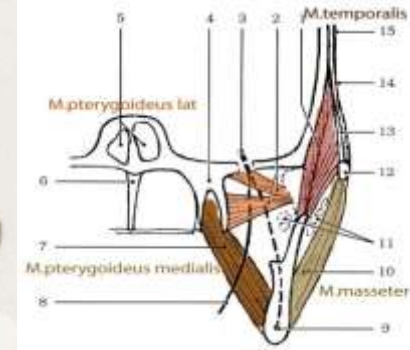
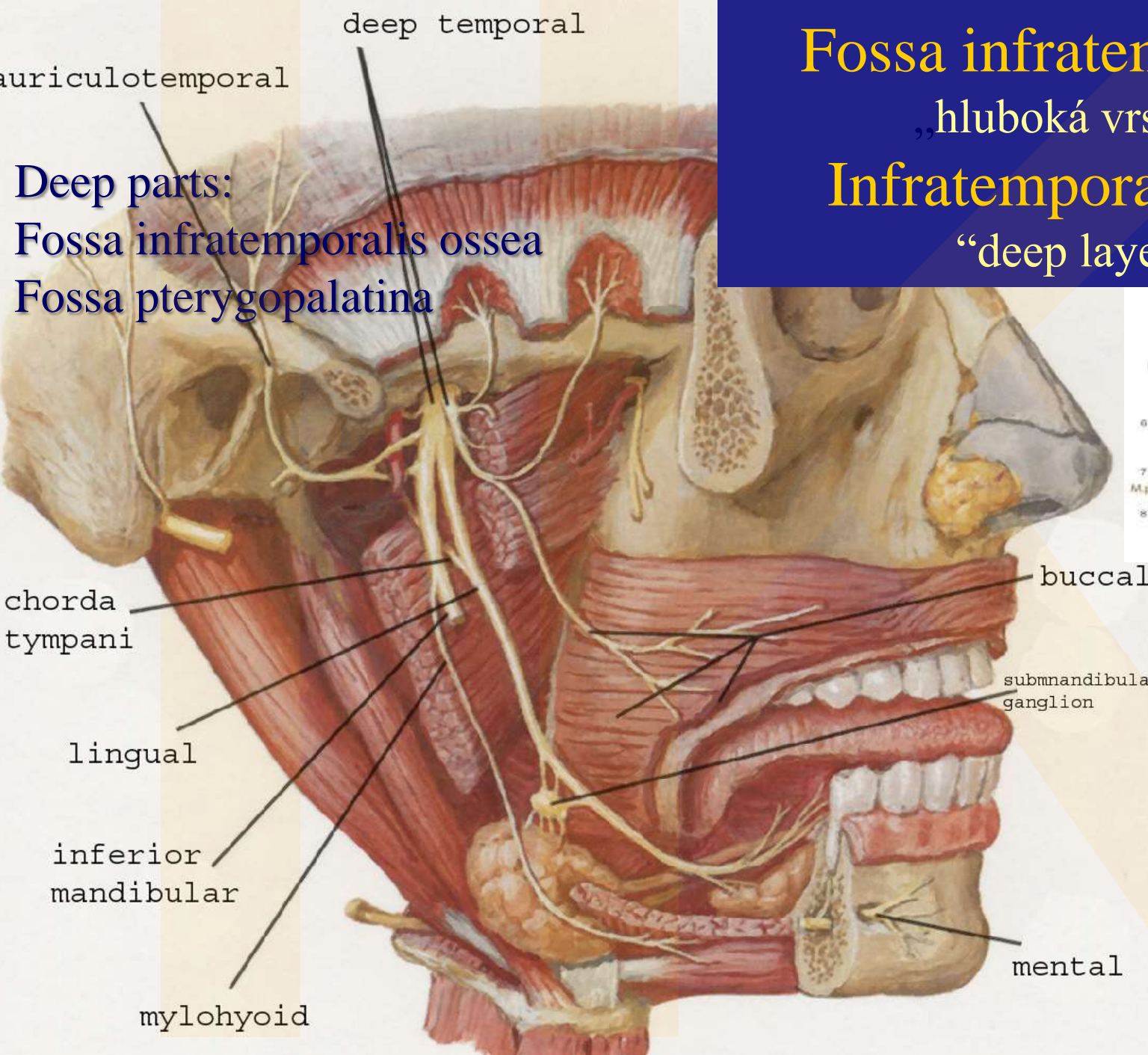


Fossa infratemporalis

„hluboká vrstva“

Infratemporal fossa

“deep layer“



Větve V₃
Mandibular
branches

Temporalis

Deep temporal arteries and nerves

Auriculotemporal nerve

Nerve and artery to masseter

Lateral pterygoid

Superficial temporal artery

Maxillary artery (1st part)

External carotid artery

Sphenomandibular ligament

Mylohyoid nerve

Inferior alveolar nerve and artery

Medial pterygoid

Lingual nerve

Maxillary nerve

Posterior superior alveolar artery and nerve

Maxillary artery (3rd part)

Buccal nerve and artery

Buccal glands
Parotid duct

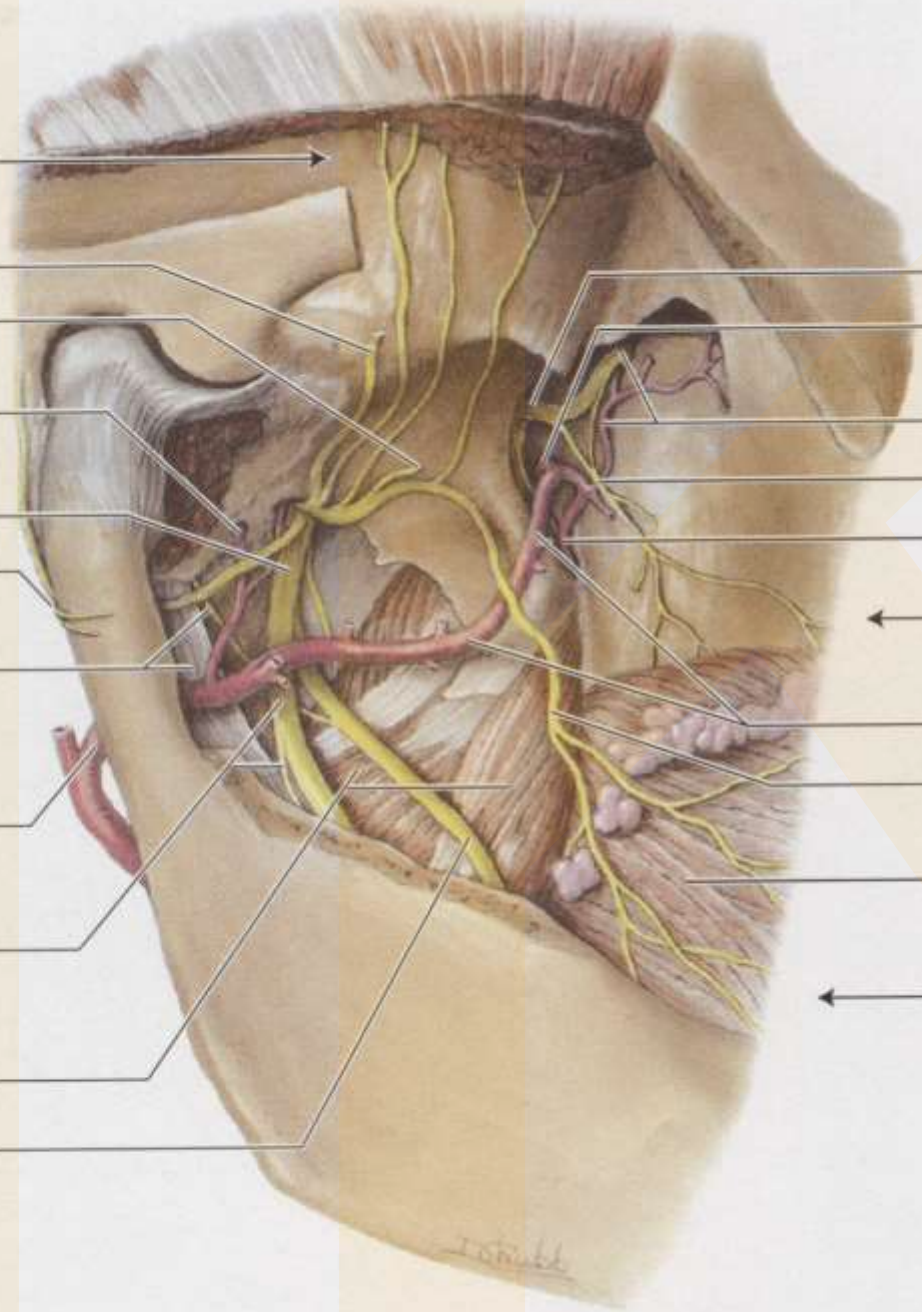
Buccinator

Branches to gums

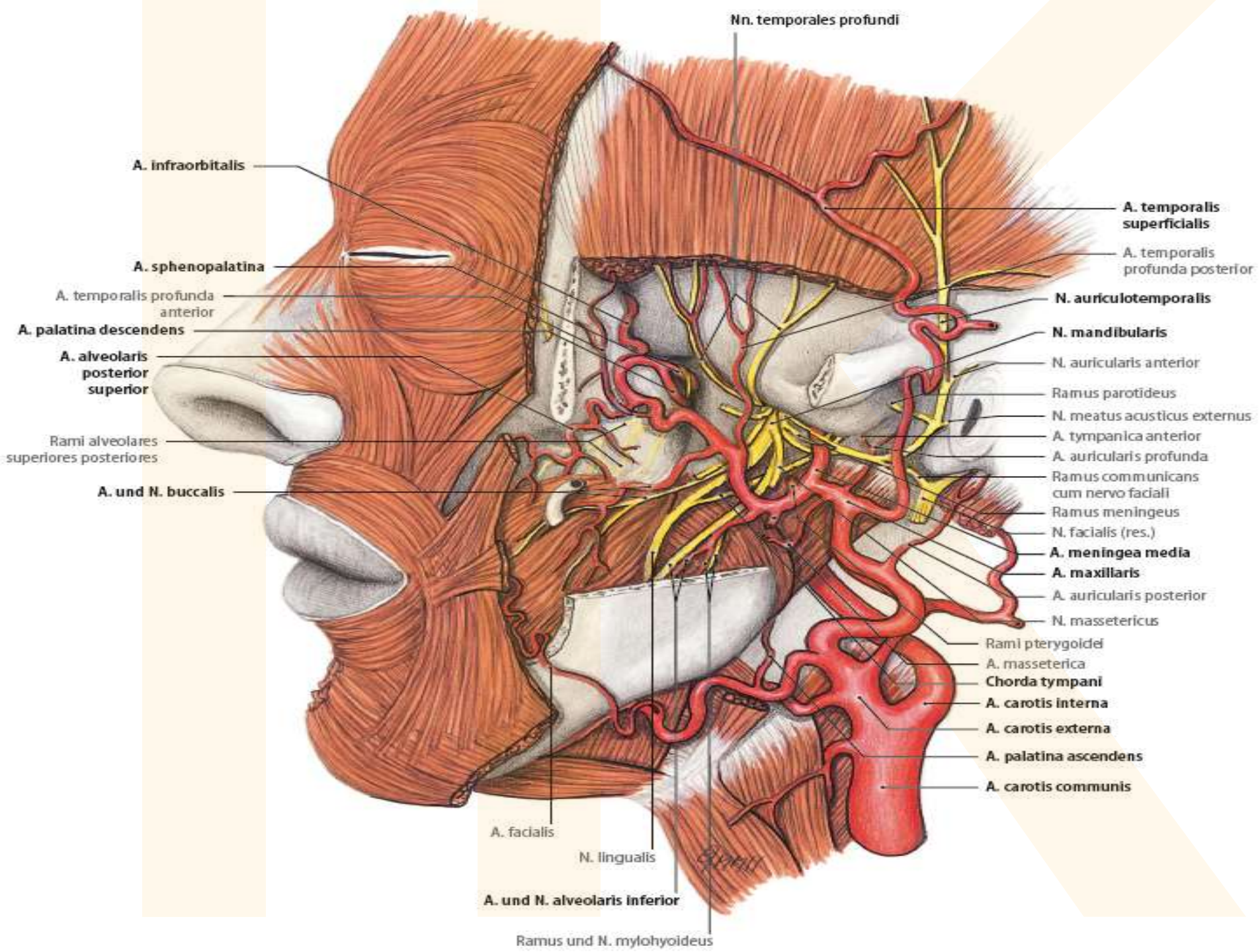
Lateral view

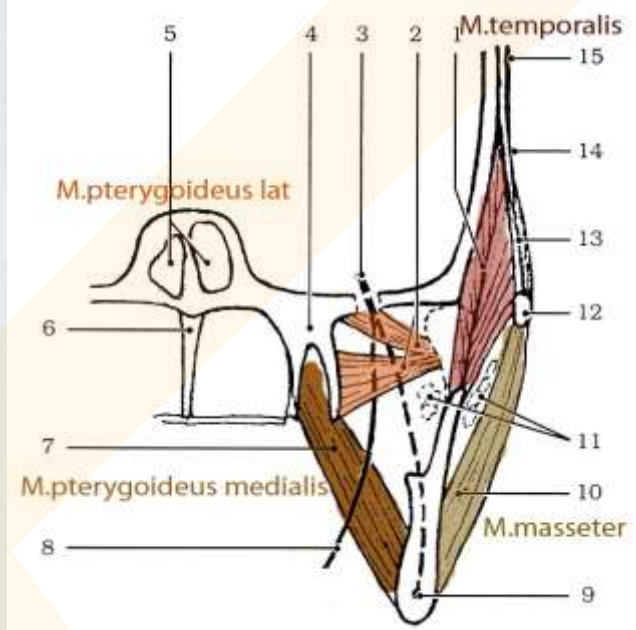
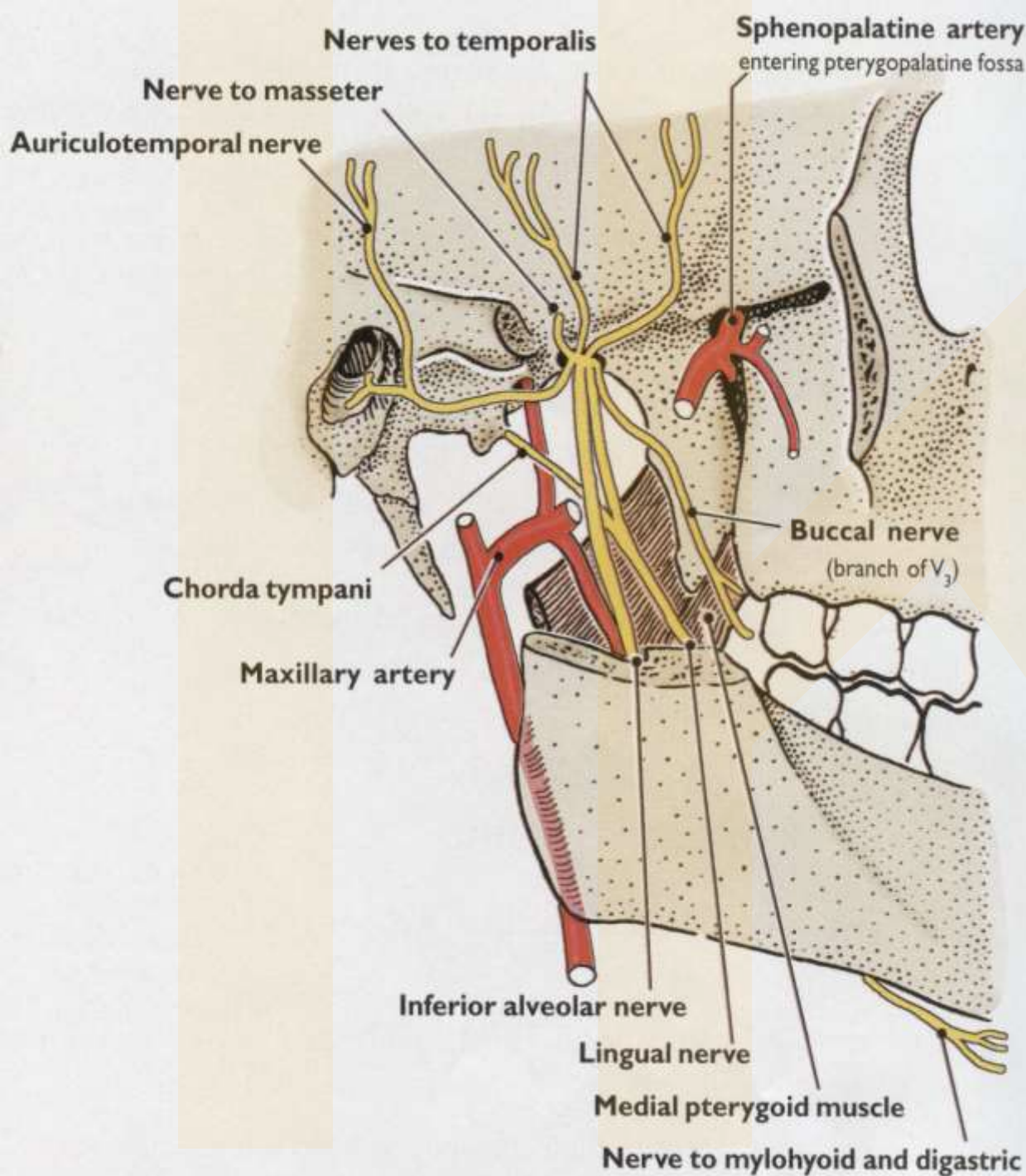
DRubbs

Deep temporal nerves, to temporalis
 Nerve to masseter
 Nerve to lateral pterygoid
 Middle meningeal artery
 Mandibular nerve
 Auriculotemporal nerve
 Chorda tympani
 Sphenomandibular ligament
 Maxillary artery (1st part)
 Inferior alveolar nerve
 Mylohyoid nerve
 Medial pterygoid
 Lingual nerve

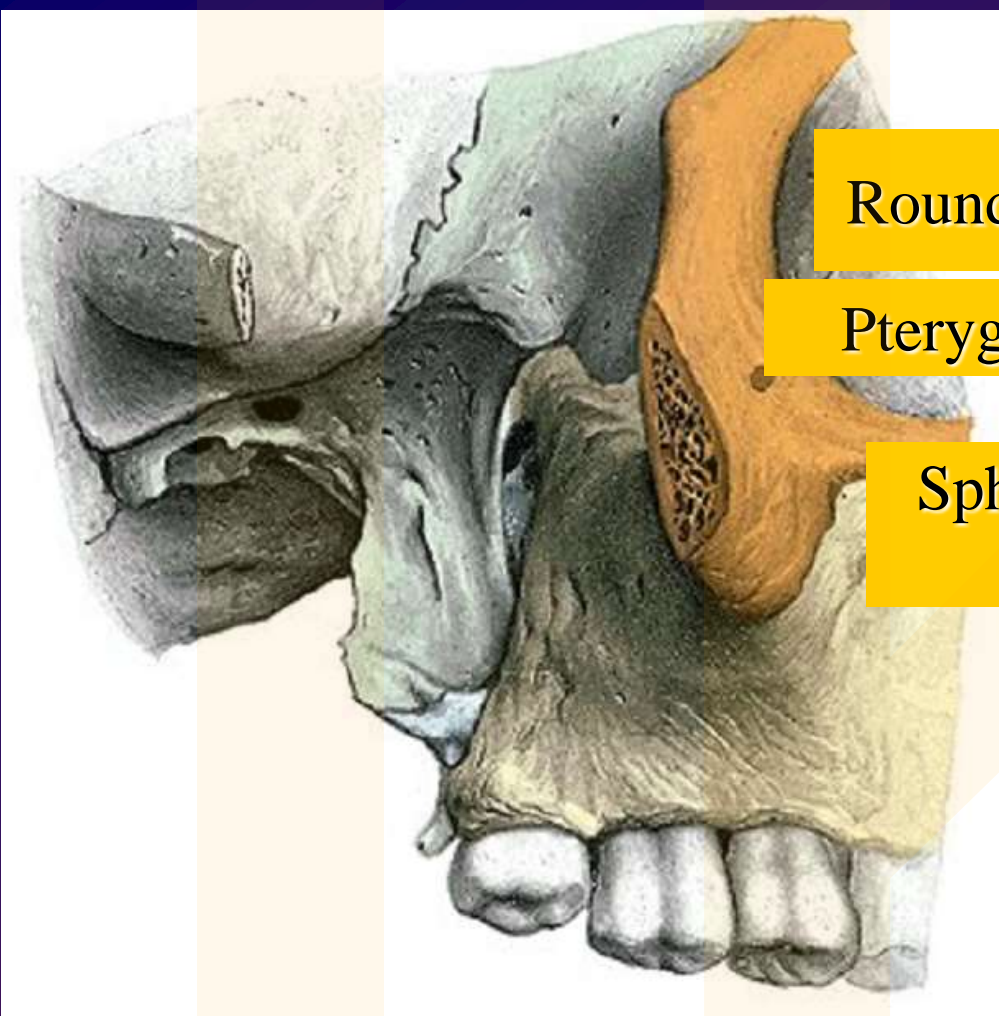


Maxillary nerve
 Sphenopalatine artery
 Infraorbital nerve and artery
 Posterior superior alveolar nerve
 Greater palatine artery
 Gingival branches (branches to gums)
 Maxillary artery (2nd and 3rd parts)
 Buccal nerve
 Buccinator
 Gingival branches (branches to gums)





maxillary artery and division of the trigeminal nerve V₃ are surrounded by the **venous pterygoid plexus**

