DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

LUDWIG'S ANGINA

Presented by:-
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BDS-FINAL YEAR

CONTENTS

-History , Definition , Etiology, Pathology

-Microbiology , Involvement

-Clinical features

-Spread , Fate of Ludwig's Angina

-Principle of Treatment , Management

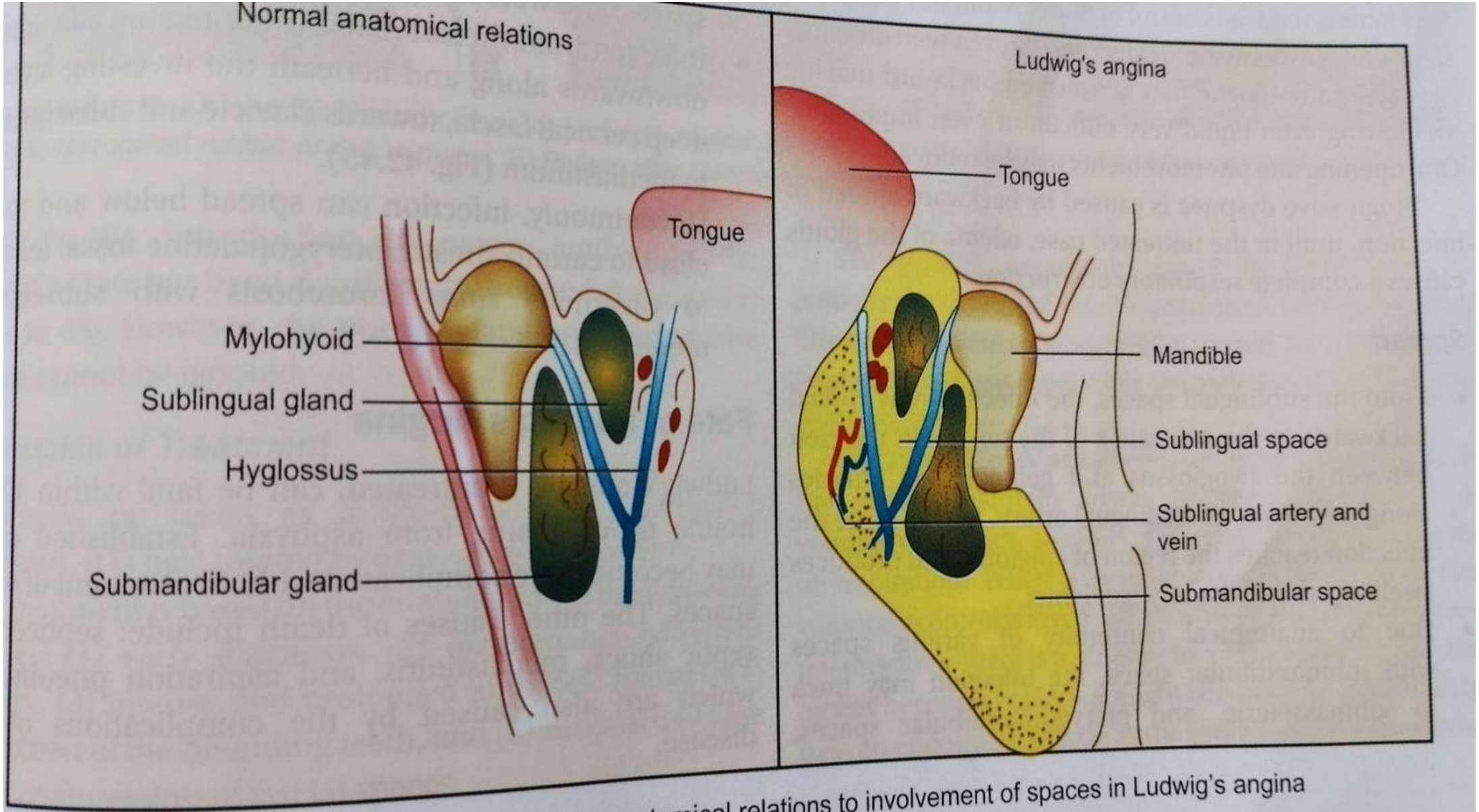


Fig. 42.41: Comparison of normal anatomical relations to involvement of spaces in Ludwig's angina

Clinical Features

The following signs and symptoms are present with varying degree of severity

General examination: It includes:

(i) patient looks toxic, very ill and dehydrated. There is pyrexia, anorexia, chills, and malaise;

(i) difficulty in swallowing (dysphagia);

(ii) impaired speech, and hoarseness of voice.

Fig: The typical clinical pictures of the patients suffering from Ludwig's angina. Note the toxic patients, with firm, brawny induration with raised floor of the mouth, tongue protruding out and elevated

Regional examination:

Extraoral examination

• Firm/Hard brawny (board-like, woody hard) swelling in the bilateral submandibular and submental regions, which soon extends down the anterior part of the neck to the clavicles.

-Swelling is nonpitting, minimally or non fluctuant associated with severe tenderness. Classically, the swelling shows ill-defined borders with induration.

-Severe muscle spasm may lead to trismus with restricted mouth opening and also jaw movements. Typically mouth remains open due to edema of sublingual tissues leading to raised tongue almost touching the palatal vault. In extreme circumstances, tongue may actually protrude from the mouth; the tongue movements are reduced.

Figs -A to F: (A and B) Clinical picture of Ludwig's angina, (C to E) Drainage, decompression of Ludwig's angina patient with multiple corrugated rubber drains in place; (F) Patient after complete recovery

Fig-Severe stage of Ludwig's Angina

-Airway obstruction.
-Respiratory rate may be seen to be raised; breathing being shallow with accessory muscles of respiration being used.
-There may be dilation of alae nasi, raising of thoracic inlet by the scalenes and sternocleidomastoid muscles and in-drawing of the tissues above the clavicle.