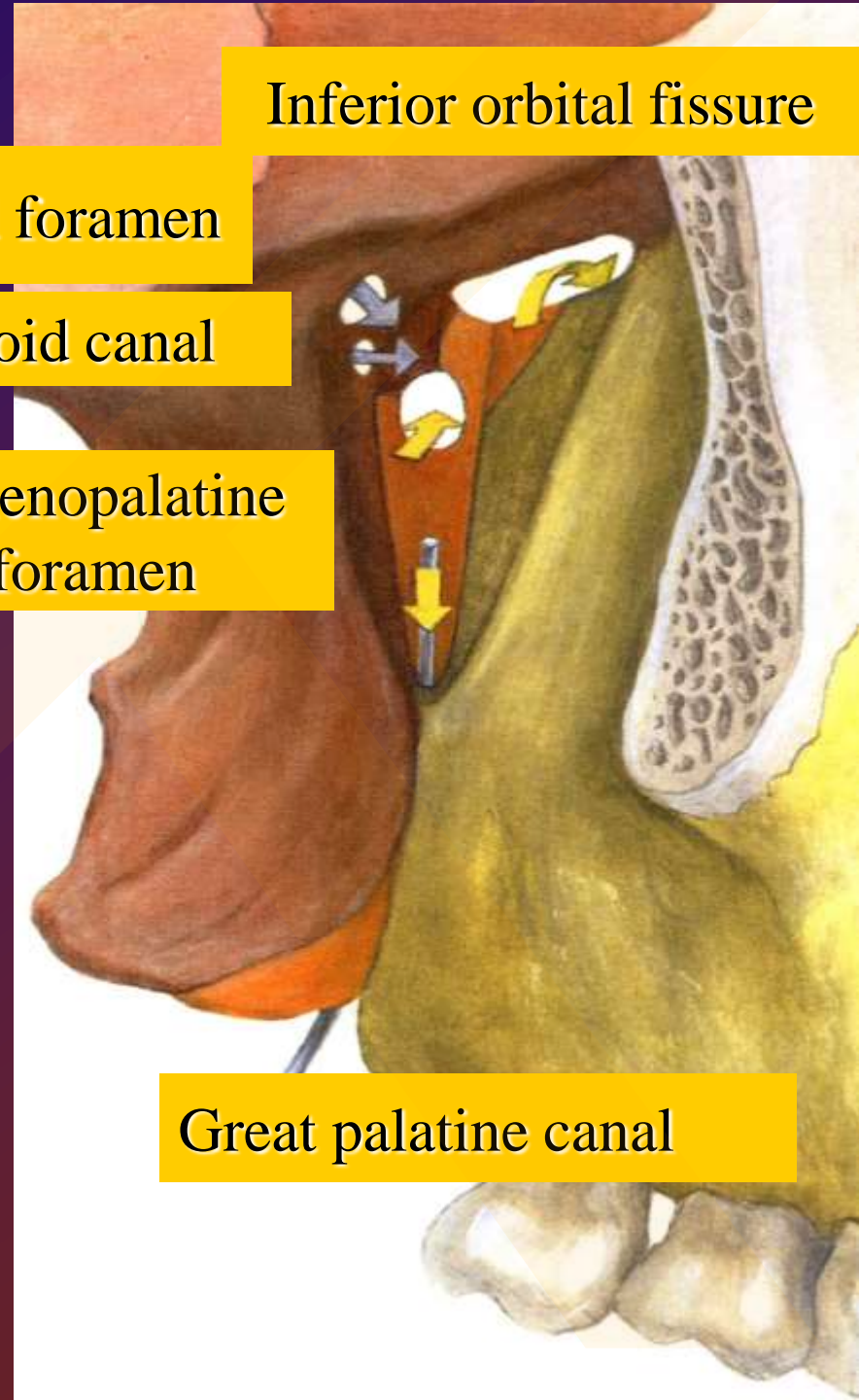


Round foramen

Pterygoid canal

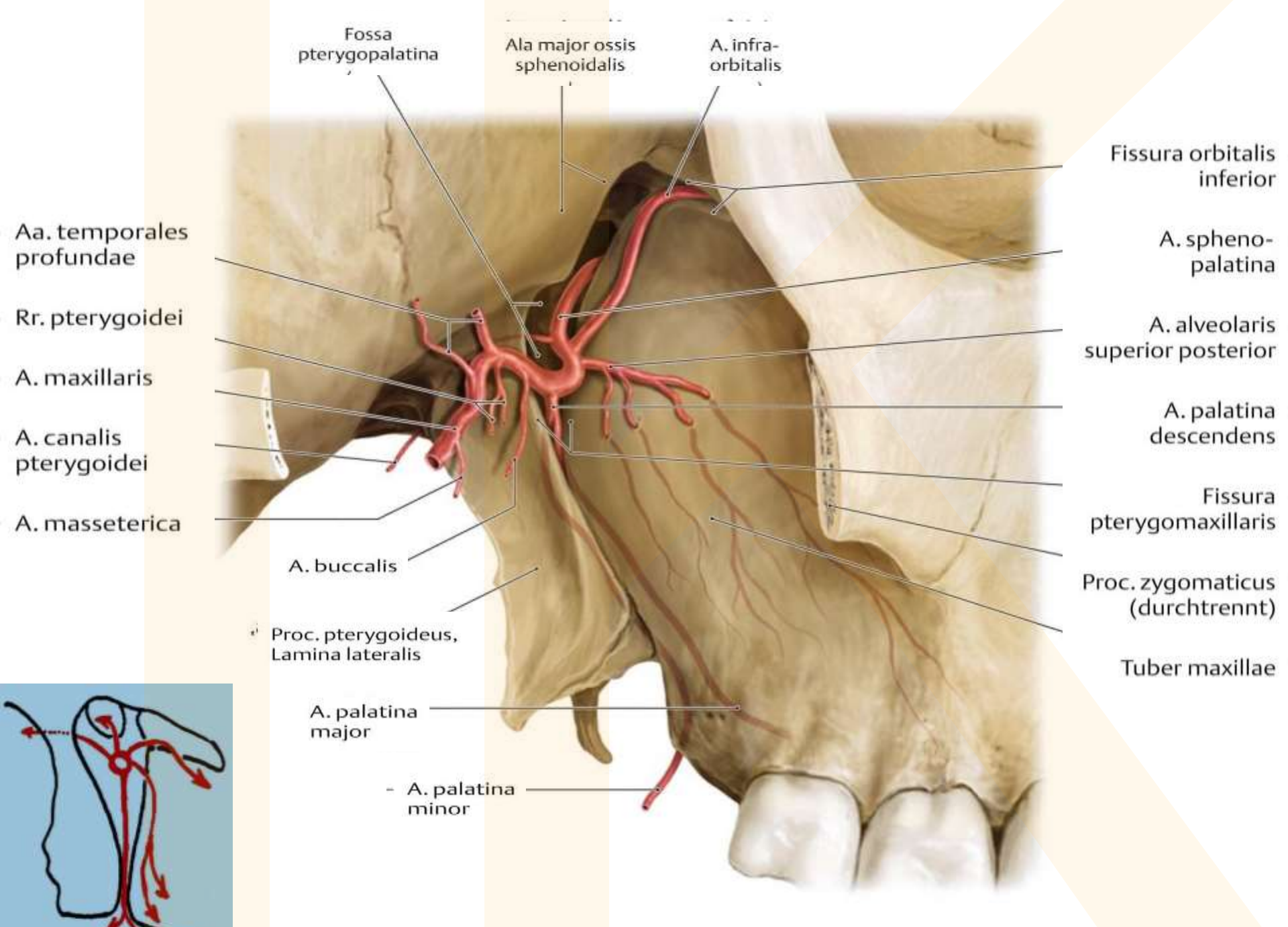
Sphenopalatine
foramen

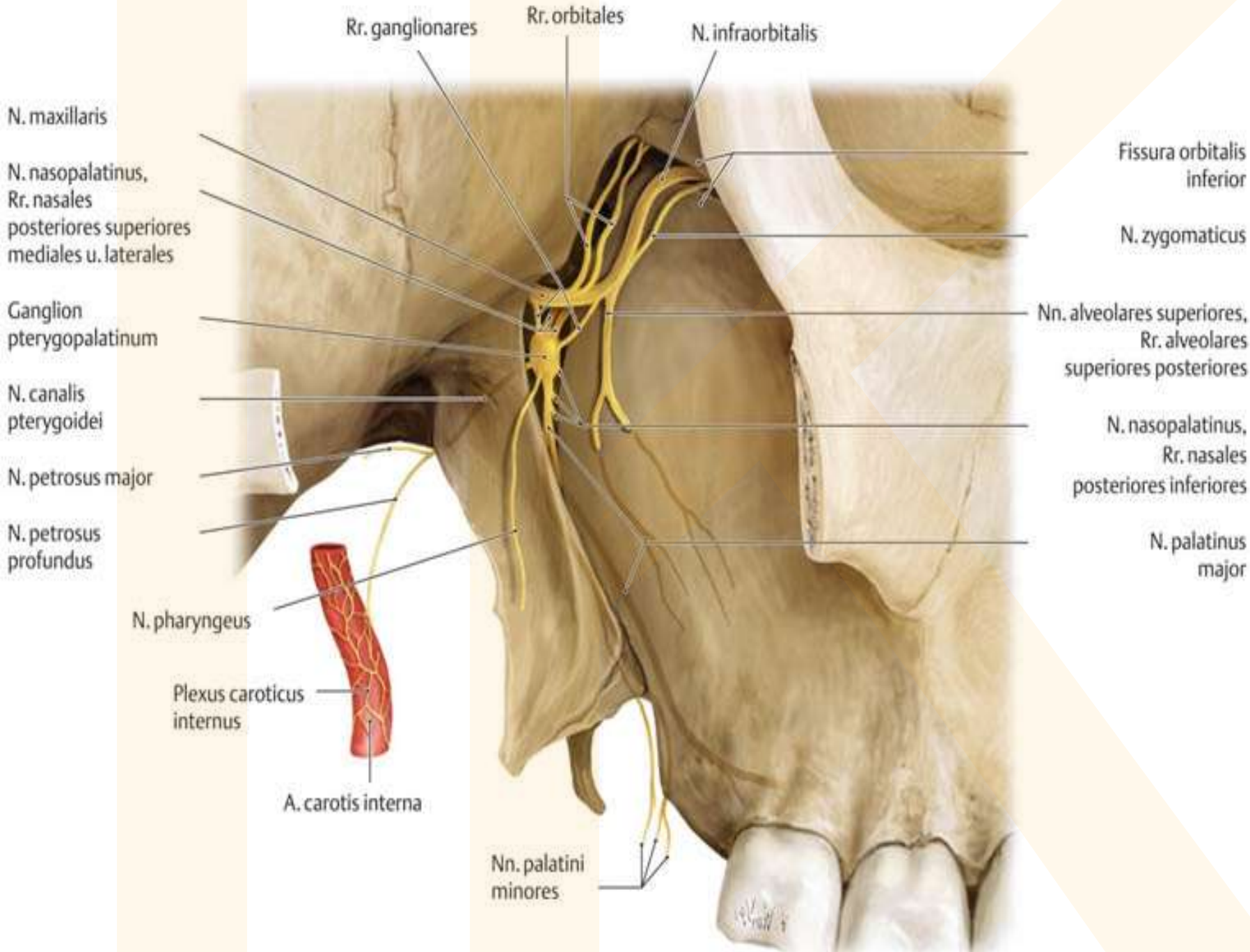
Fossa pterygopalatina
Pterygopalatine fossa
(sphenopalatine)



Inferior orbital fissure

Great palatine canal





Rr. ganglionares

Rr. orbitales

N. infraorbitalis

N. maxillaris

N. nasopalatinus,
Rr. nasales
posteriores superiores
mediales u. laterales

Ganglion
pterygopalatinum

N. canalis
pterygoidei

N. petrosus major

N. petrosus
profundus

N. pharyngeus

Plexus caroticus
internus

A. carotis interna

Nn. palatini
minores

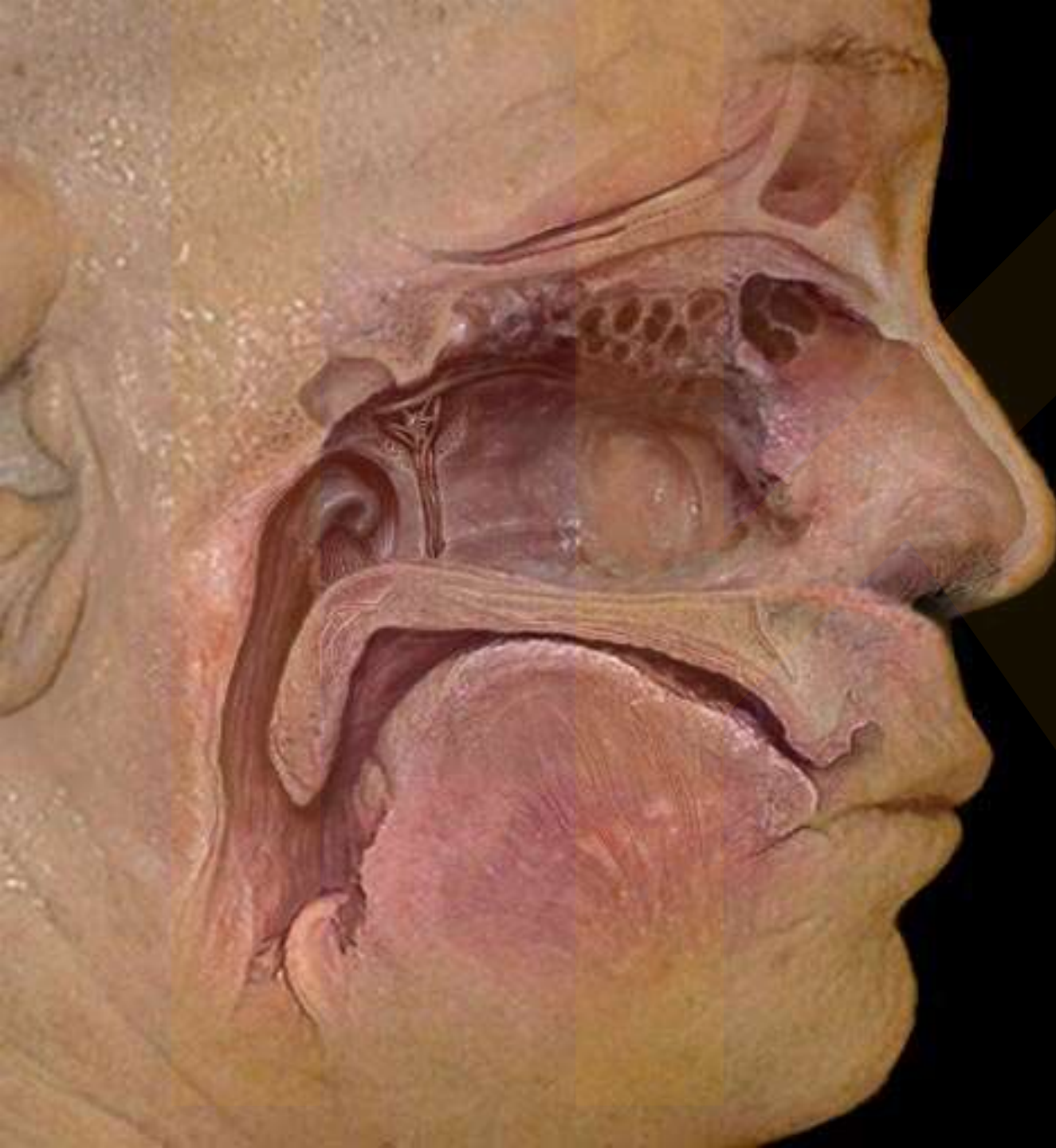
Fissura orbitalis
inferior

N. zygomaticus

Nn. alveolares superiores,
Rr. alveolares
superiores posteriores

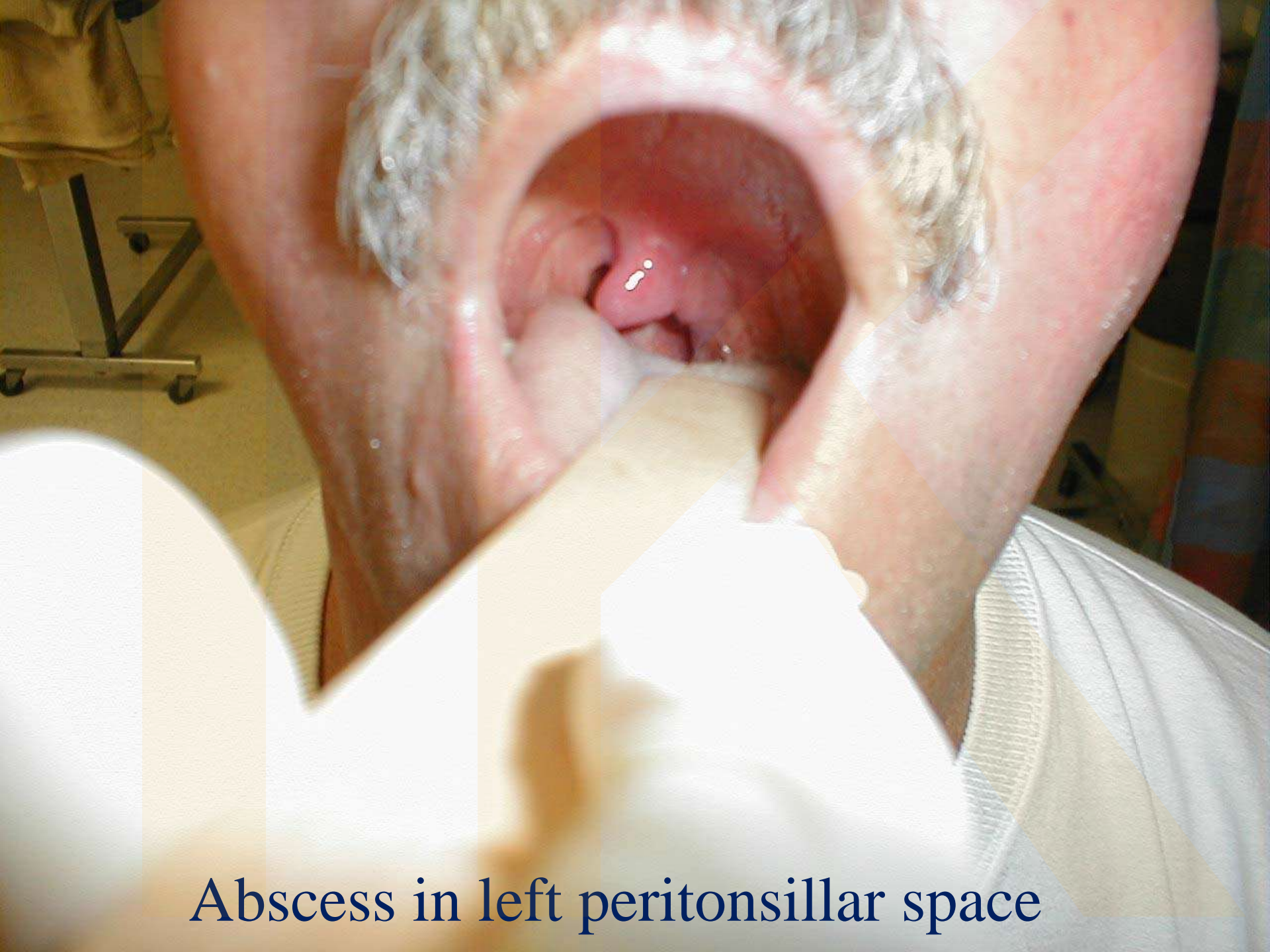
N. nasopalatinus,
Rr. nasales
posteriores inferiores

N. palatinus
major

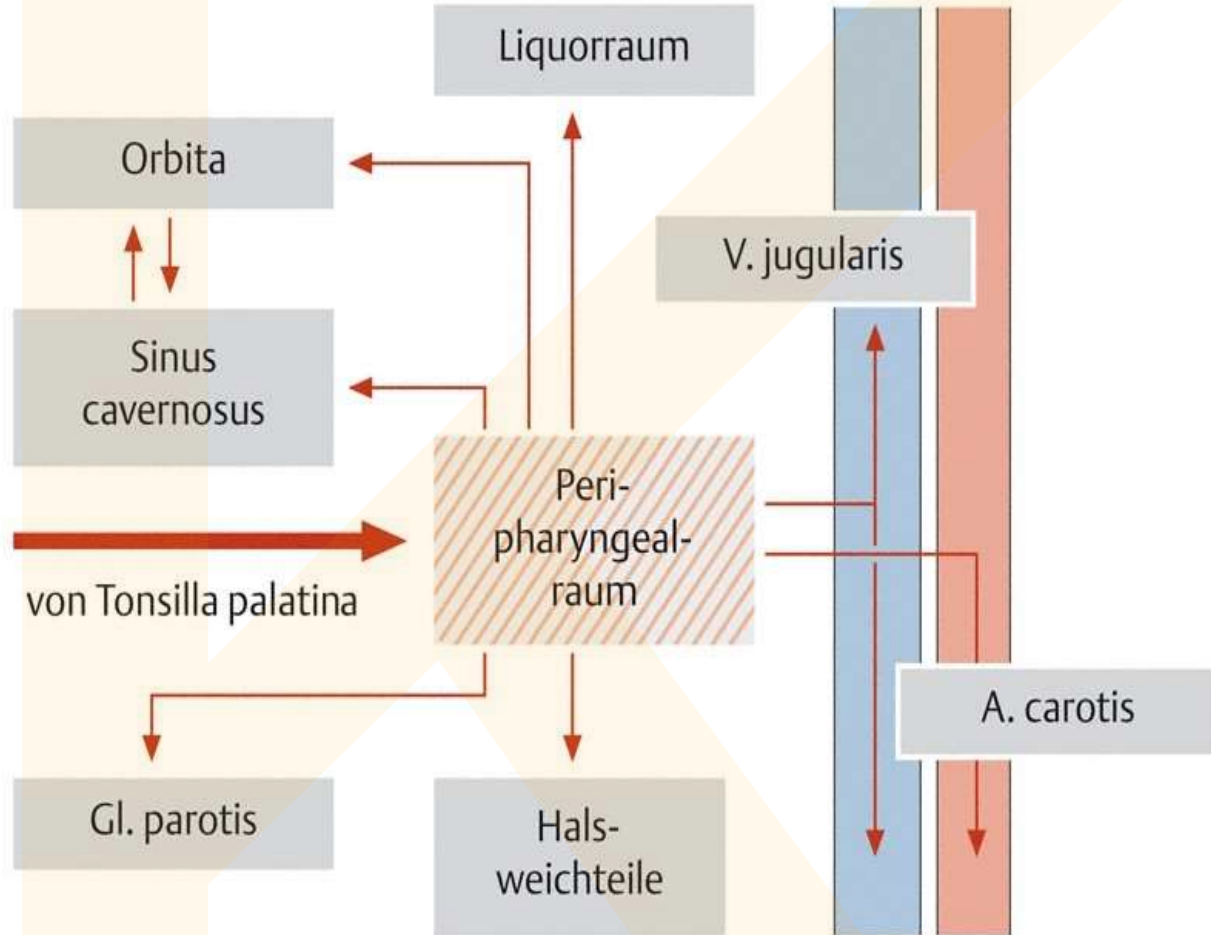
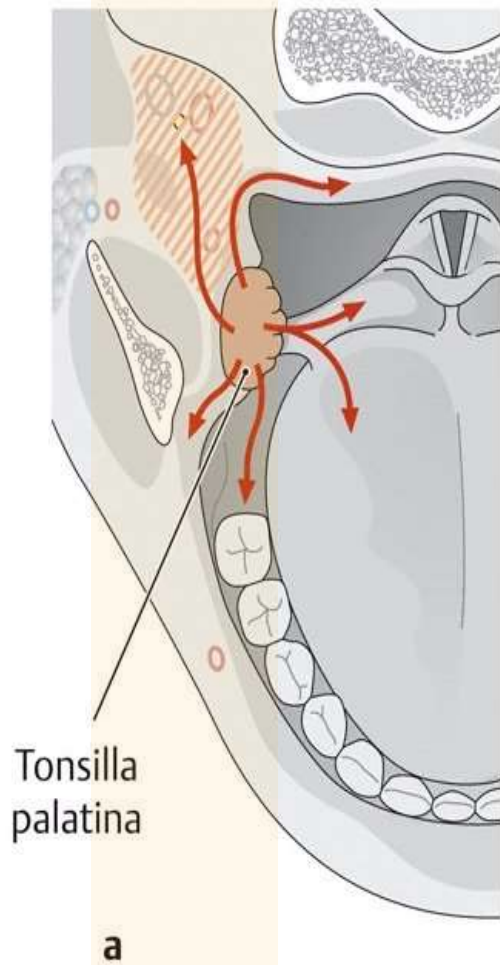


Fossa
pterygopalatina –
preparace z dutiny
nosní

Fossa
pterygopalatina
dissected from the
nasal cavity



Abscess in left peritonsillar space



B Klinische Bedeutung des Peripharyngealraums



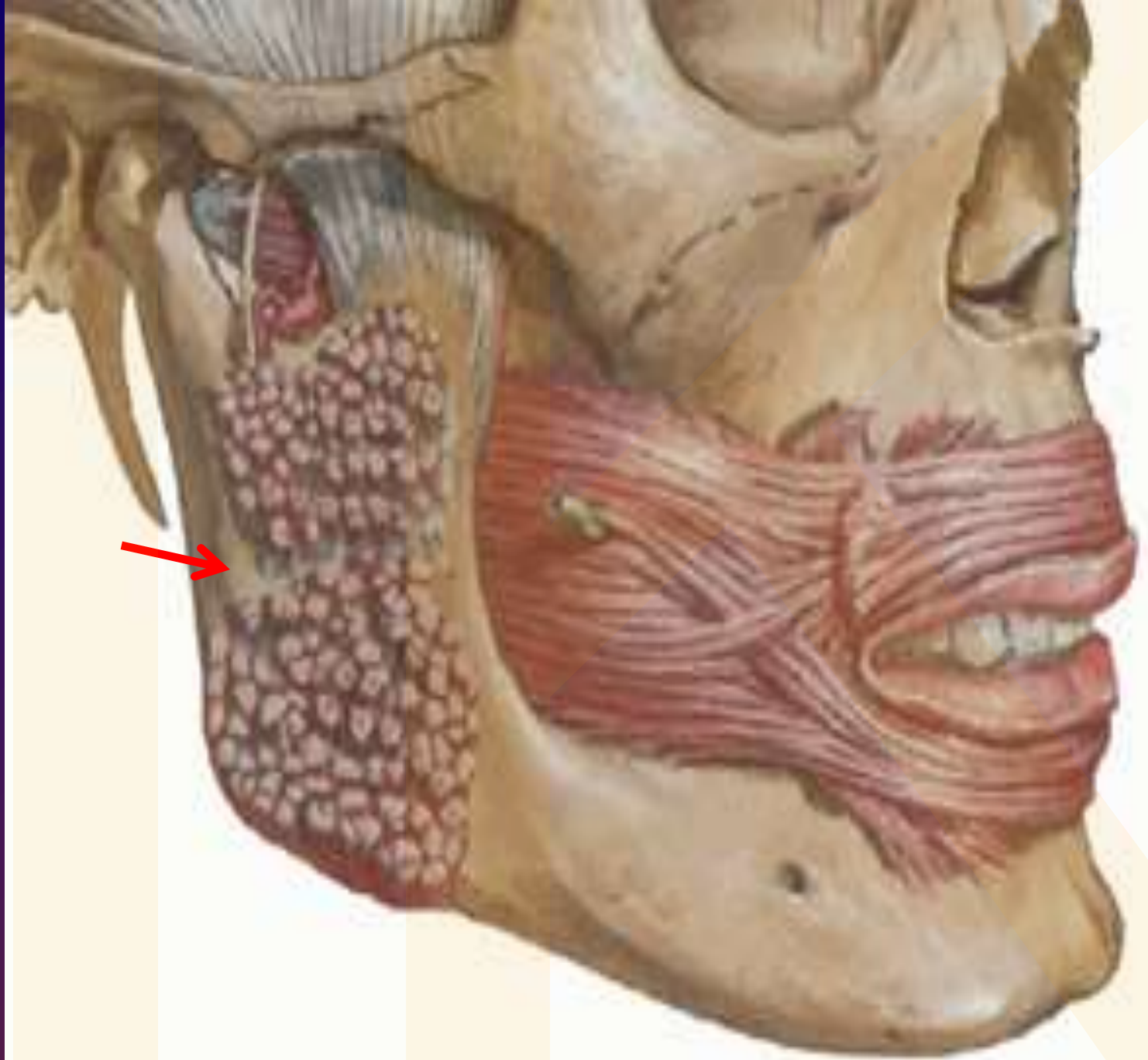
Submasseteric space **(massetericomandibular)**

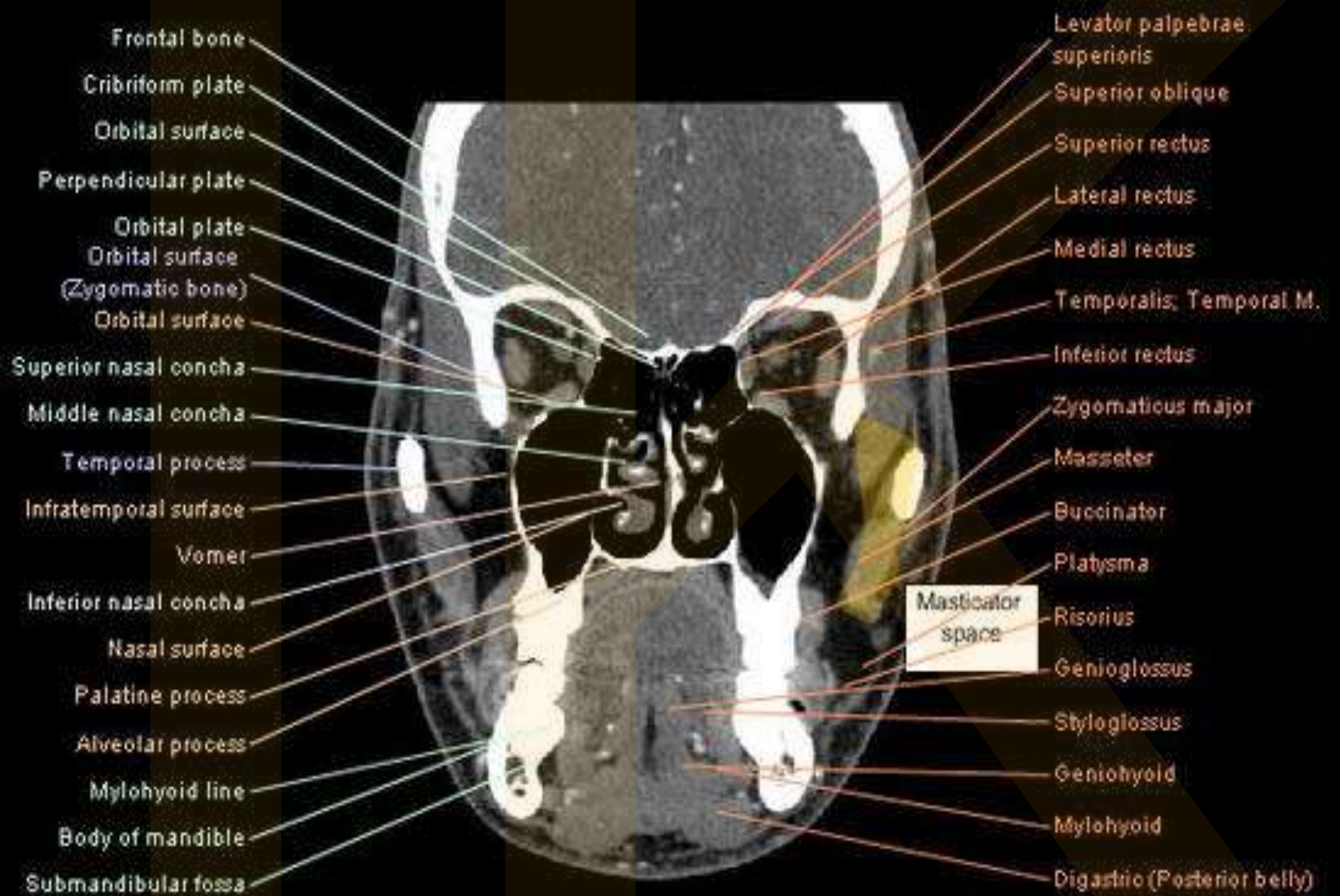
**lies between masseter and
ramus of the mandible**



3.26 The muscles of facial expression. A = Orbicularis oculi; B = levator labii superioris alaeque nasi; C = levator labii superioris; D = zygomaticus minor; E = zygomaticus major; F = levator anguli oris; G = depressor anguli oris; H = depressor labii inferioris; I = orbicularis oris; J = mentalis; K = facial vessels; L = submandibular gland; M = parotid duct; N = parotid gland with facial nerve branches; O = common facial vein formed by union of the facial vein and the anterior branch of the retromandibular vein; P = external jugular vein formed by the anterior branch of the retromandibular and the posterior auricular vein. Courtesy of Professor C. Dean.







Glandula parotis is
affected
(aktinomycosis)

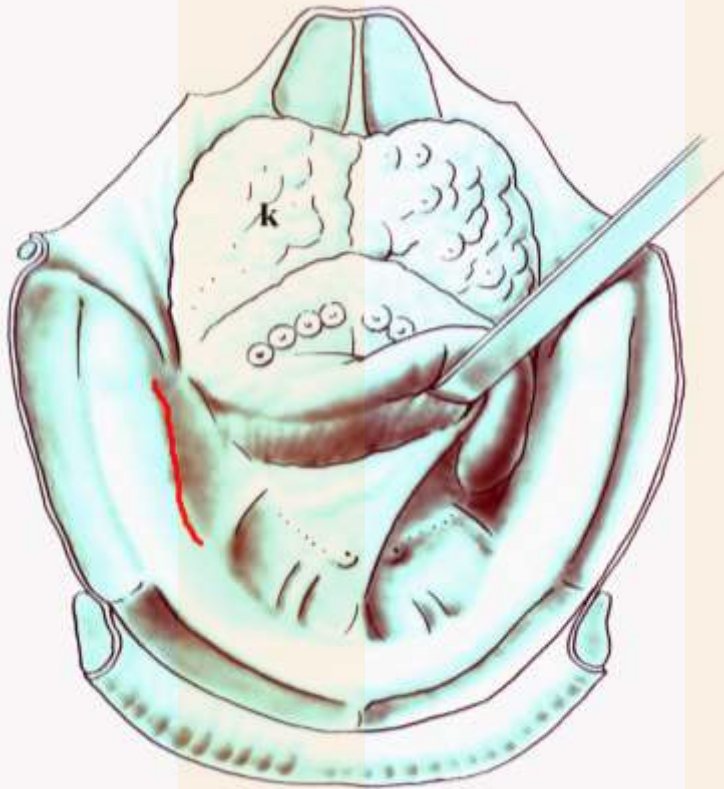


Sublingual space

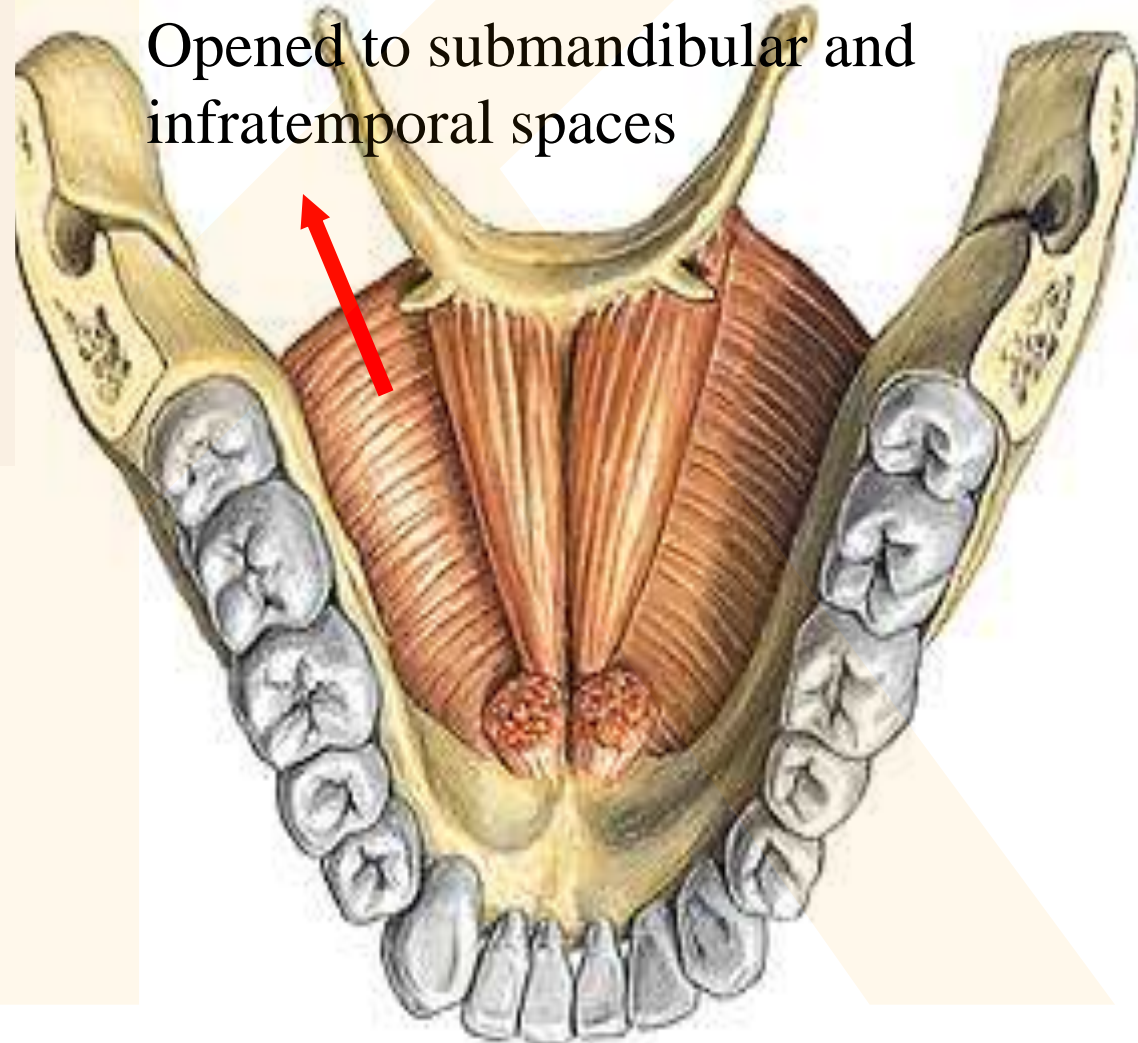
lies in the floor of the mouth between mylohyoid muscle and the oral mucosa

Pus from this space can be accumulated inside canine fossa between levator labii superioris and zygomaticus muscles (facial expression muscle group)