- Cyanosis may occur due the progressive hypoxia.
- Fatal death may occur in untreated case of Ludwig's angina within 10-24 hours due to asphyxia.

-Intraorally, the swelling develops rapidly, which involves (i) the sublingual tissues, and distends or raises the floor of mouth, woody edema of the floor of the mouth and tongue (ii) tongue may be raised against palate; (iii) increased salivation ;**drooling**. , stiffness of tongue movements, difficulty in swallowing; (iv) backward spread of infection leads to **edema of glottis**, resulting in respiratory obstruction/embarrassment. **Stridor** being the alarming sign of this fatal extension needing emergency intervention to keep airway patent

-There is reduced control of muscles and jaw posture ,

- Part of the tongue may get pushed backward making **swallowing even liquid very difficult or even impossible.**

- **Progressive dyspnea** is caused by backward spread of infection, until in the untreated case, edema of the glottis causes a complete respiratory obstruction.

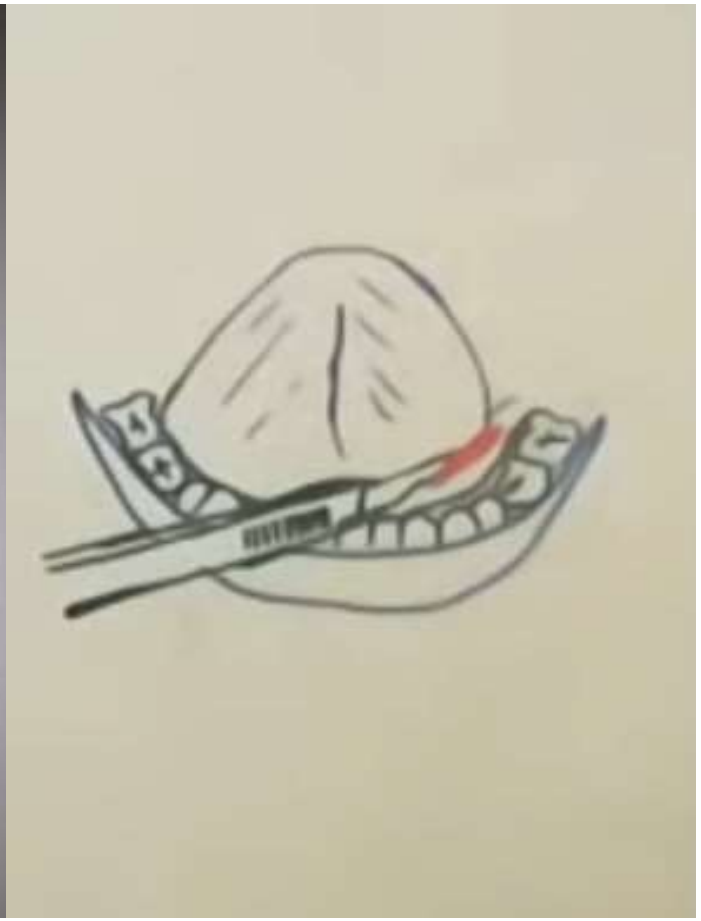
Management of Ludwig's Angina

1. Early diagnosis
2. Airway Maintenance

- Trachyostomy
- Fiber-optic laryngoscopy
- Cricothyroidotomy

3. Prolonged iv antibiotic therapy
4. Hydration
5. Early incision and drainage
6. Extraction of affected teeth

fig: Cut - throat incision



REFERENCES-
Textbook of ORAL AND MAXILLOFACIAL SURGERY
Textbook of ORAL & MAXILLOFACIAL SURGERY
INTERNET SOURCES


THANK YOU

ANATOMY OF TEMPOROMANDIBULAR JOINT

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a. ANATOMY
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LIGAMENT SUPPORTING AND LIMITING THE JOINT

The joint ligaments ligament include :

a. Functional ligaments (major)

Collateral ligaments

Capsular ligament

b. Accessory ligaments (minor)