Sublingual space boundaries



Opened to submandibular and infratemporal spaces



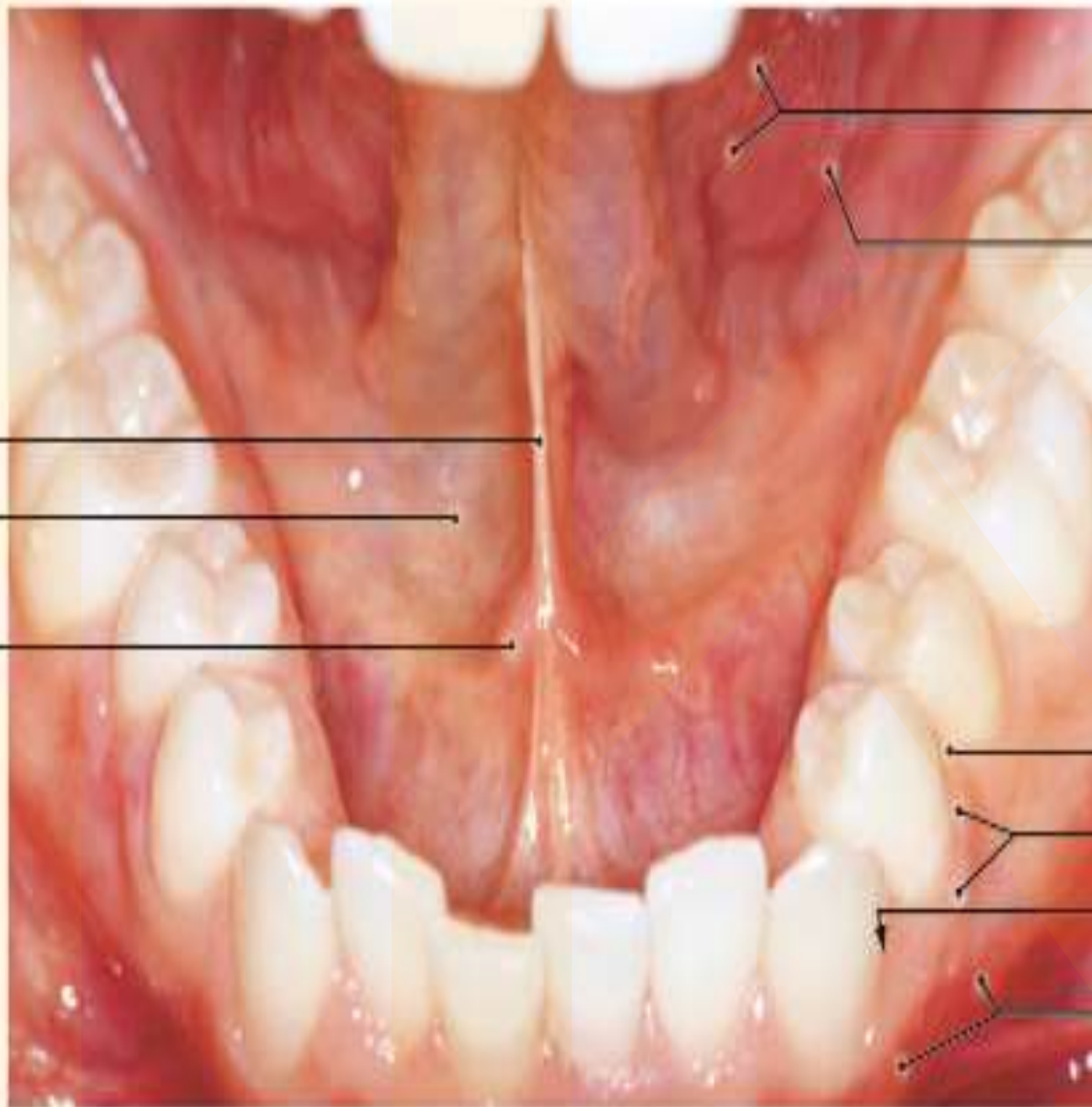
Soft floor of the oral cavity

Body of the mandible
(impression of the
sublingual gland)

Mylohyoid line (crest)

Mental spines

Mylohyoid muscle



Facies inferior linguae

Plicae fimbriatae

Frenulum linguae

Plica sublingualis

Caruncula sublingualis

Papilla gingivalls = Interdentalls

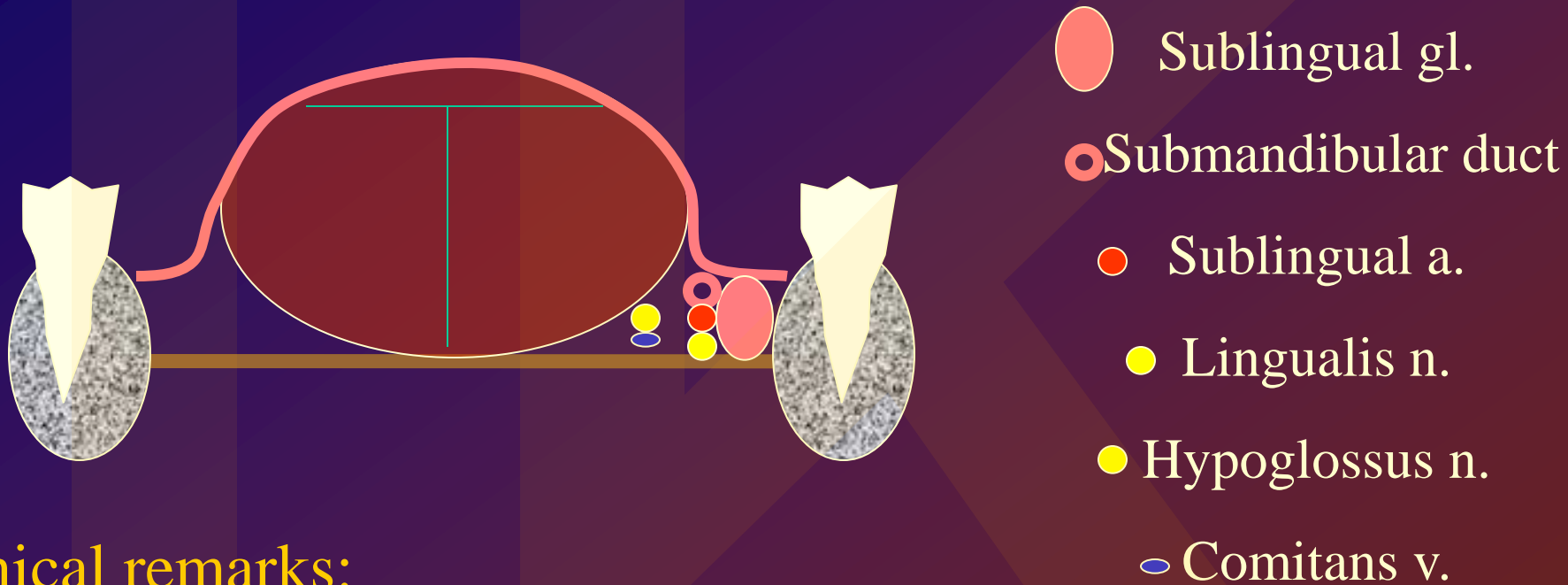
Margo gingivalls

Sulcus gingivalls

mucogingivale Grenzlinie



Sublingual space

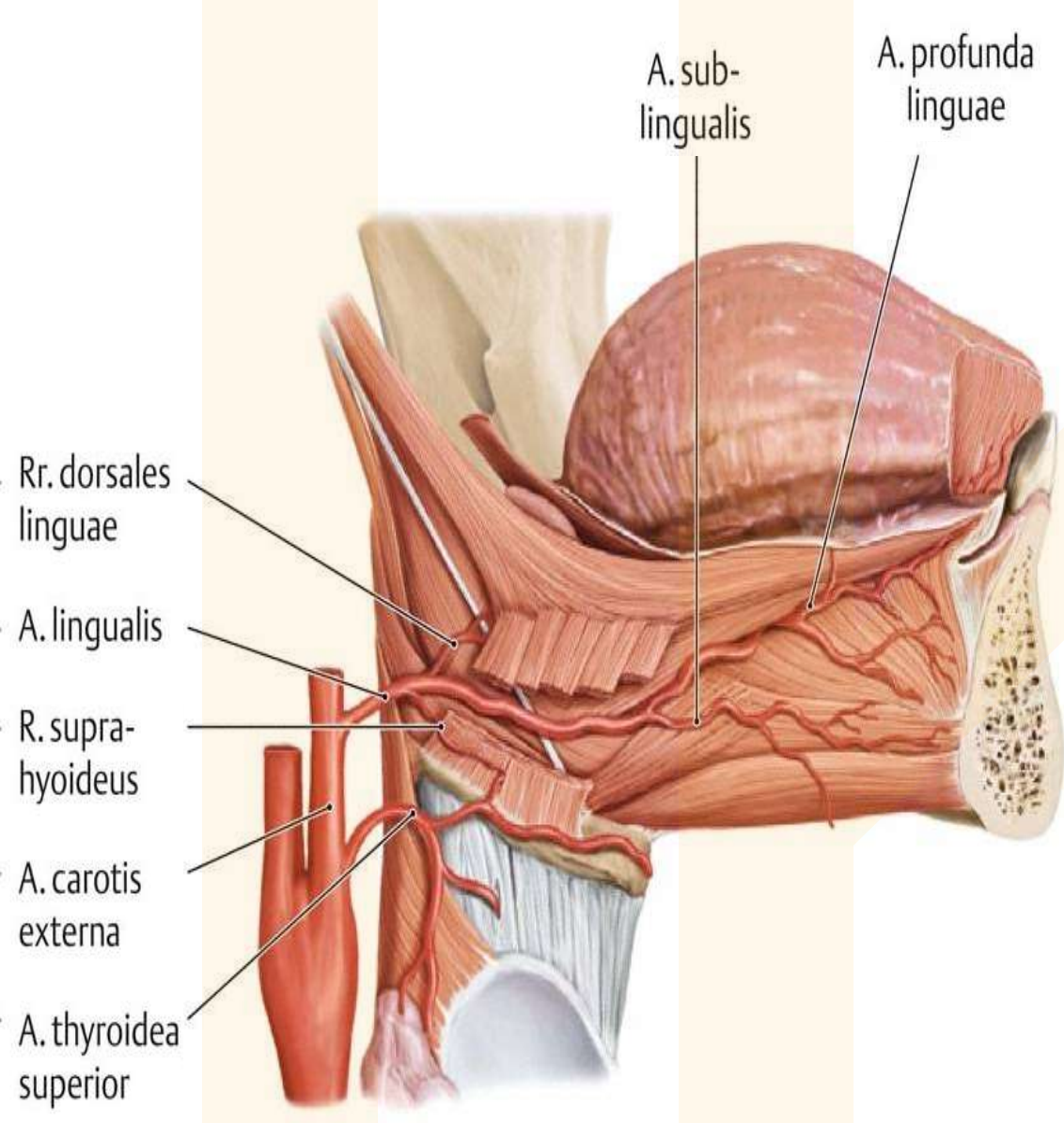


Clinical remarks:

-spread of the teth infections → submandibular triangle

-frequent space where sialolithiasis can be found (stones inside submandibular duct)

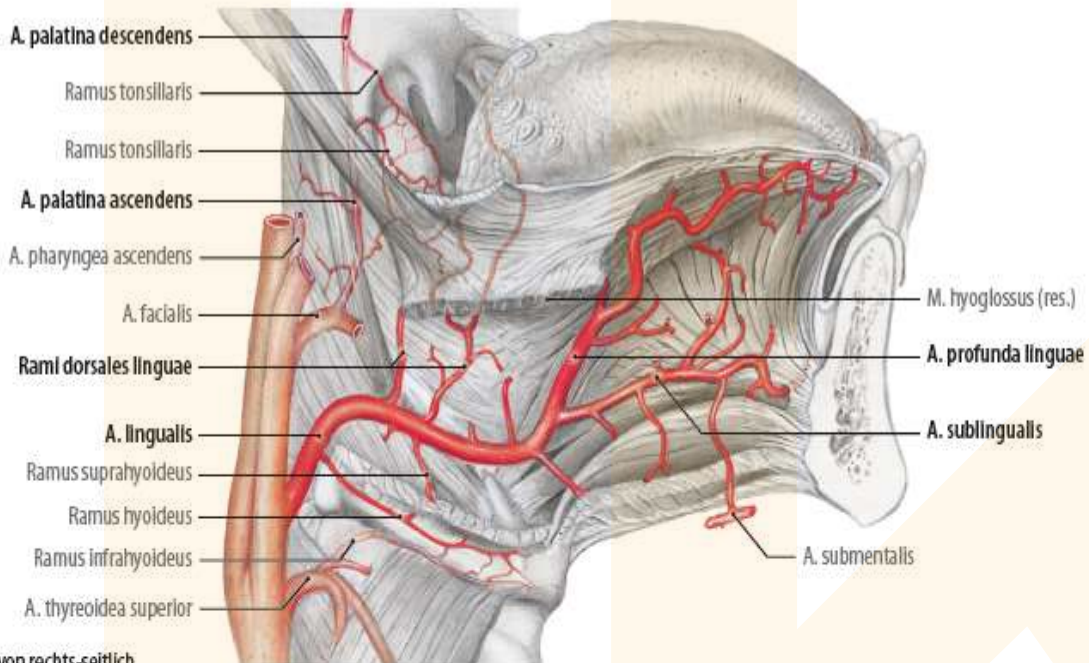
-possibility of the iatrogenic damage of the sublingual a.



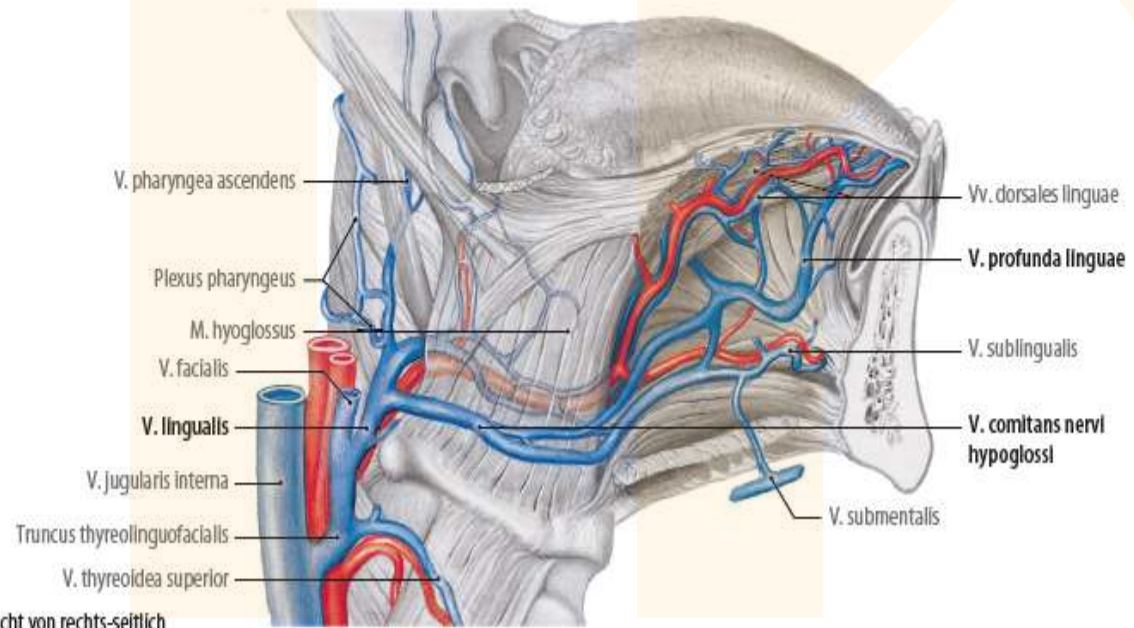
for tongue;

- r. suprahyoideus
- a. sublingualis (for gl. sublingualis)
- rr. dorsales linguae (tongue root to epiglottis)
- a. profunda linguae (strong and for intraglossal muscles – to frenulum linguae)

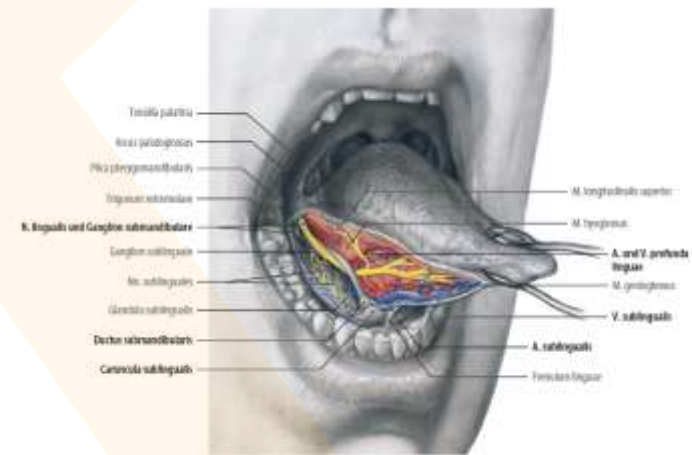
Lingual artery - inside canalis paralingualis

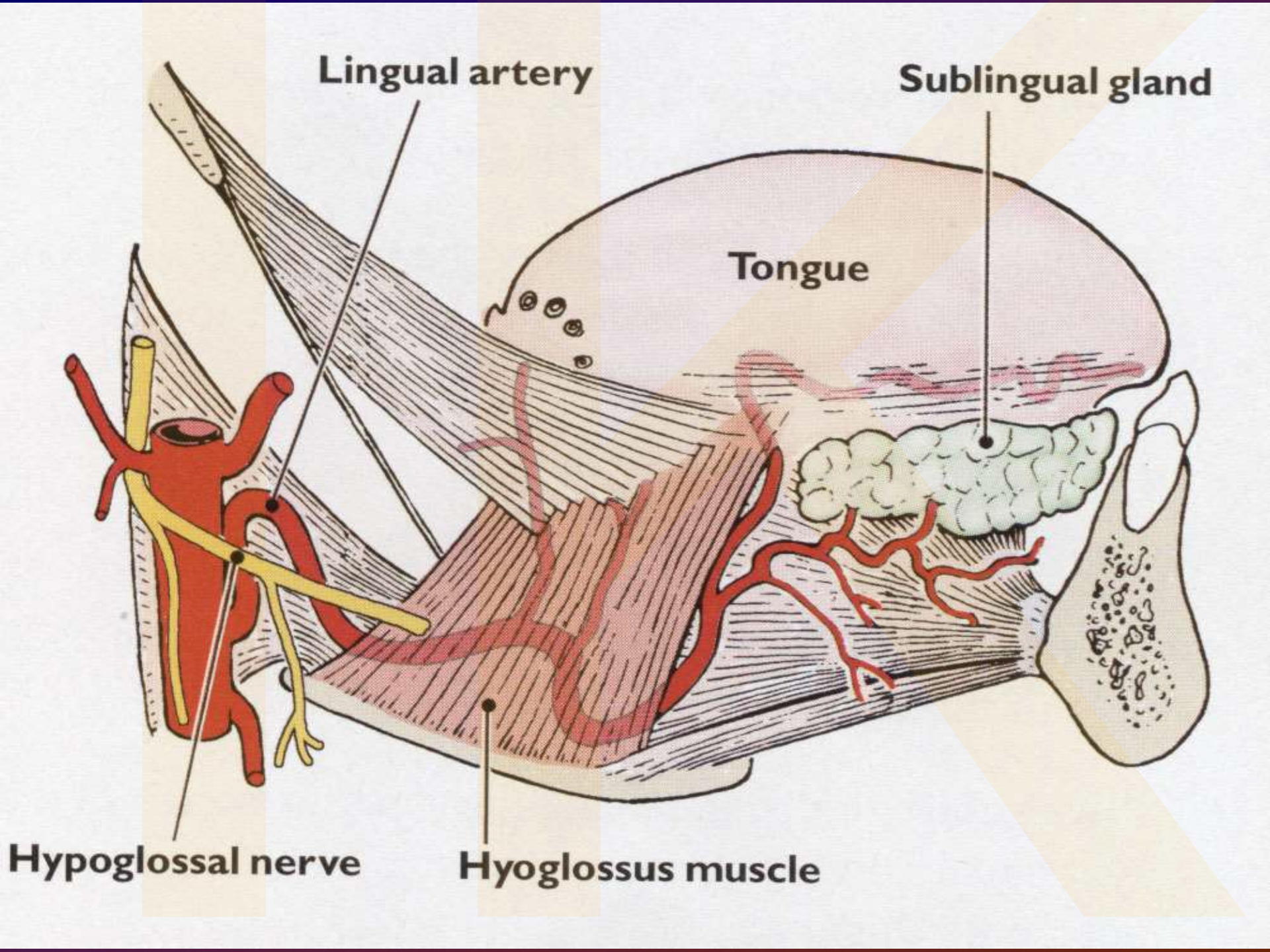


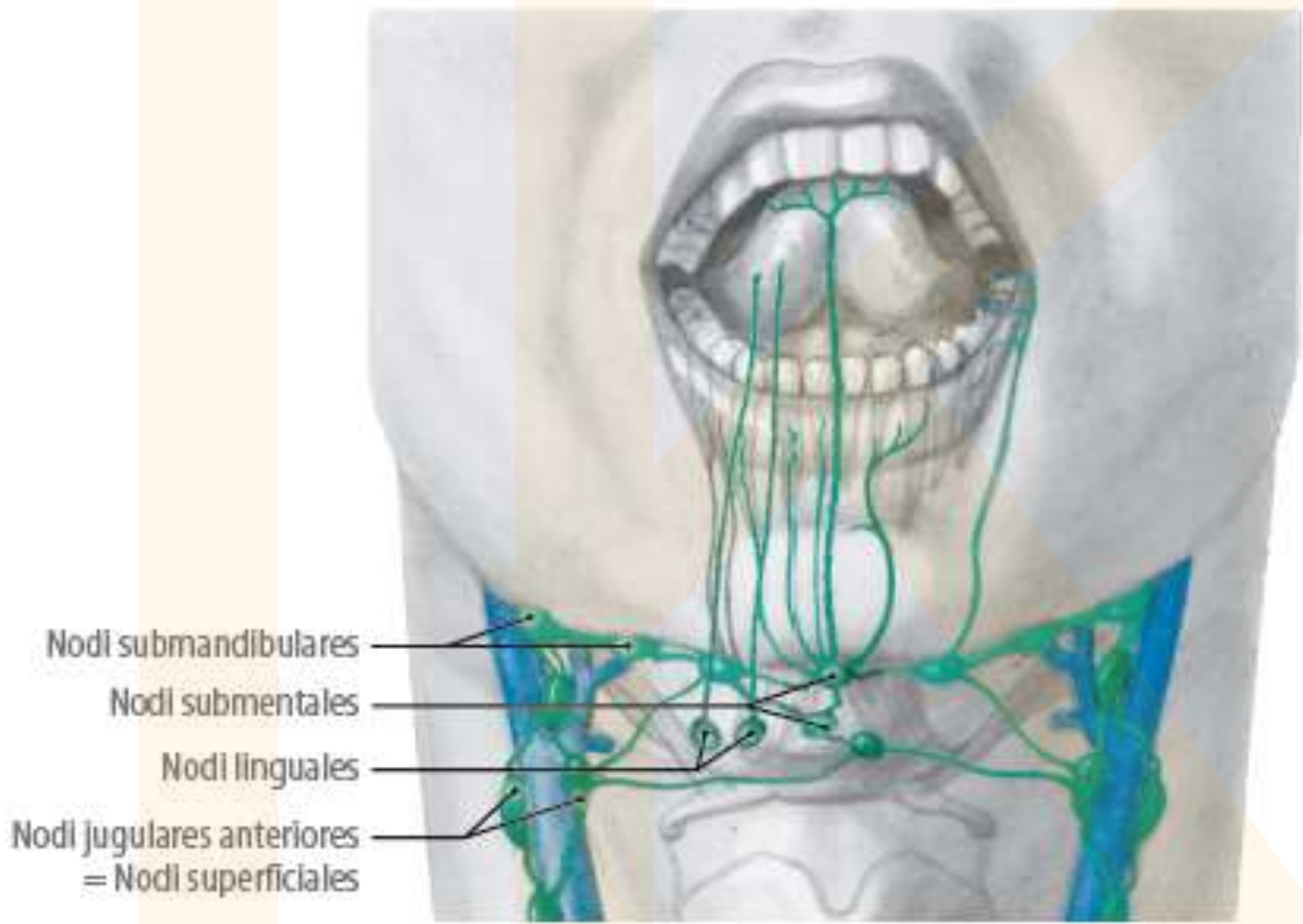
a Ansicht von rechts-seitlich



b Ansicht von rechts-seitlich







Nodi submandibulares

Nodi submentales

Nodi linguales

Nodi jugulares anteriores
= Nodi superficiales



Left sublingual abscess

Tissue spaces around the jaws overview

Lower jaw

Submental

Submandibular

Sublingual

Buccal

Submasseteric (massetericomandibular)

Parotid }

Pterygomandibular } *Prestyloid*

Peritonsillar (paratonsillar) }

Parapharyngeal *Retrostyloid*

Upper jaw

Canine fossa

Infratemporal

Masticatory tissue space:

submasseteric, pterygomandibular, infratemporal, temporal

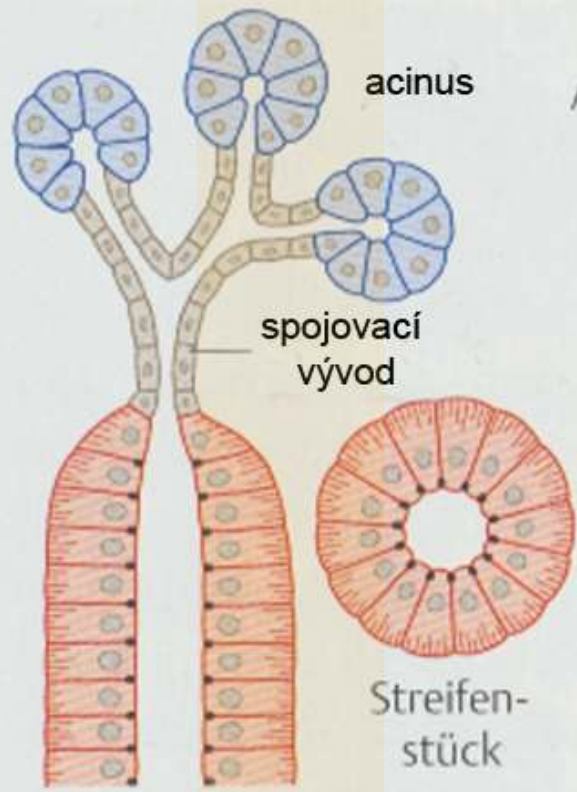
Glandulae oris

✓ Great salivary glands

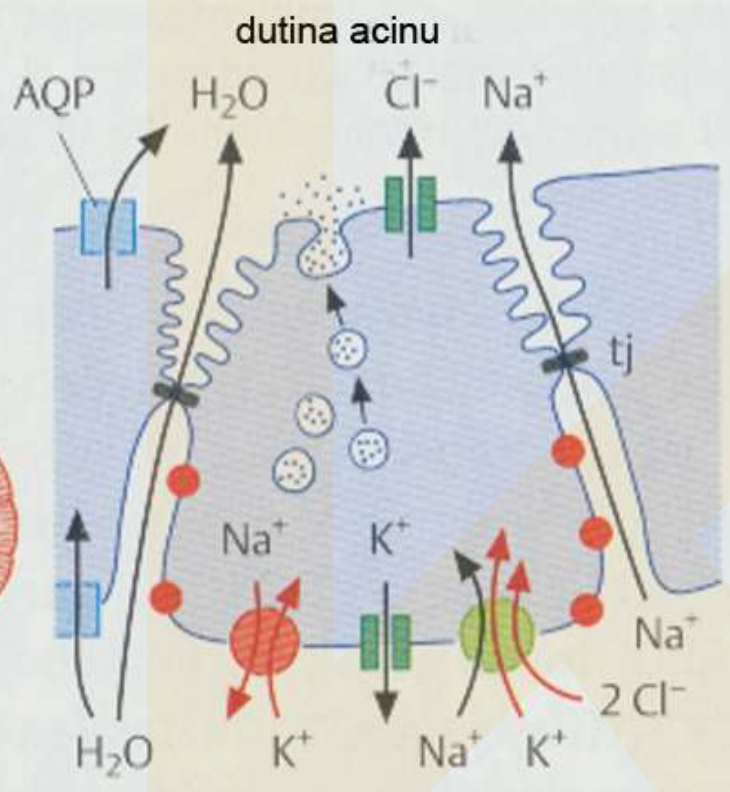
- gl. Parotis parotid gland
- gl. Sublingualis sublingual gland
- gl. Submandibularis submandibular gland

✓ Small salivary glands - labial, buccal, molar, palatinal, lingual /Nuhni/

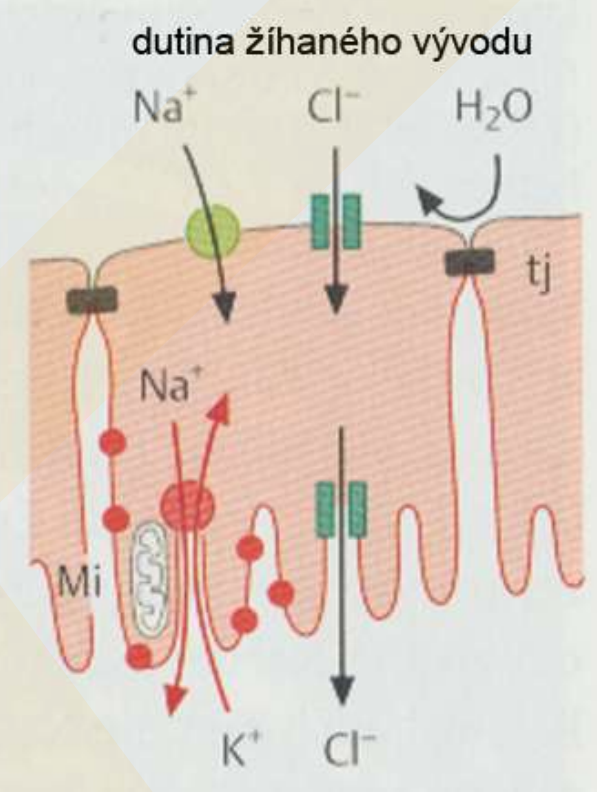
- Surrounded by capsule (collagenous tissue) → septi
 - Secretory part - bb. serous and mucinous, myoepithelial (basket)
 - system of glandular ducts
 - intercalated → striated → interlobular → lobar → one main duct → oral cavity



a



b



c

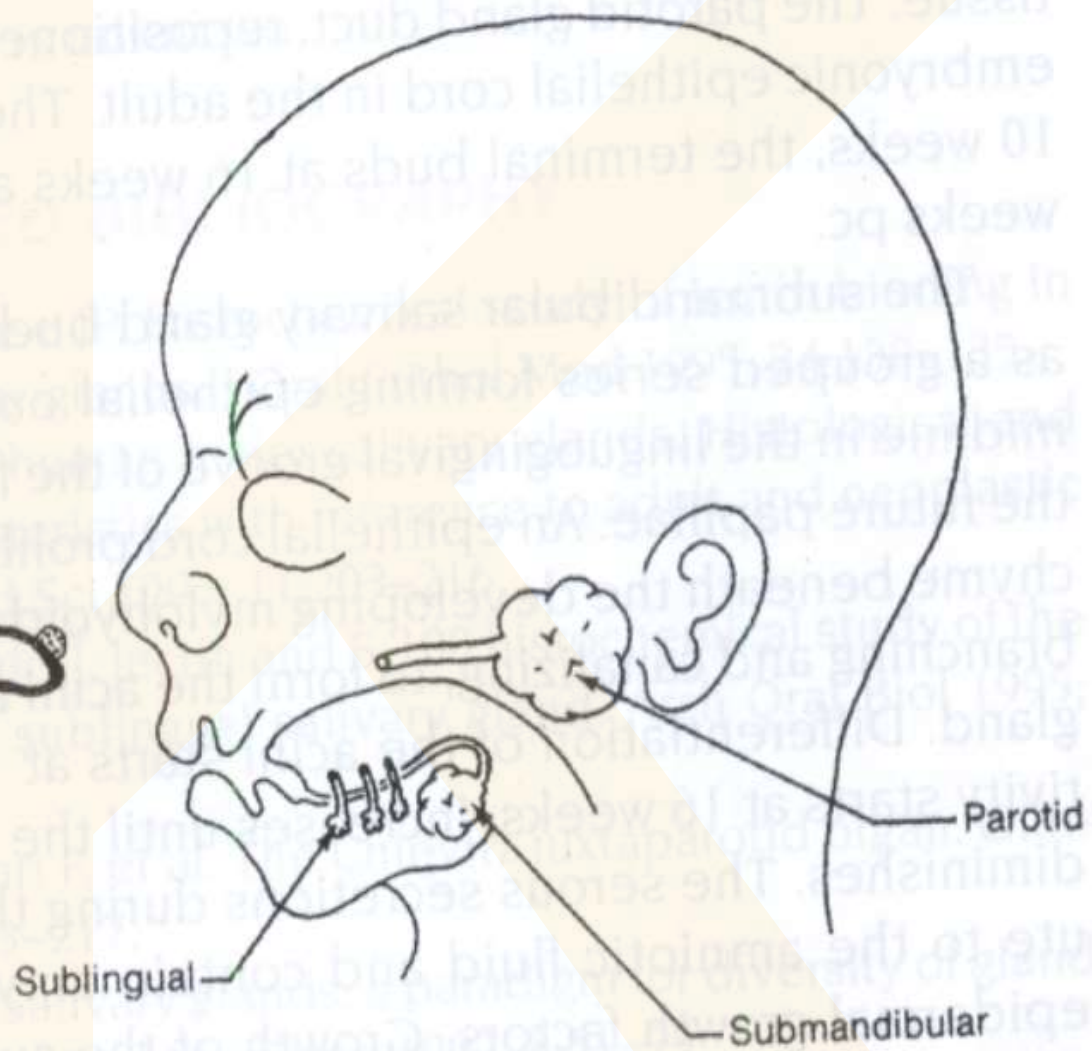
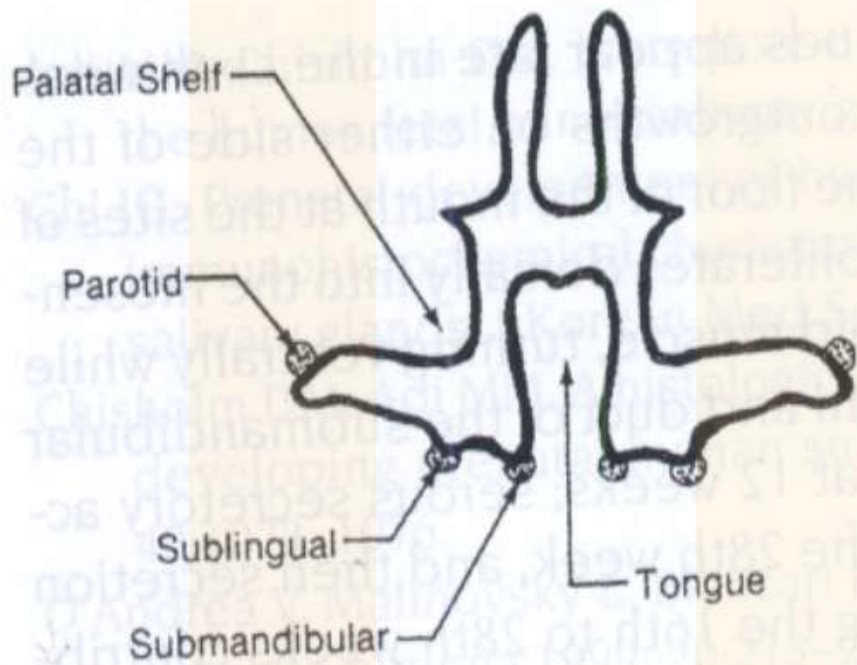


Figure 16-1 Schemata of the major salivary glands budding from the oral cavity. Their origins from the mouth are retained through their excretory ducts. Coronal sectional view through mouth (left).

Salivary glands

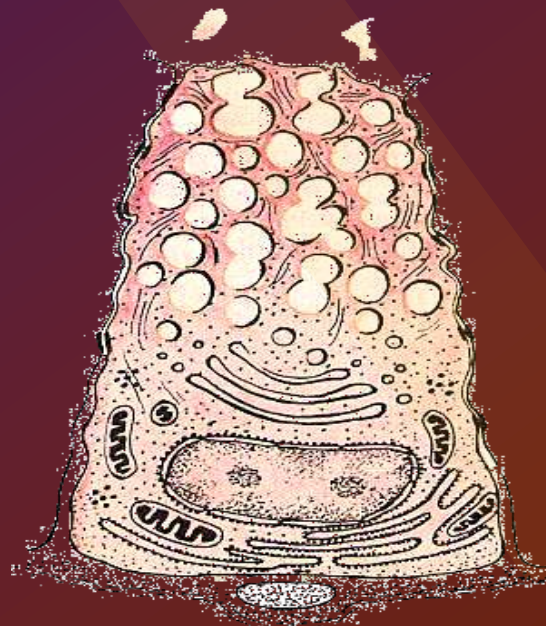
• Serous cells

- Pyramidal form, acini
- Secerned proteins
- bazofilic, ↑ER, GA
- Apically there are microvilli, junction complexes, secretory granules



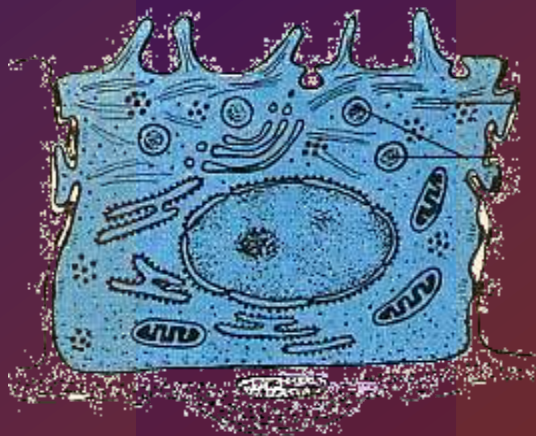
• Mucinous cells

- Cuboid, cylindric, form tubuli
- Secerned mucus → light granules (they are fusing)
- Secret is viscous ⇒ distálněji než b. serózní

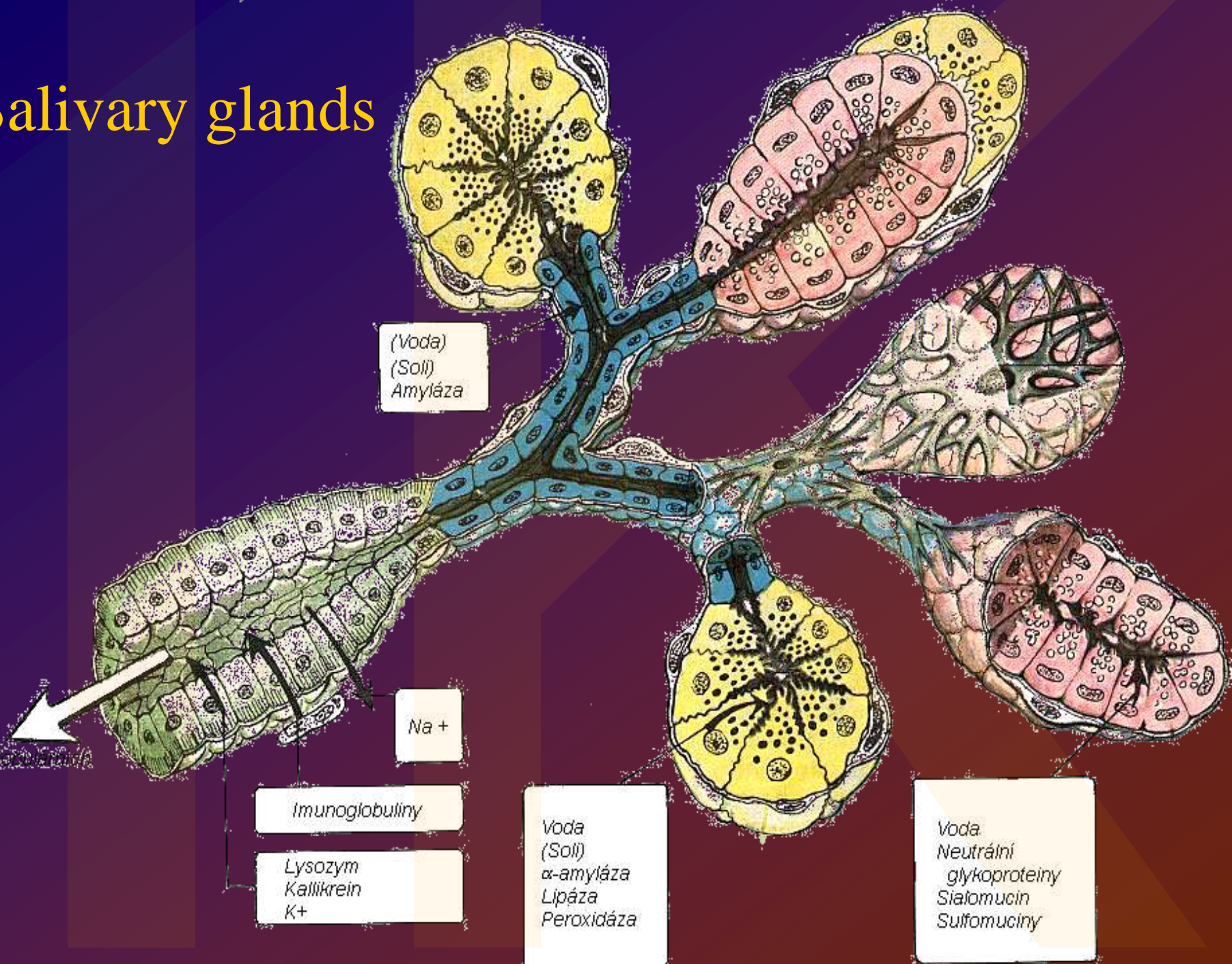


Salivary glands

- **B** cells of intercalated ducts
 - Onelayered flat epithelium
 - lactoferin, lysozym
 - They are fused together forming striated ducts (intralobular)
- cells of striated ducts
 - Radial arrangement
 - striated = basal membrane forms pouches + mitochondriae
 - Cells transport ions transportující ionty
 - Hypotonic saliva is formed