Sphenomandibular ligament

Stylomandibular ligament

c. Other ligaments

Otomandibular ligament

Discomalleolar ligament

Pinto ligament

Tanaka ligament

Mallelomandibular ligament

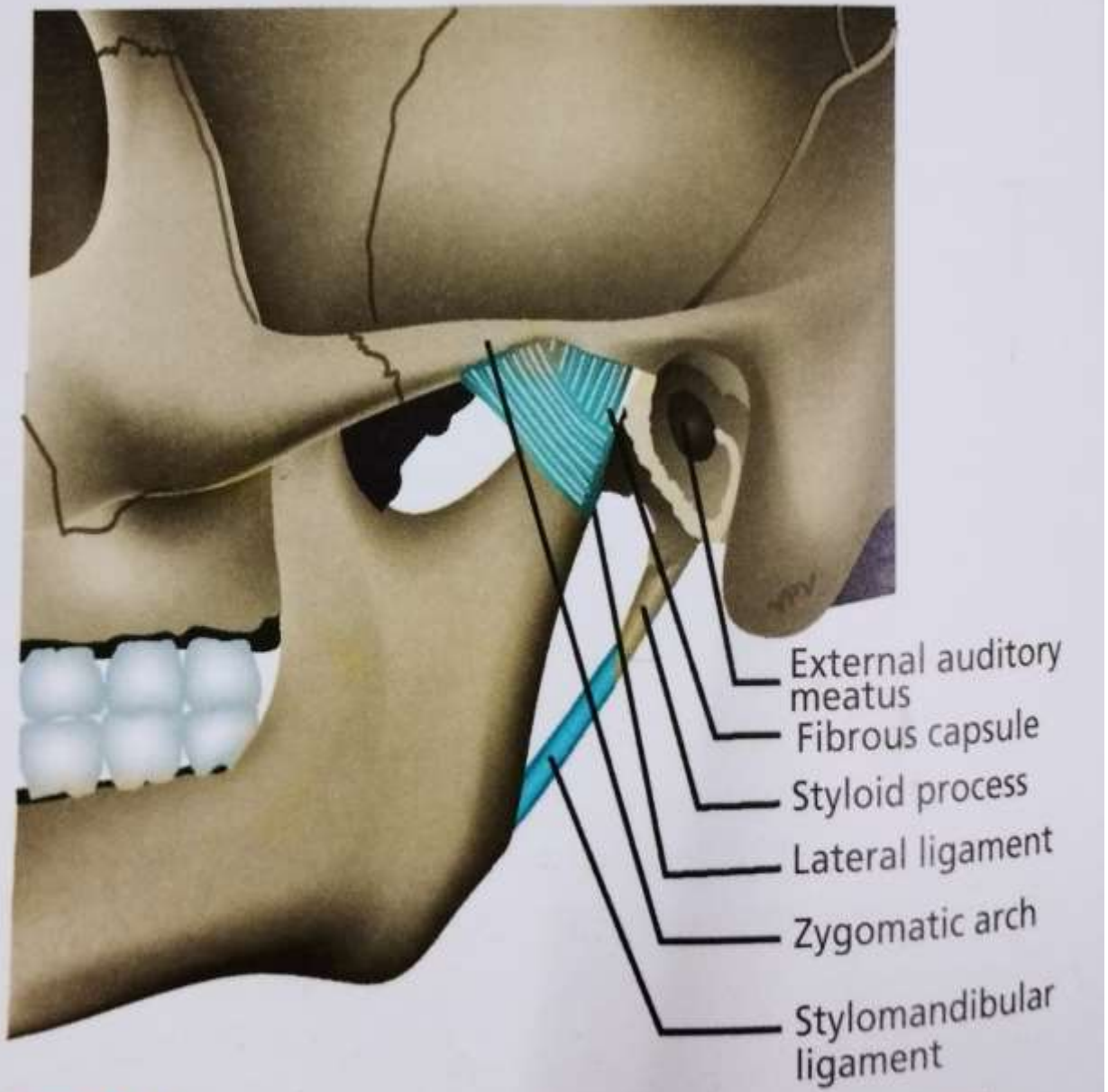


Figure 37.3 Lateral view showing capsule and ligaments.