Salivary glands



(Voda)
(Soli)
Amyláza

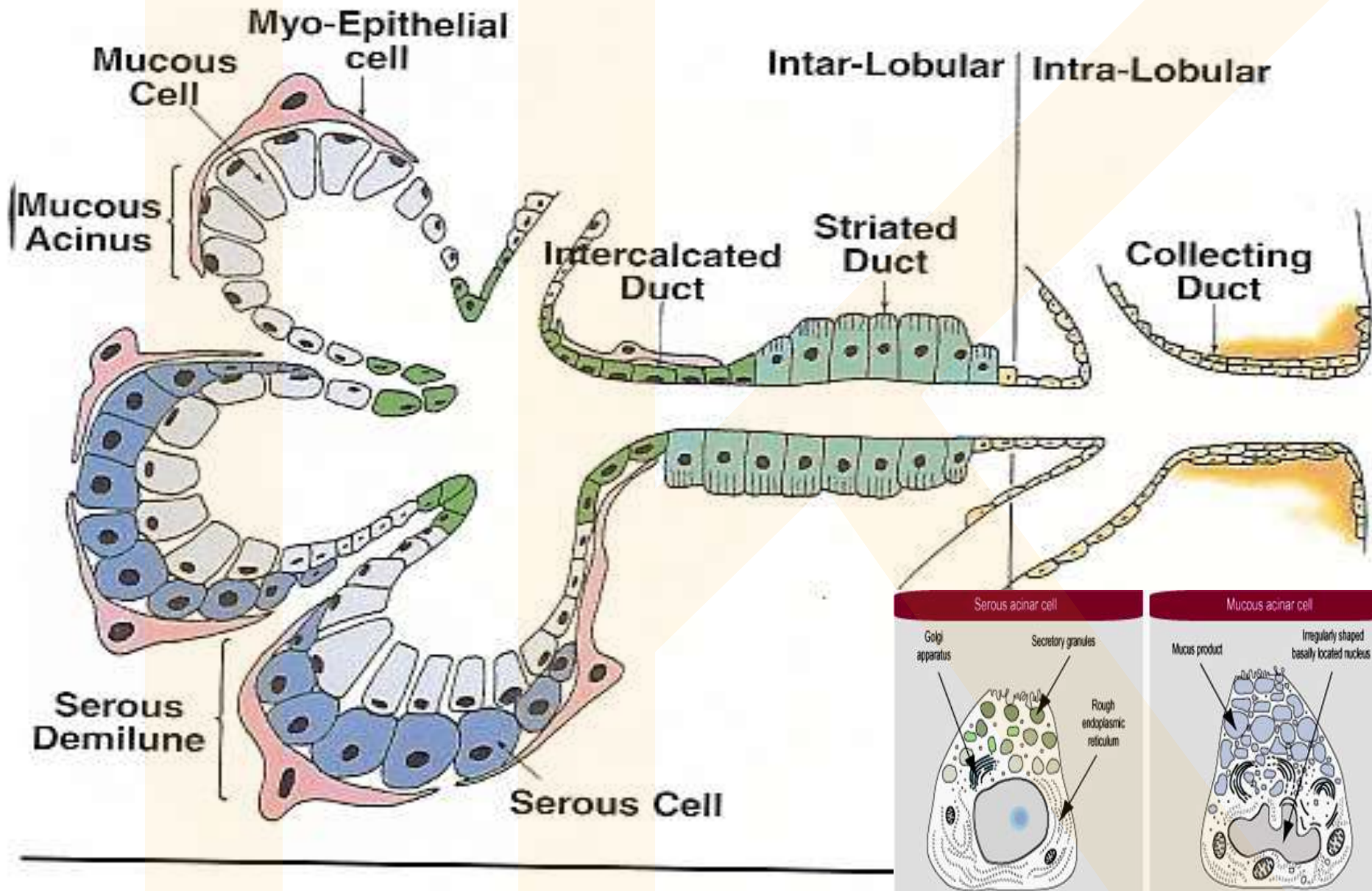
Na⁺

Imunoglobuliny

Lysozym
Kallikrein
K⁺

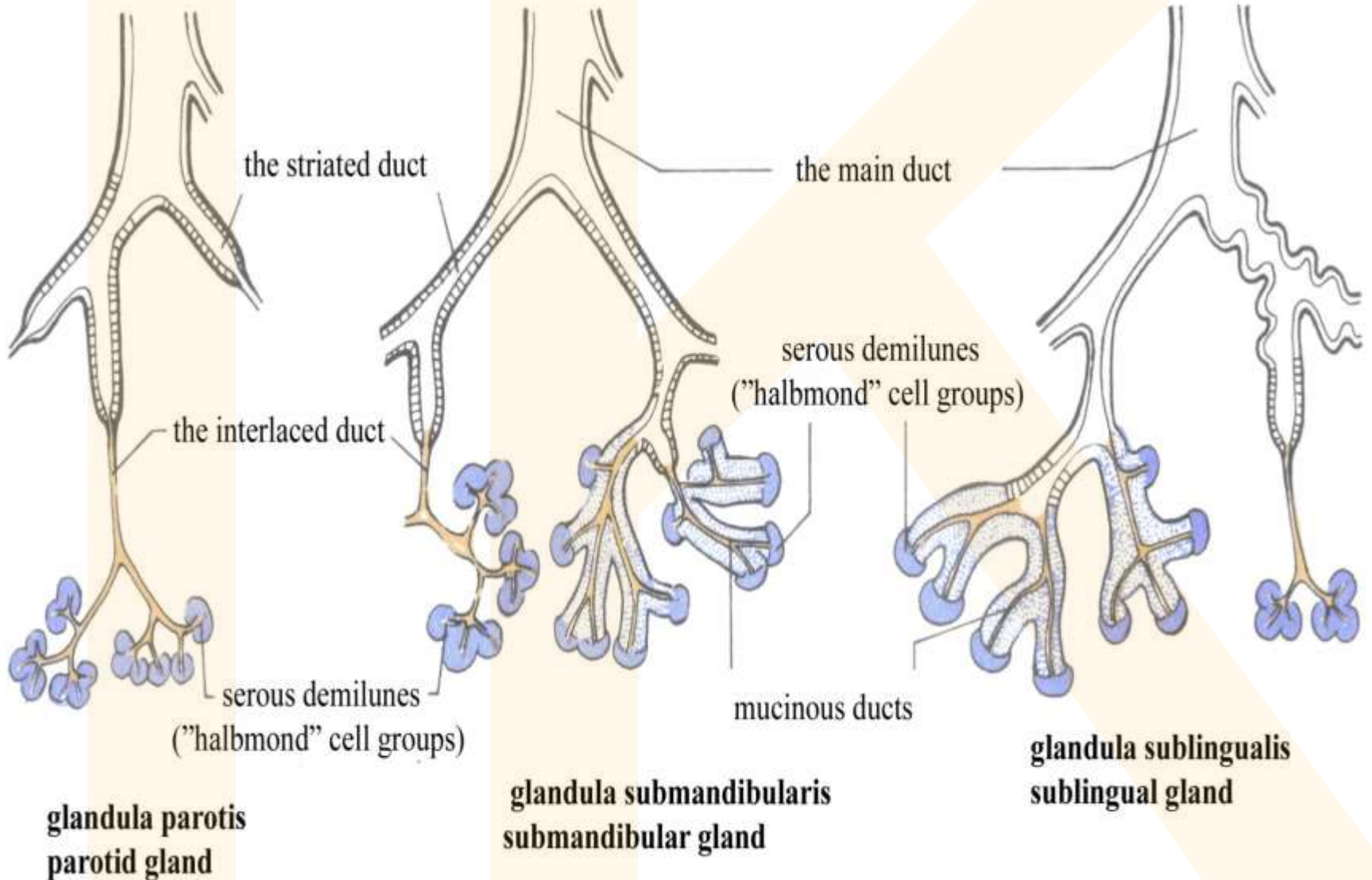
Voda
(Soli)
 α -amyláza
Lipáza
Peroxidáza

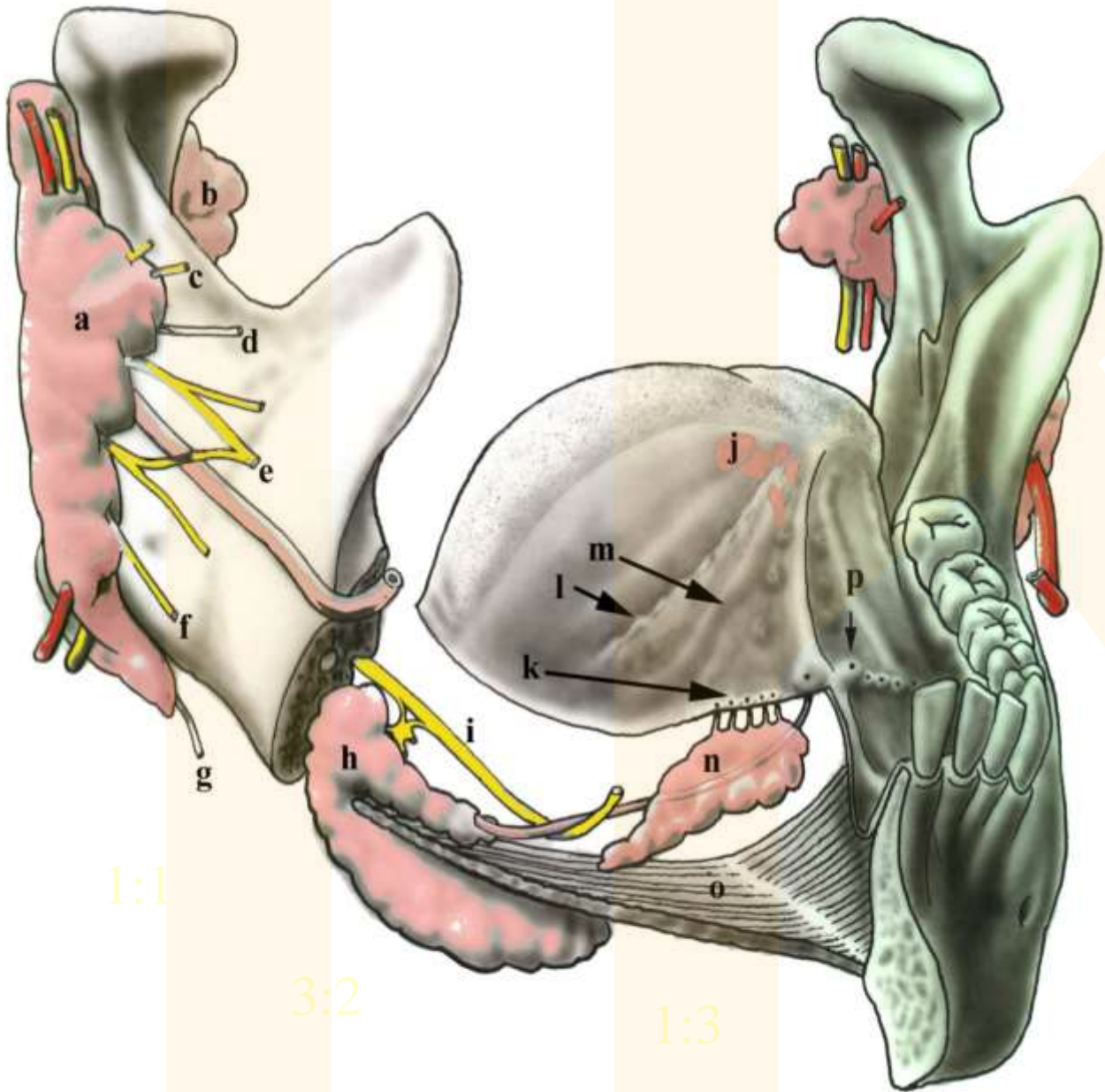
Voda
Neutrální
glykoproteiny
Sialomucin
Sulfomuciny



The secretory and ductal elements in a mixed salivary gland. However, as discussed later, the serous demilunes are artefacts of preparation.

Structure of the salivary glands - scheme





Glandula
 parotidea
 Sublingualis
 Sublingualis
 anterior
 Submandibularis
 Lingual nerve crosses
 submandibular duct at
 level of the dorsal
 margin of the
 mylohyoid muscle

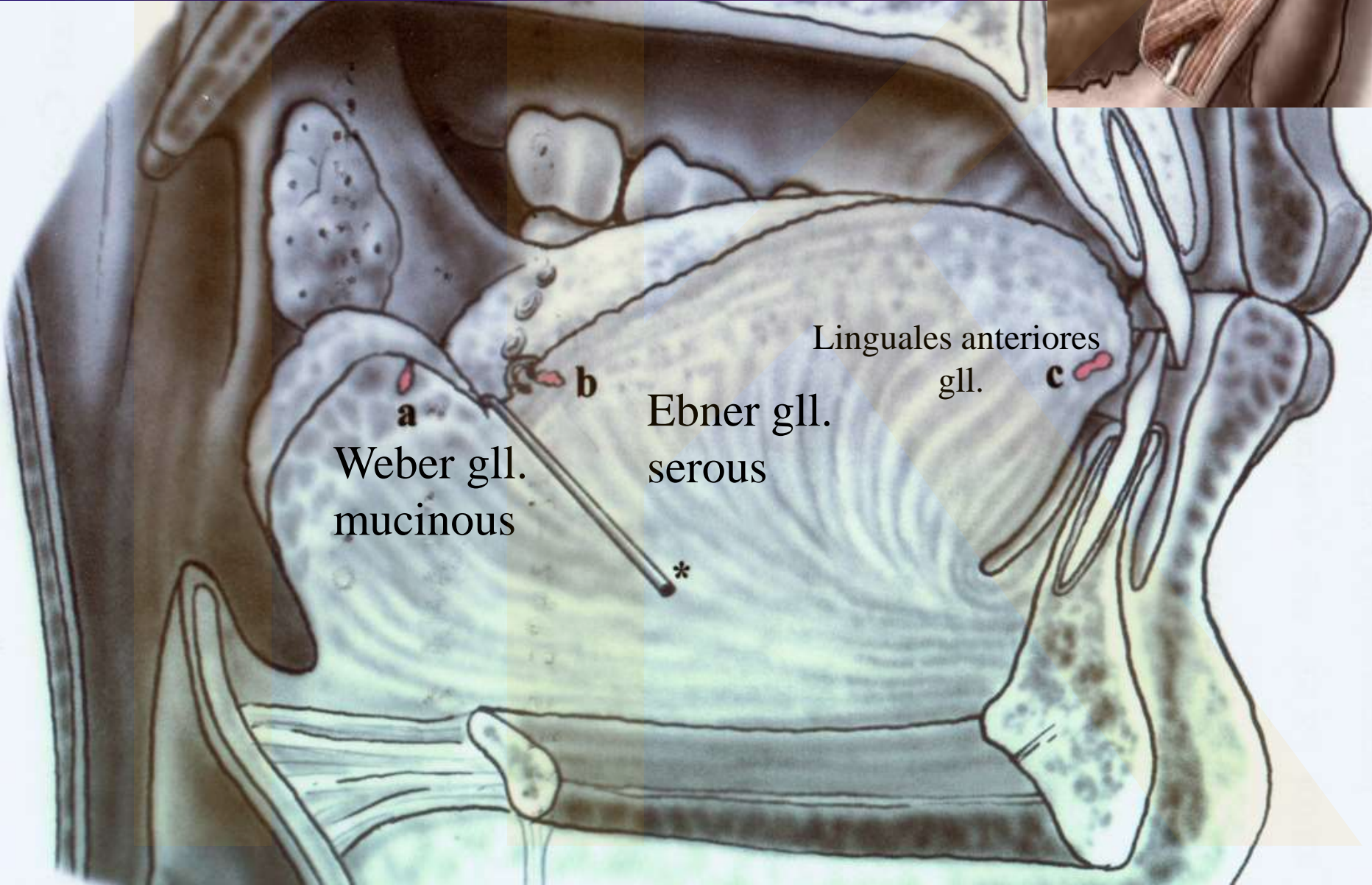


1:1

3:2

1:3

Mucous and small serous glands



a
Weber gll.
mucinous

b
Ebner gll.
serous

c
Linguales anteriores
gll.

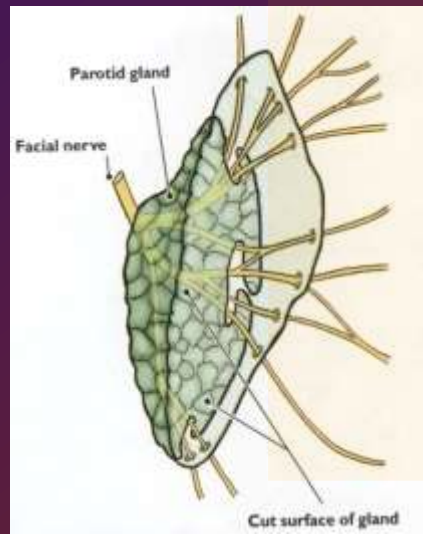
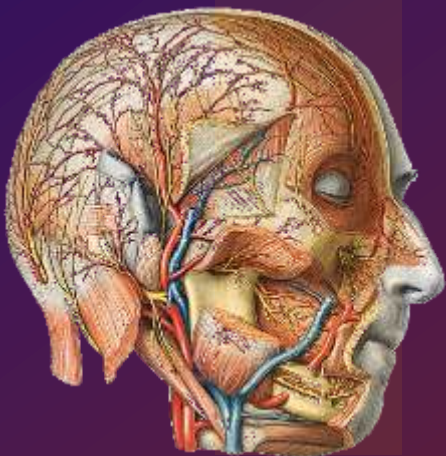
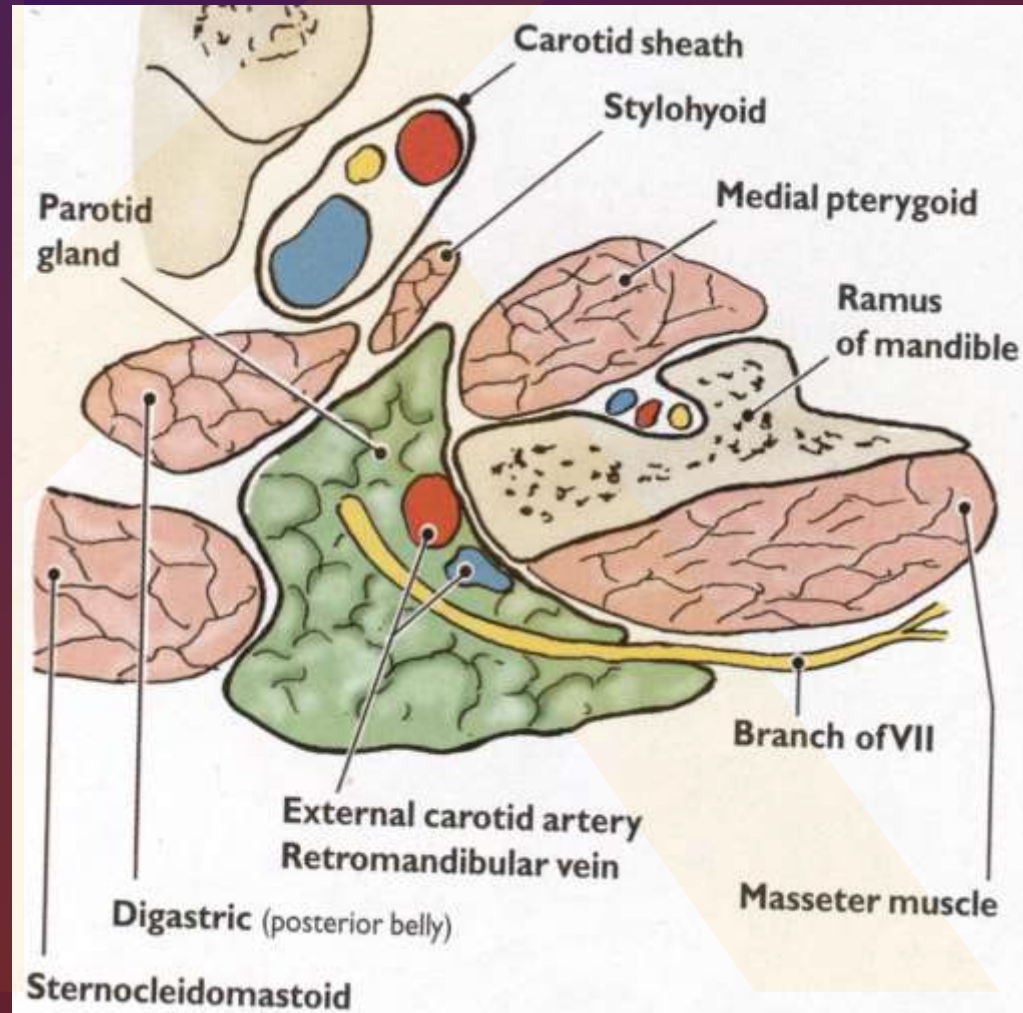
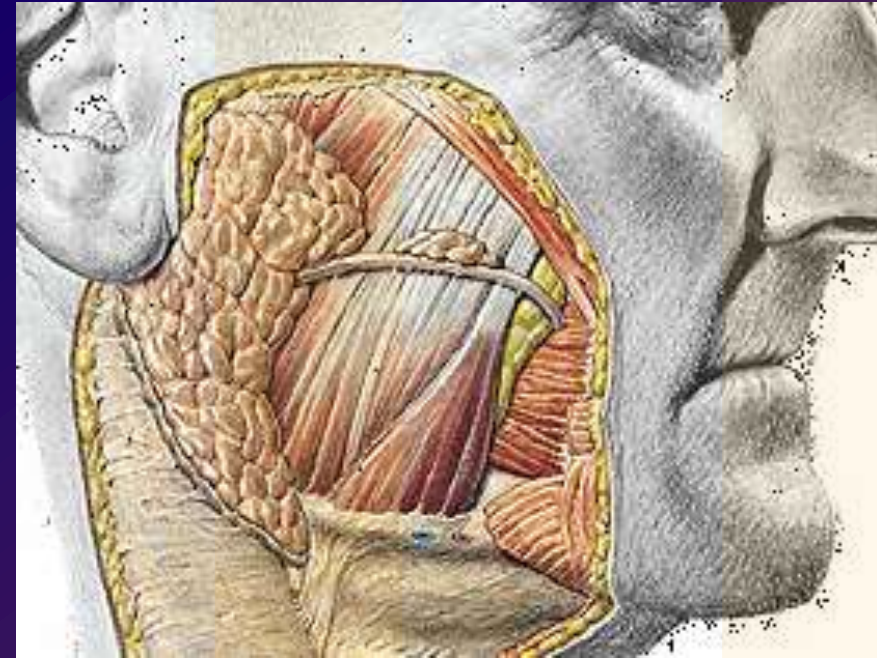
Glandula parotis