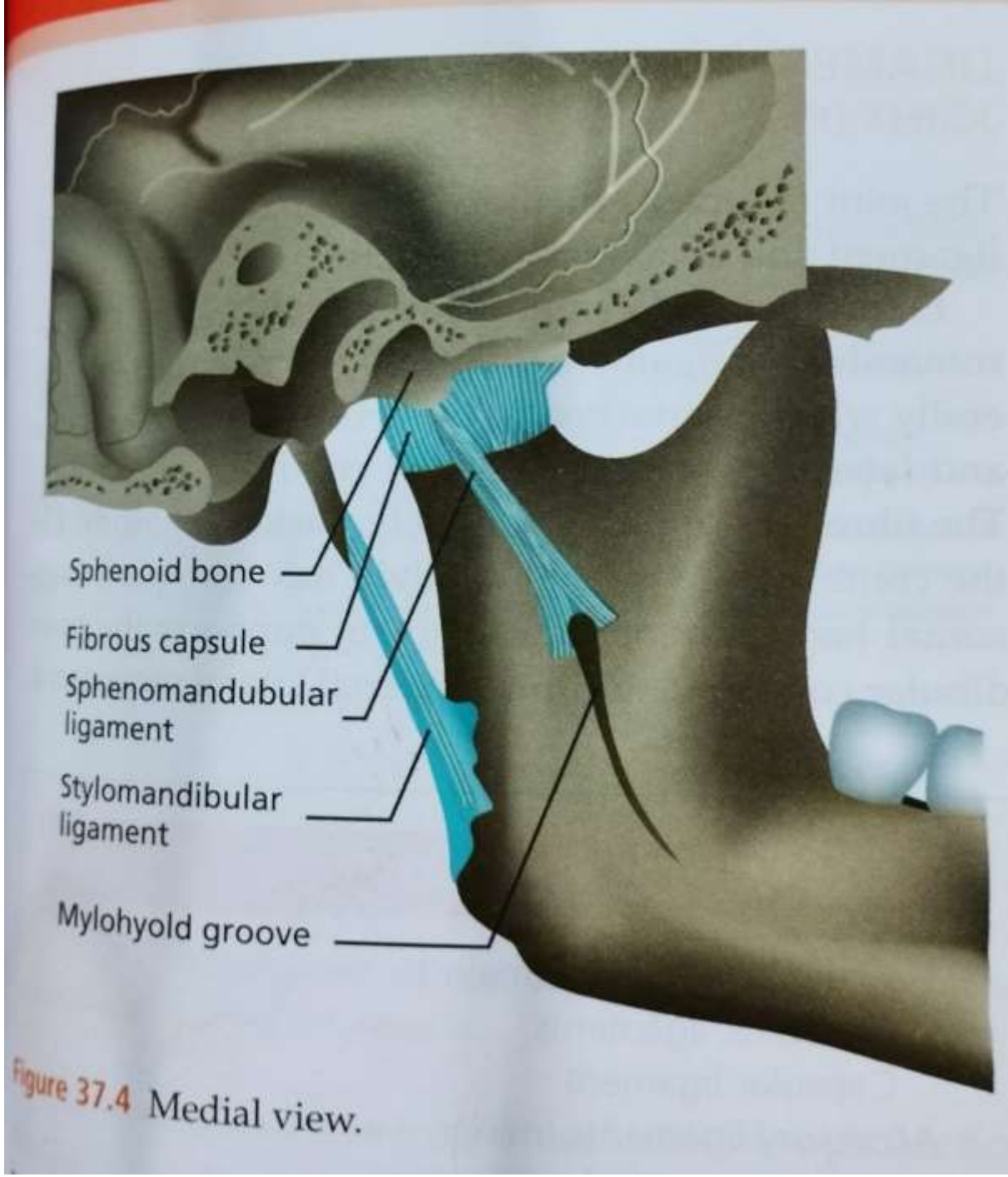


Figure 37.4 Medial view.

ACCESSORY LIGAMENTS

Stylomandibular ligament- It is a specialised band of the deep cervical fascia extending from apex of styloid process to the posterior surface and angle of mandibular ramus. It limits extreme of anterior movement of the condyle in relation to fossa.

Sphenomandibular ligament – It is extending from spine of sphenoid to the lingula of mandible is considered as remnant of Meckel's cartilage. This ligament acts similar to the stylomandibular ligament

MENISCUS

-It is semilunar, avascular, non-innervated, fibrocartilaginous structure

-It acts as a shock absorber and provides protection to the bony components of the joint.

-Sagittal section of the disc reveals an anterior fibrous band (anterior disc ligament), thin intermediate zone and posterior fibrous band (posterior disc ligament).

-The anterior fibrous band has a superior stratum which inserts itself on the ascending slope of the articular eminence and an inferior stratum which inserts inferiorly at the condyle's anterior aspect.

-The anterior fibrous band of meniscus, the capsule and the condyle fix with the superior head of tendons of lateral pterygoid muscle.

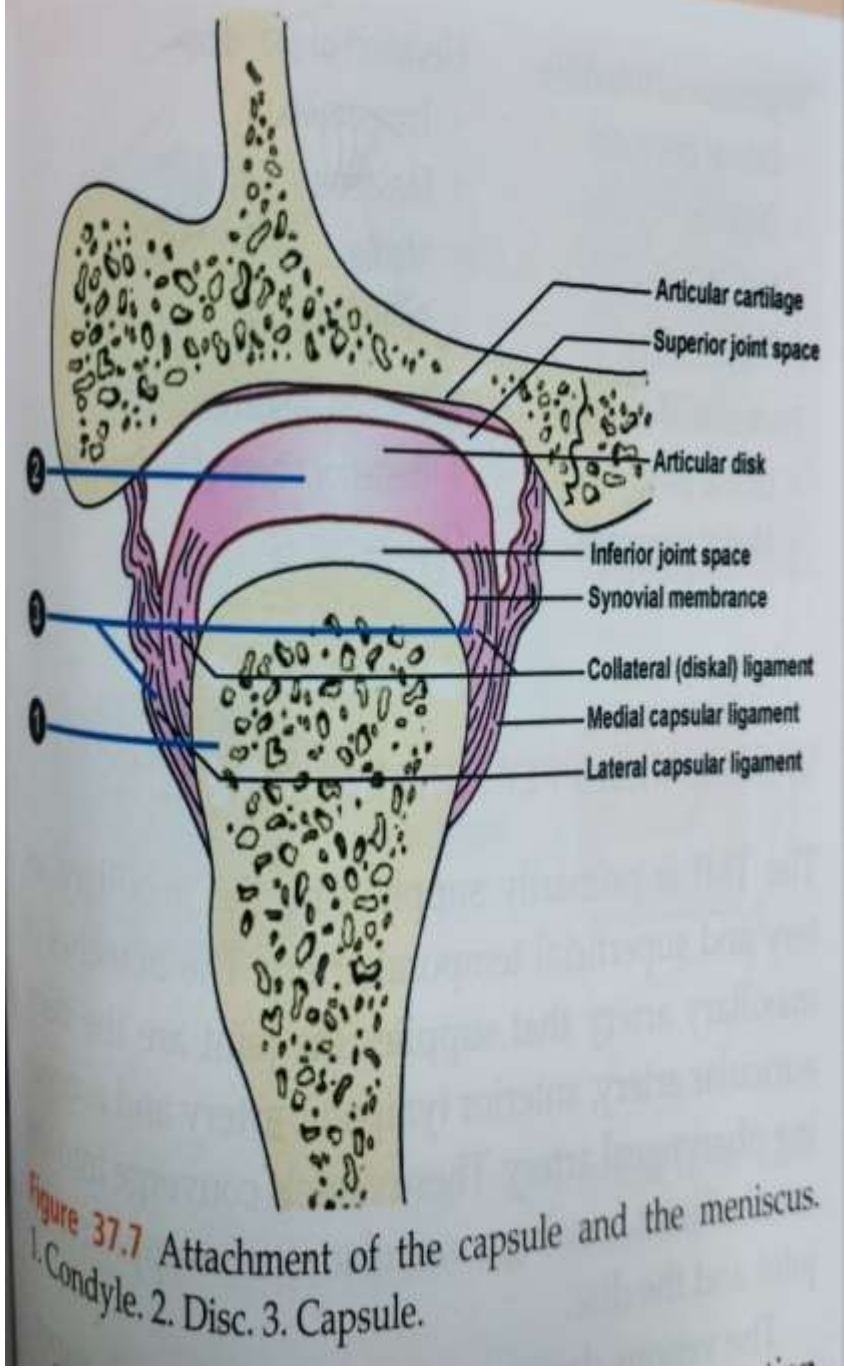


Figure 37.7 Attachment of the capsule and the meniscus. 1. Condyle. 2. Disc. 3. Capsule.

The posterior fibrous band (posterior ligament) of the meniscus is a bilaminar structure. The superior lamella of the posterior fibrous band (ligament) is attached to the posterior margin of the glenoid fossa at the squamo tympanic fissure. The inferior lamella of the posterior fibrous band (ligament) attaches with the condyle in the posterior aspect. The area between the lamellae is filled with highly vascular and innervated loose areolar fibro fatty tissue.

Medially and laterally, the meniscus is firmly attached to the periosteum of the condyles's medial and lateral poles through the medial and lateral collateral ligaments. The most medial portion of the disc is connected posteriorly to a ligament referred to as the discomalleolar or Pinto's ligament.

-The attachments of the disc to the condyle are of significance since the shape of the joint compartment changes during translatory movements according to position of the condyle.

-There are four capsular sulci (recess) situated at the posterior and anterior ends of the upper and lower joint compartments.

a.Superior stratum of the posterior bilaminar zone limits the posterosuperior recess and

b.Superior stratum of the anterior ligament limits the antero superior recess.

c. Inferior stratum of the anterior bilaminar zone limits the boundary of anteroinferior recess

d. Inferior stratum of the posterior bilaminar zone limits the boundary of posteroinferior recess.

MUSCLES CLOSELY RELATED TO TMJ

Muscles	Origin	Insertion	Nerve supply	Action
Temporalis	Superior temporal line Temporal fossa and temporalis fascia	Coronoid process	Trigeminal n, mandibular branch	Elevates mandible for biting and chewing; retracts mandible
Masseter	Zygomatic arch	Lateral surface of mandibular ramus and angle	Trigeminal n, mandibular branch	Elevates mandible; produces forceful bite and some lateral excursion
Medial pterygoid	Pterygoid process of sphenoid	Medial aspect of mandibular angle	Trigeminal n, mandibular branch	Elevates mandible; produces lateral excursion
Lateral pterygoid	Pterygoid process of sphenoid	Slightly anterior to mandibular condyle	Trigeminal n, mandibular branch	Depresses mandible; produces lateral excursion

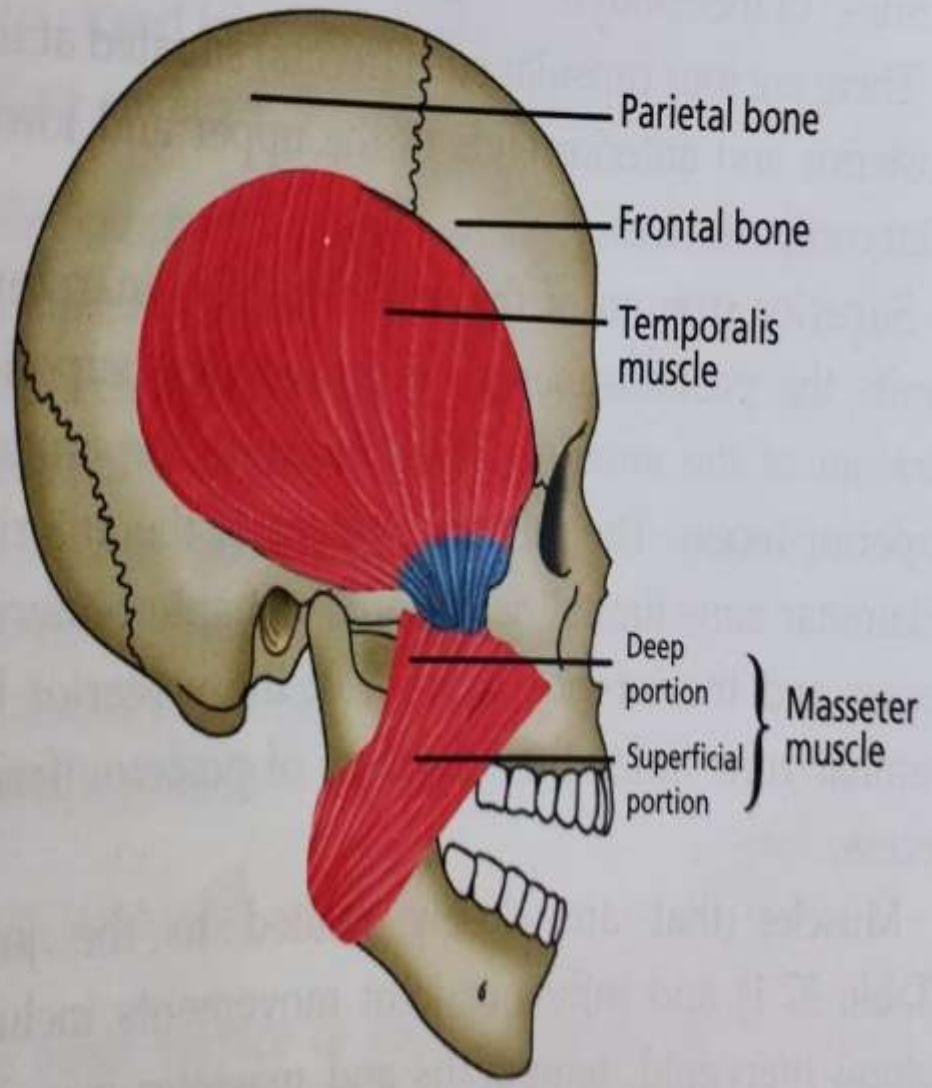


Figure 37.8 Muscles of mastication (lateral view).