Superficial part

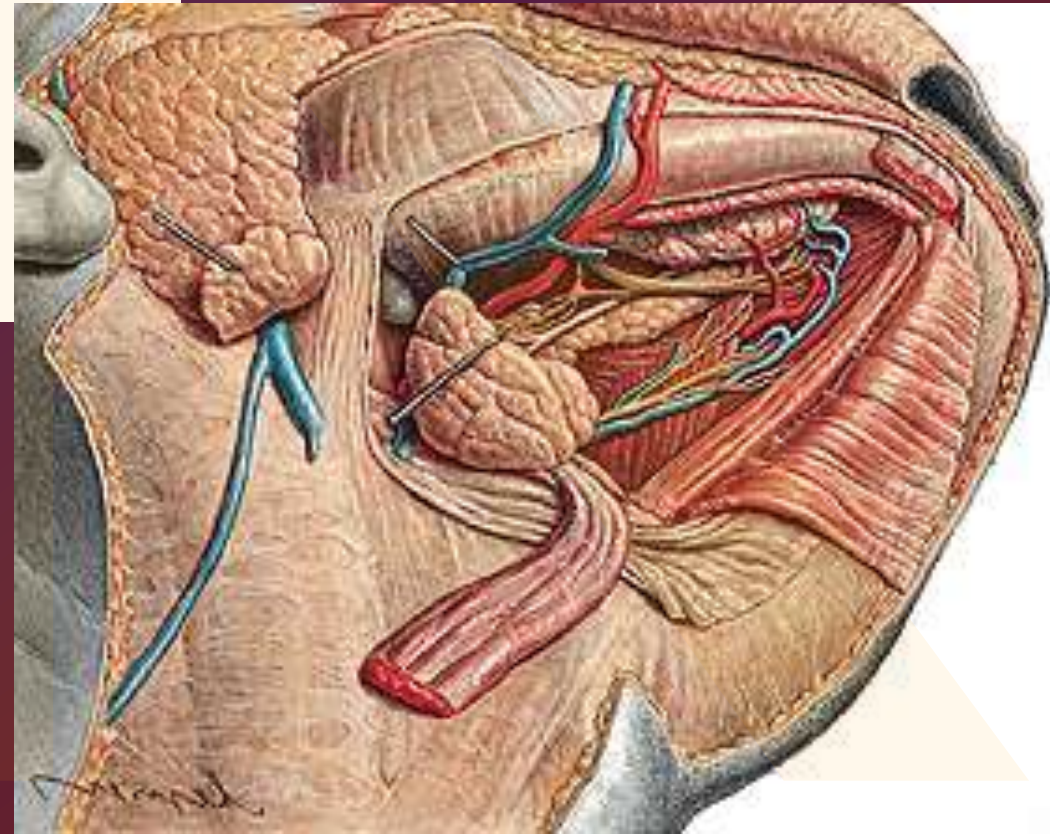
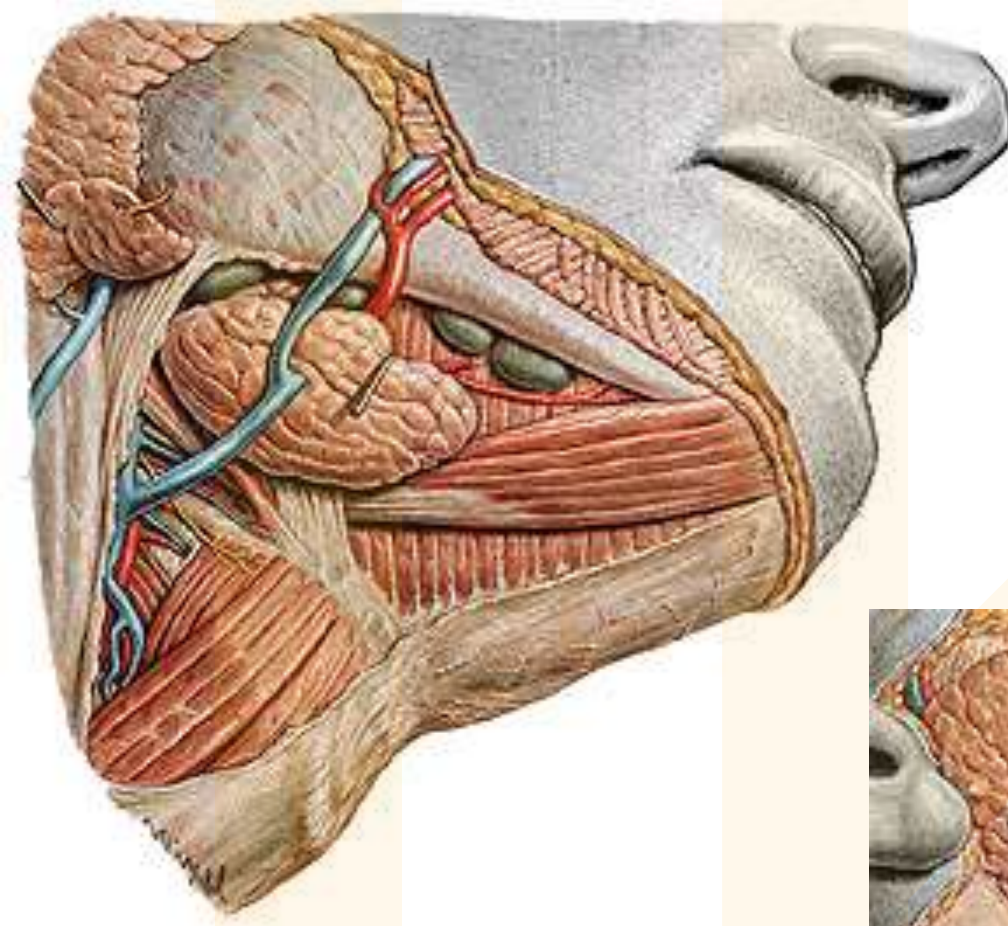
Deep part (processus pharyngeus)

Serous tissue

Parotid duct (Stensen, Stenon)

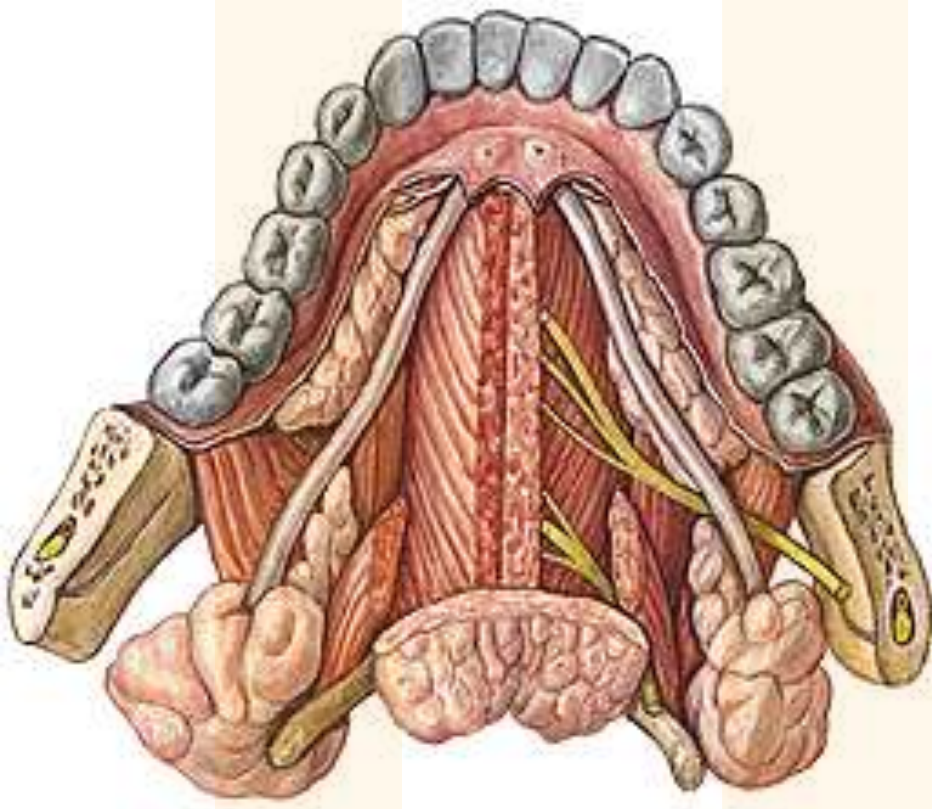


Glandula submandibularis

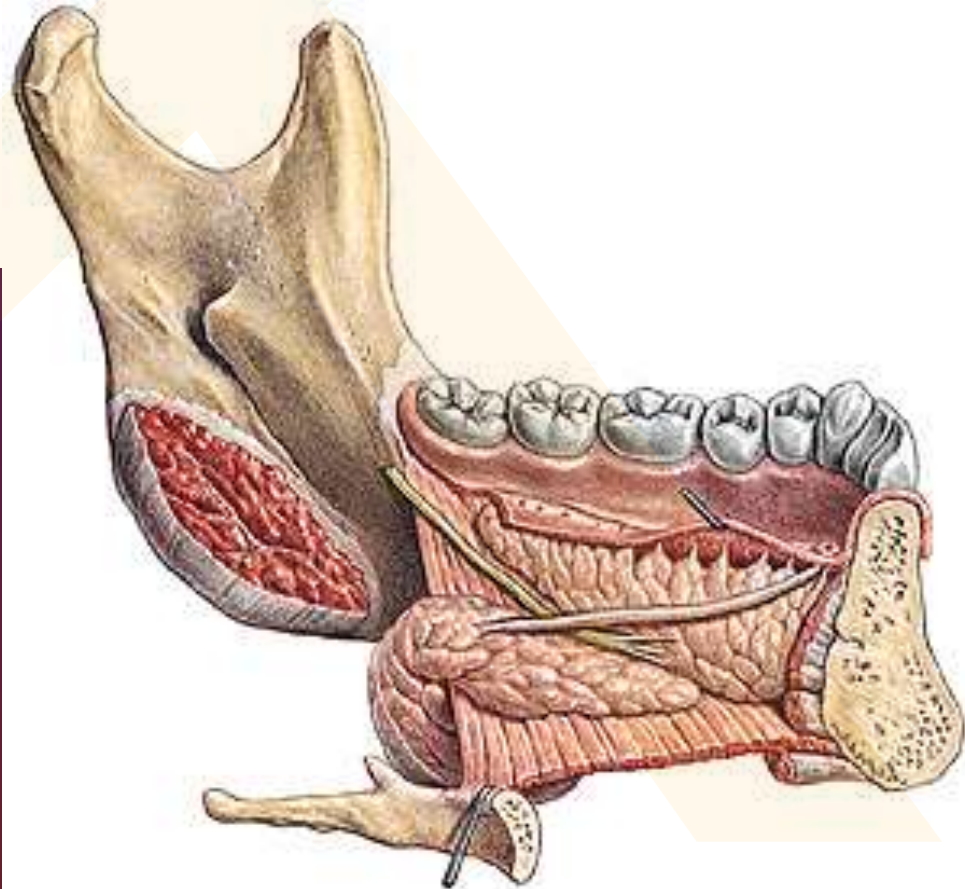


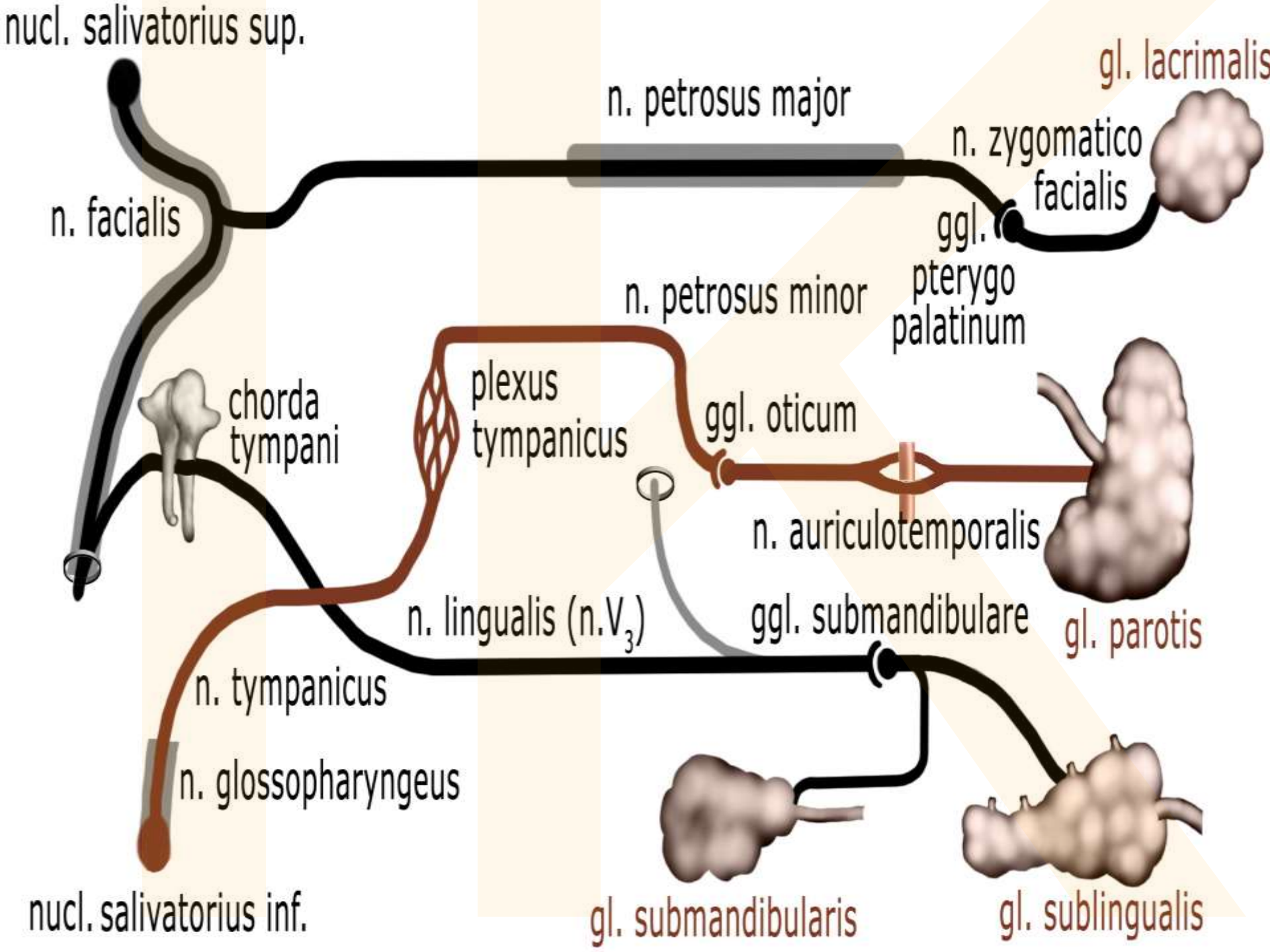
Mucoserous tissue
Submandibular duct
(Wharton)

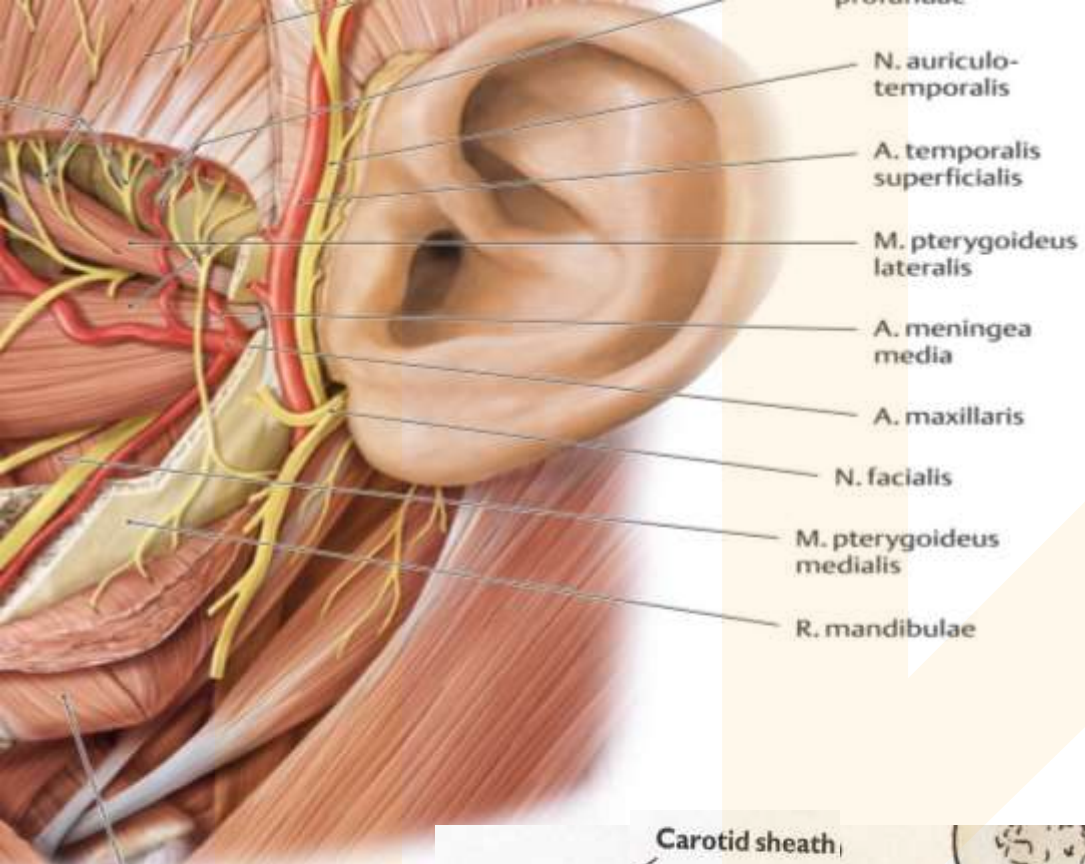
Glandula sublingualis



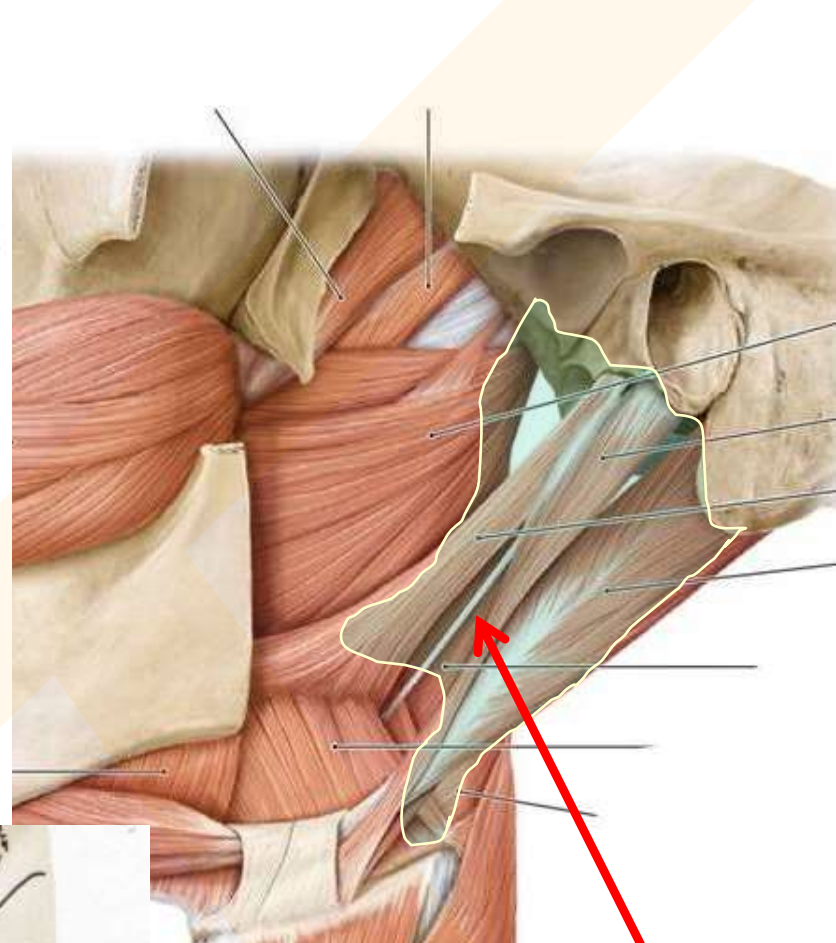
Seromucinous tissue
Great sublingual duct et
small ducti (Santorinus)