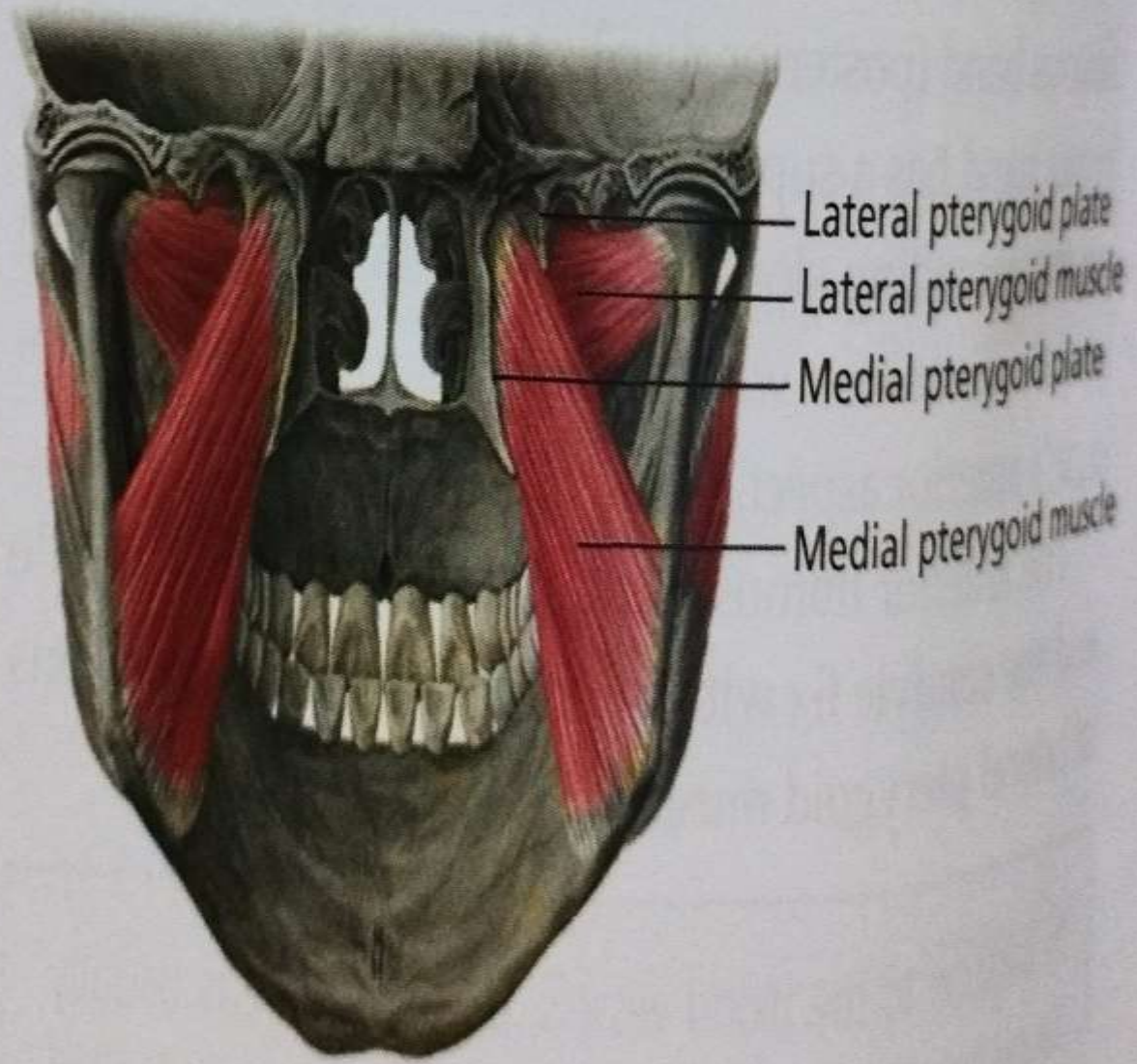


Figure 37.9 Muscles of mastication (posterior view).

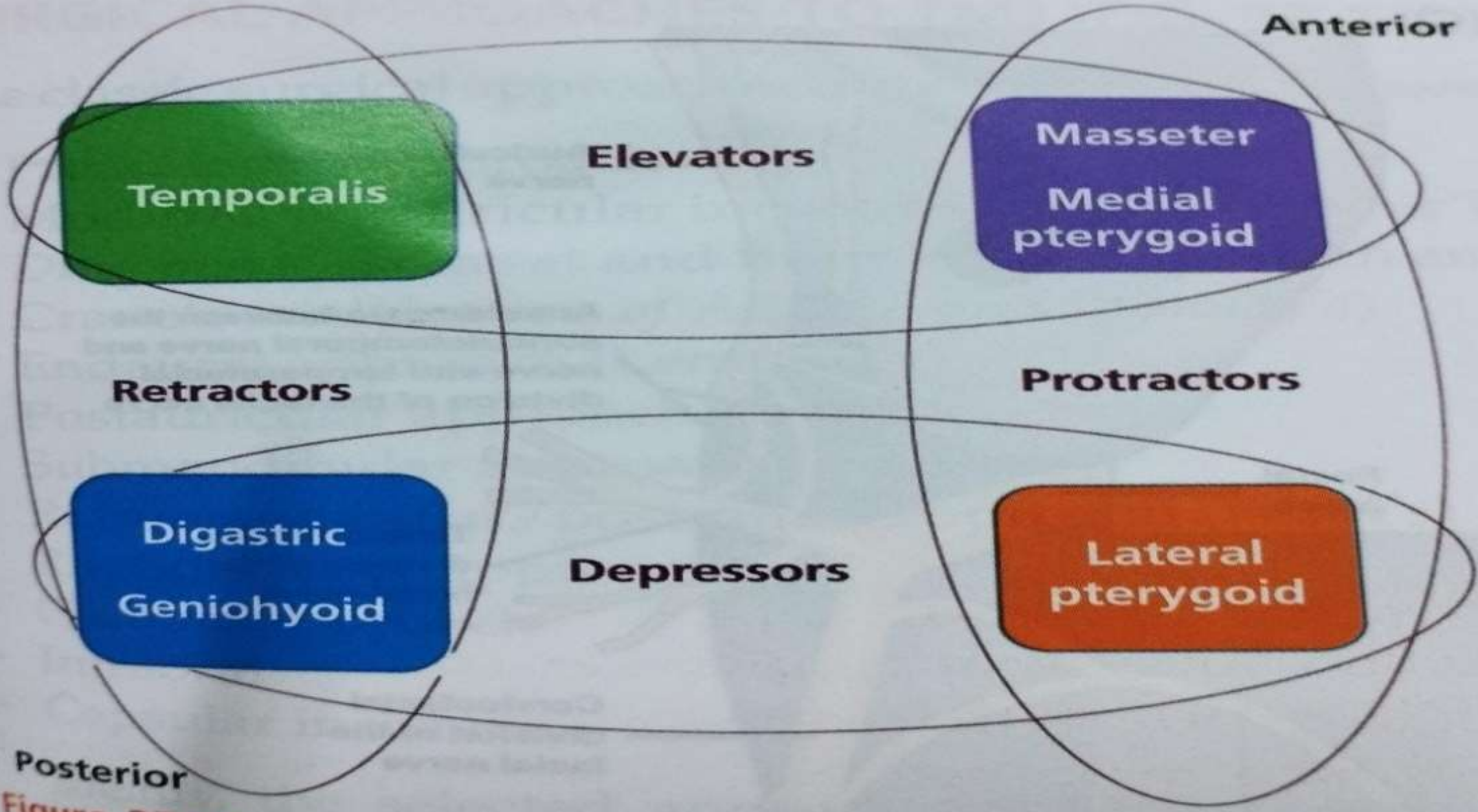


Figure 37.11 Action of muscles closely related to the TMJ—elevators, depressors, protrusors and depressors of mandible.

VASCULAR SUPPLY AND INNERVATIONS

-TMJ is primarily supplied by the maxillary artery and superficial temporal artery.

-The branches of **maxillary artery** that supplies the joint are:

the deep auricular artery
anterior tympanic artery and
ascending pharyngeal artery.

-These vessels converge into the canal of joint creating a vascular return supplying the joint and the disc.

-The **venous drainage** of the joint is through :

superficial temporal vein
maxillary plexus and
posterior venous plexus.

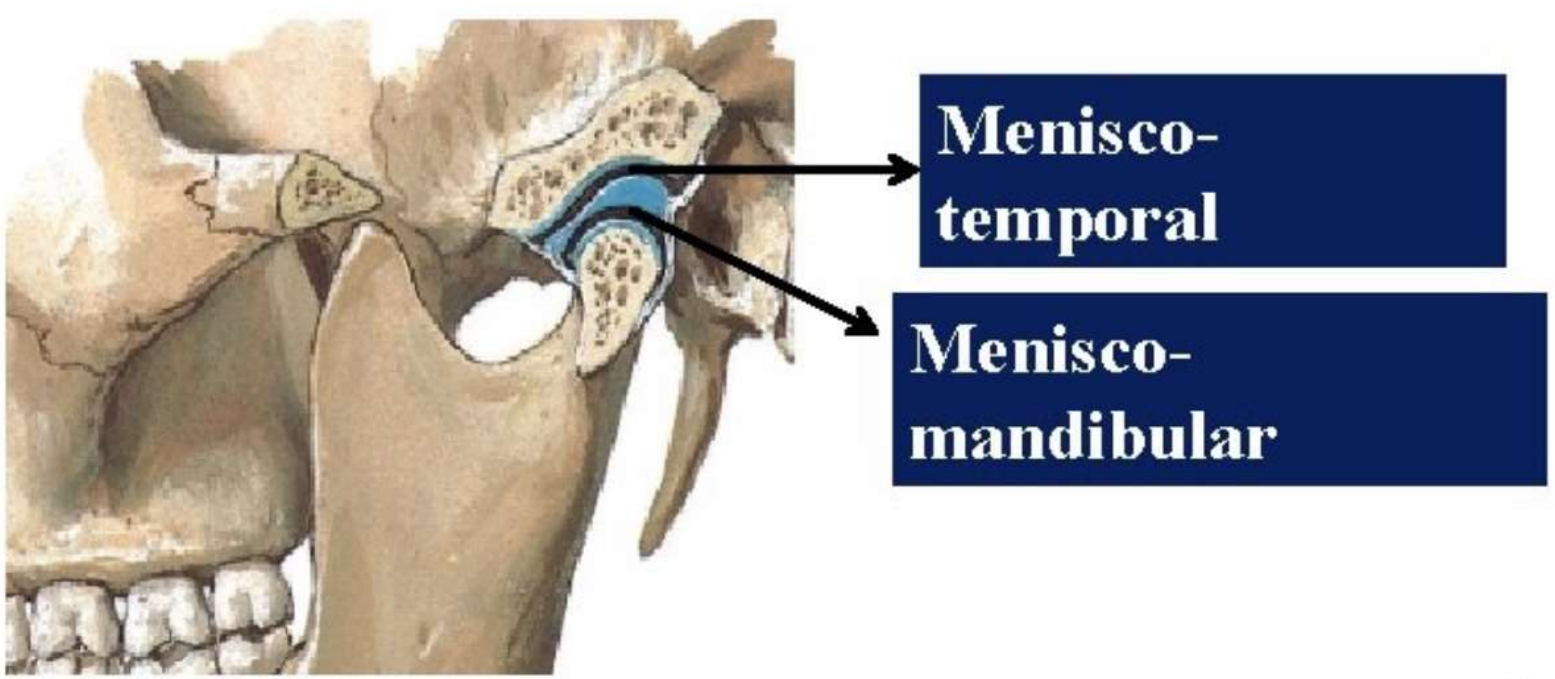
The joint is **innervated** by :
-Auriculotemporal
-Maxillary and
-Temporal nerve.