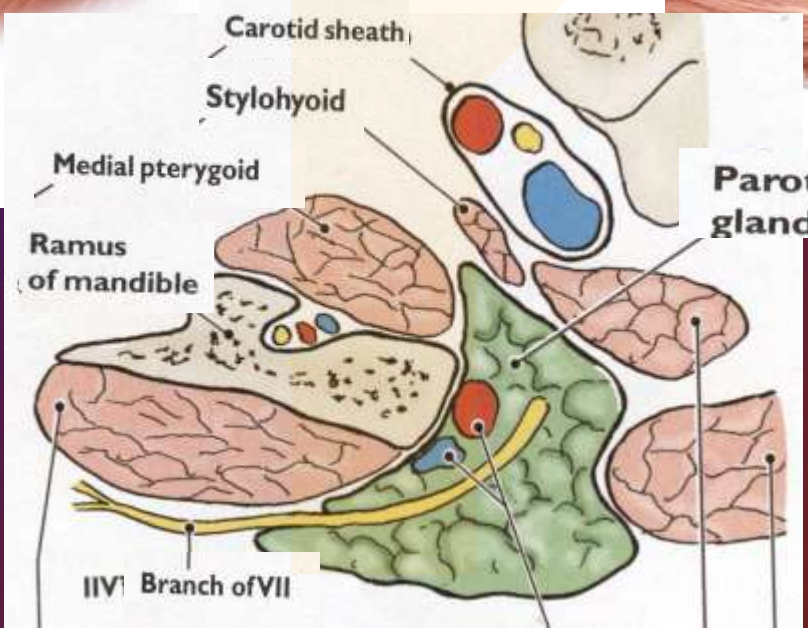




M. masseter



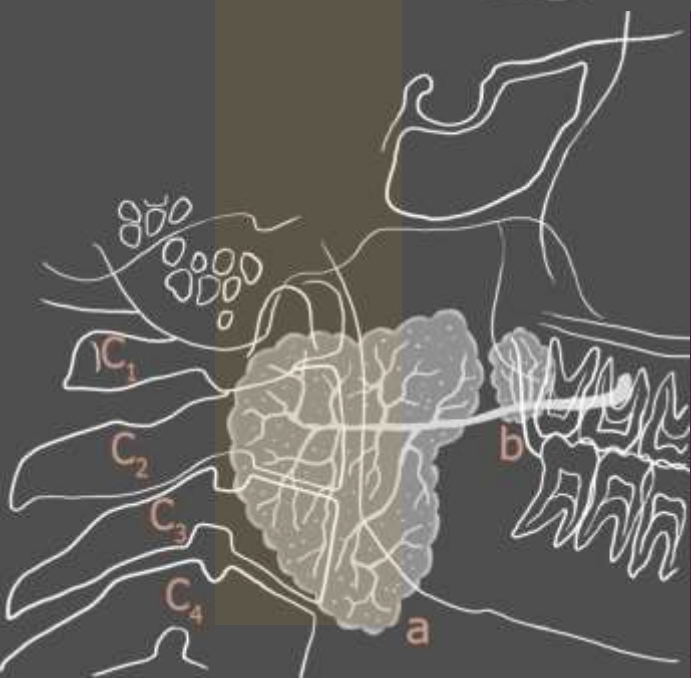
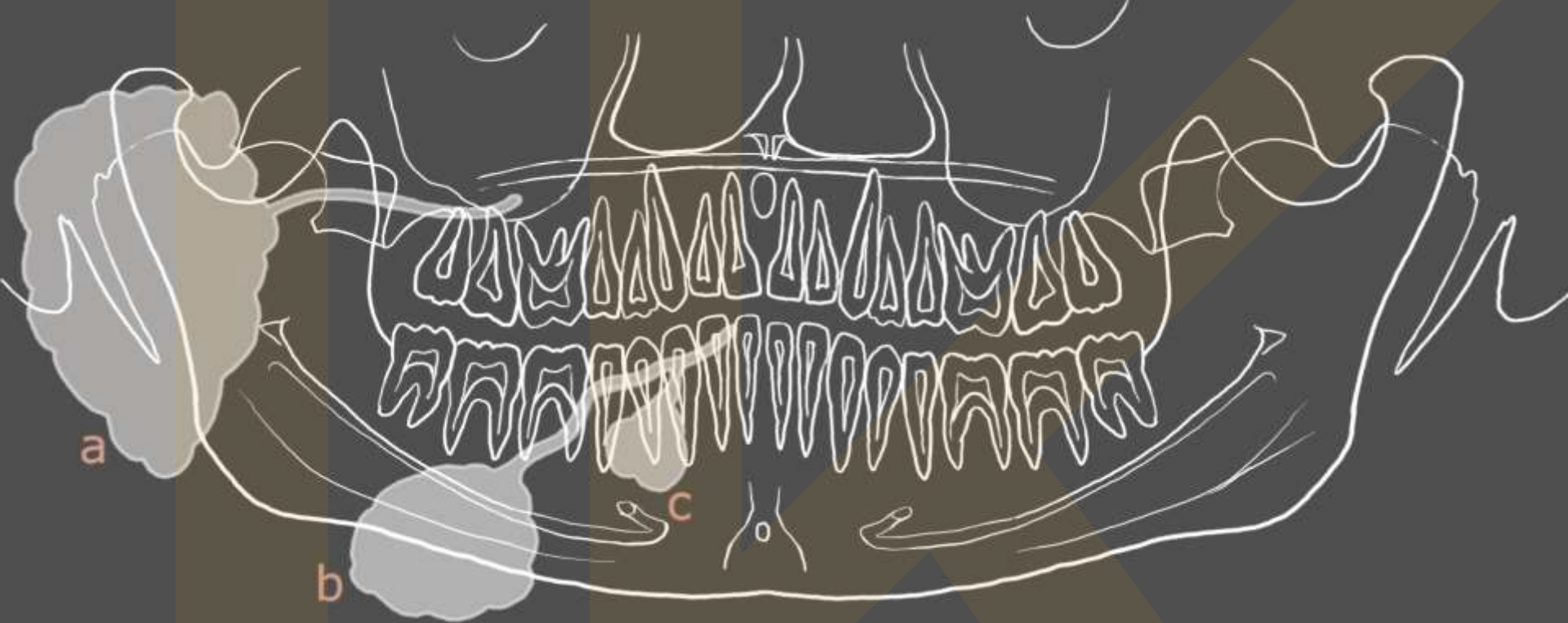
Septum styloideum



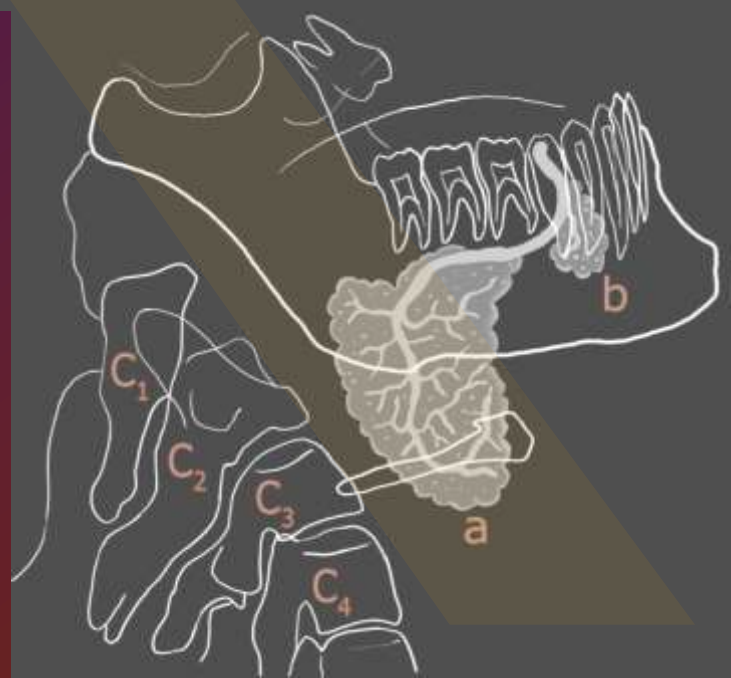
Mediální stěna spatium parotideum
Medial wall of parotid space

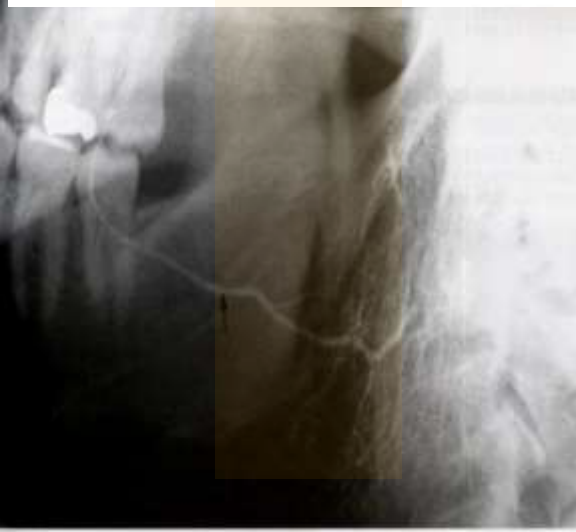
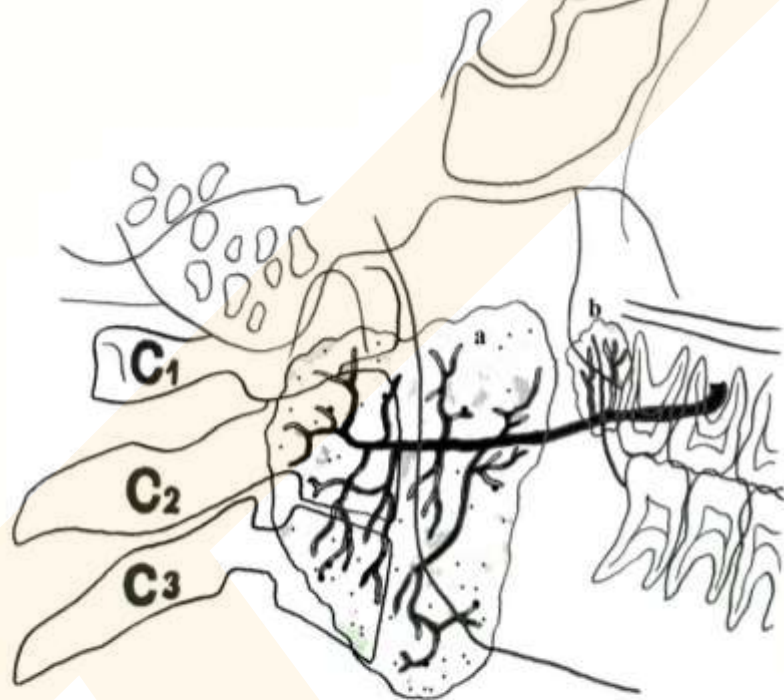
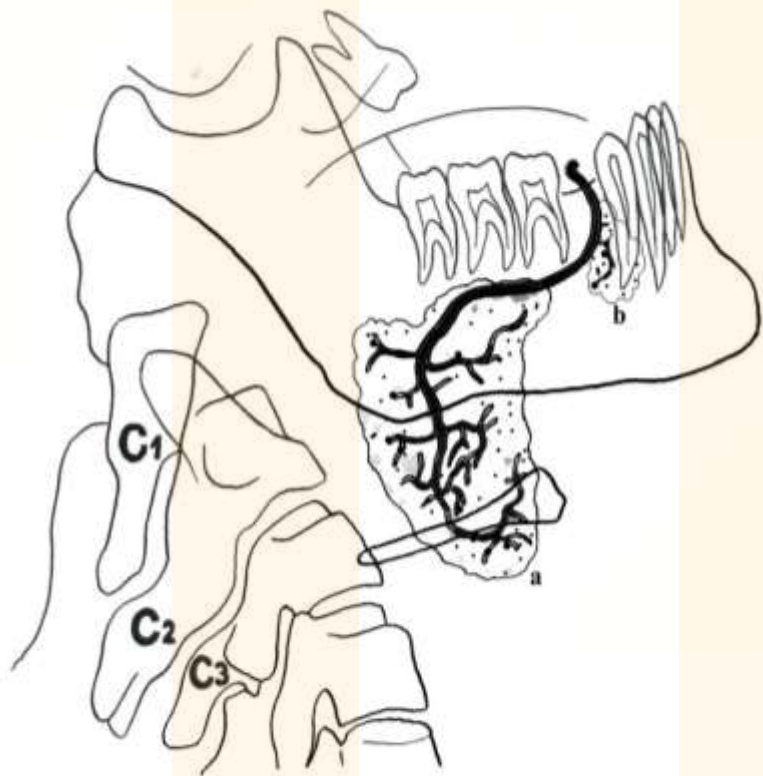
Tumor of the parotid gland pushed
branches of the facial nerve –
ipsilateral peripheral palsy (Bell's
sign).

Ptosis of the mouth angle and lower
eyelid on the same side.

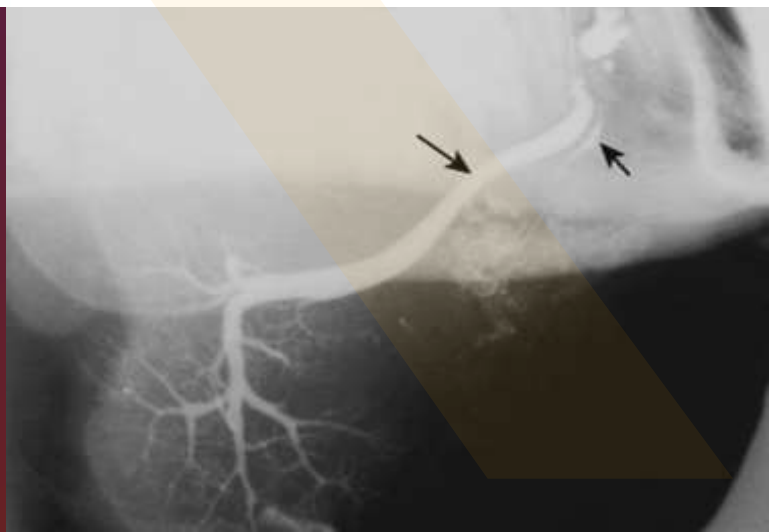


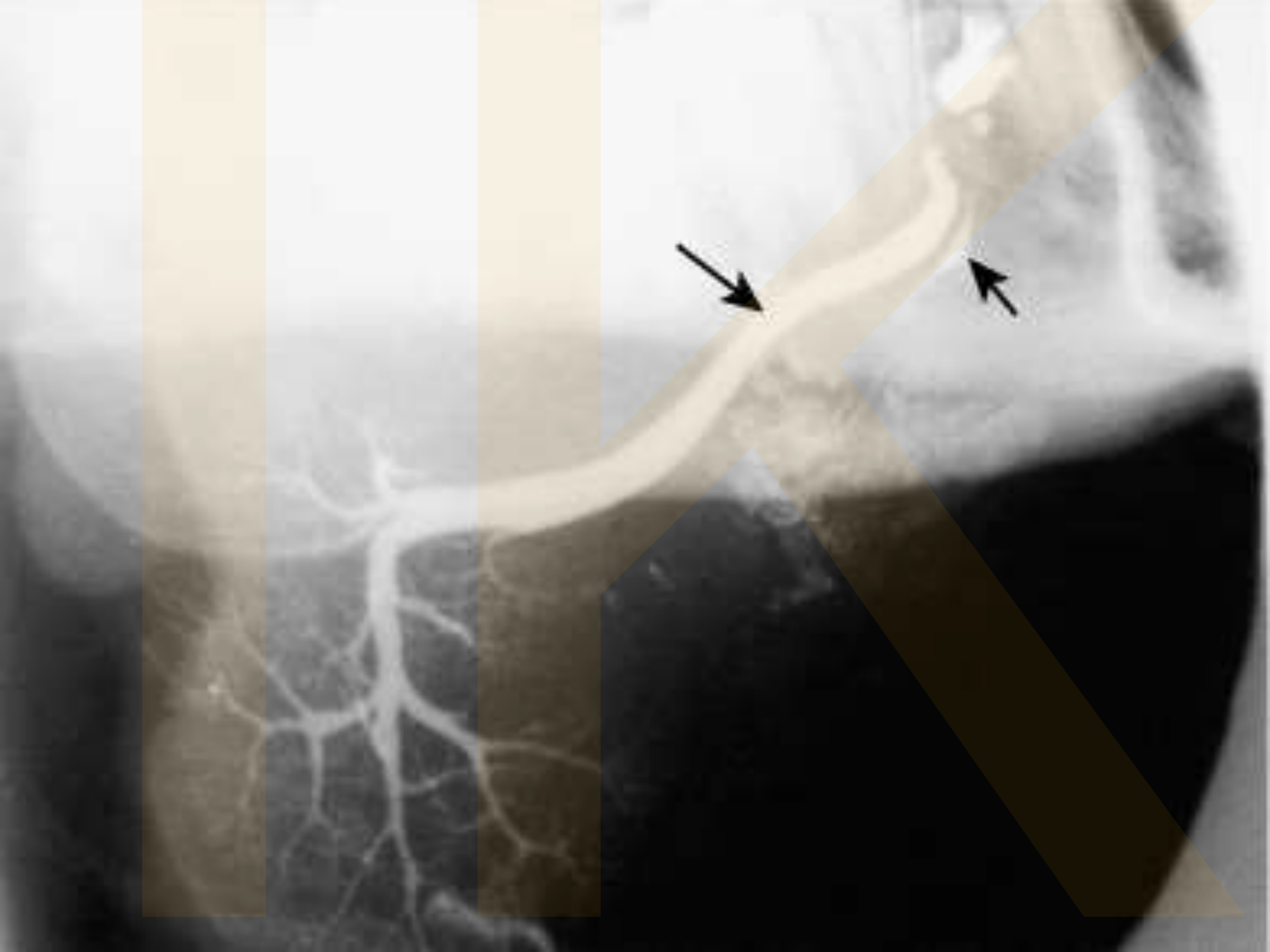
RTG projection:
Parotid,
sublingual and
submandibular
glands and their
ducts





Panoramatický
snímek
panoramic X – ray
photo





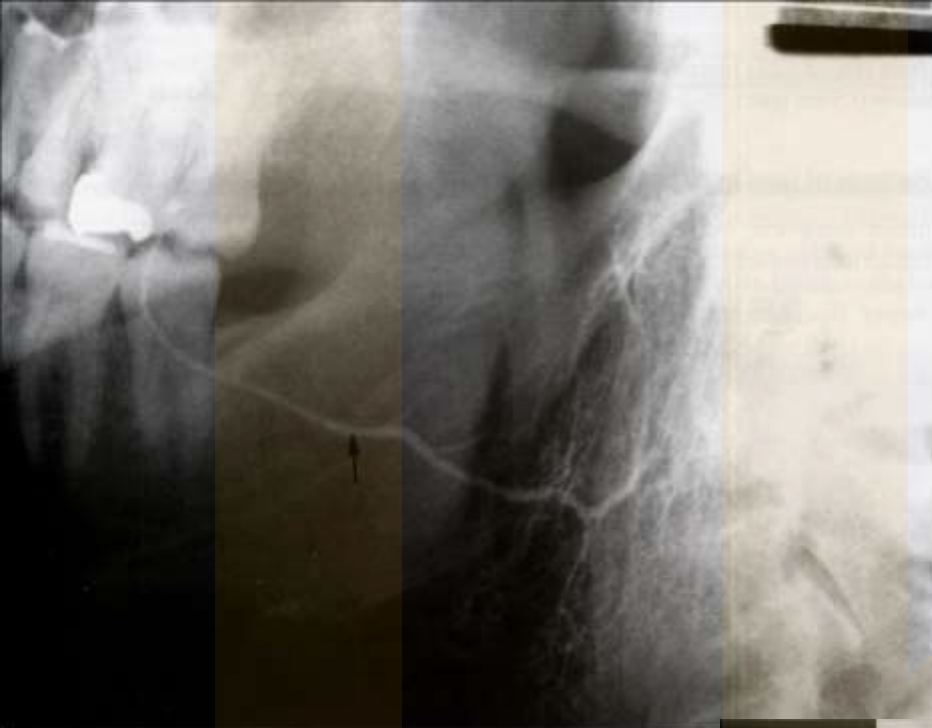


Fig. 2.120 Sialogram showing a normal parotid gland (arrow). Courtesy of Dr N. Drage.



Fig. 2.121 Sialogram showing an obstruction in a dilated parotid duct (arrow). Courtesy of Dr N. Drage.