Hilton's law states that nerves which supply a joint also innervate the muscle that moves it. This is well demonstrated by the TMJ which is supplied principally by the auriculotemporal and also by the branches of masseteric and posterior deep temporal nerves.

FUNCTIONAL ANATOMY OF TMJ

COMPONENTS

1. Meniscotemporal(upper)
2. Meniscomandibular(lower)



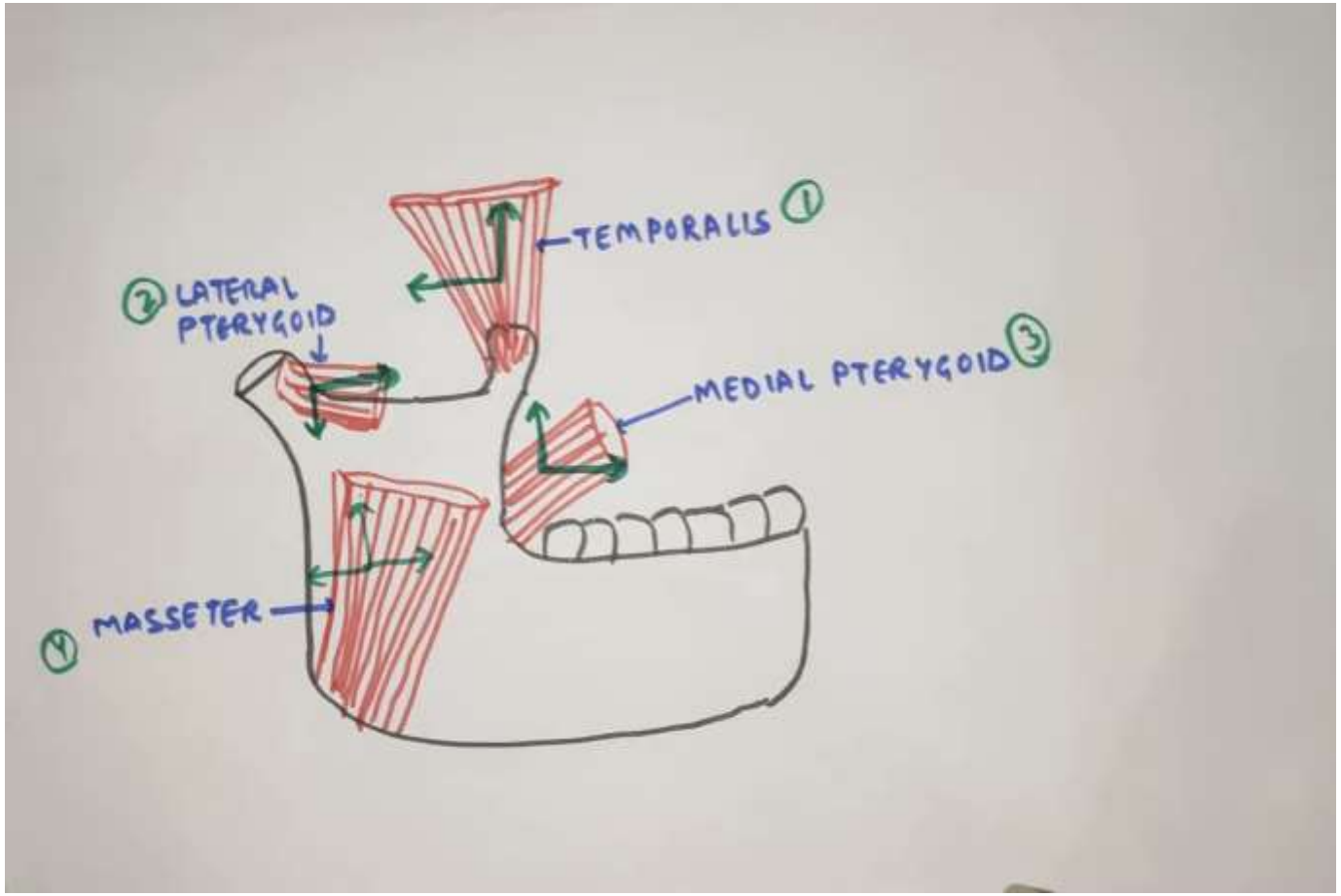
Articulating surfaces

- Articulating facets of temporal bone
- Articulating facets of condyle
- Superior surface of disc
- Inferior surface of disc

Movements

- Depression (open mouth)
- Elevation(closed mouth)
- Protrusion(protraction of chin)
- Retrusion(retraction of chin)
- Lateral or slide to slide movements (during chewing and glinding)

MUSCLES PRODUCING MOVEMENTS



MUSCLES PRODUCING MOVEMENTS

- Depression – lateral pterygoid
- Elevation – masseter, temporalis(middle oblique and anterior vertical), medial pterygoid
- Protrusion – lateral pterygoid, medial pterygoid, masseter(superficial oblique fiber)
- Retraction – temporalis(posterior horizontal fibers), masseter(deep vertical fibres)

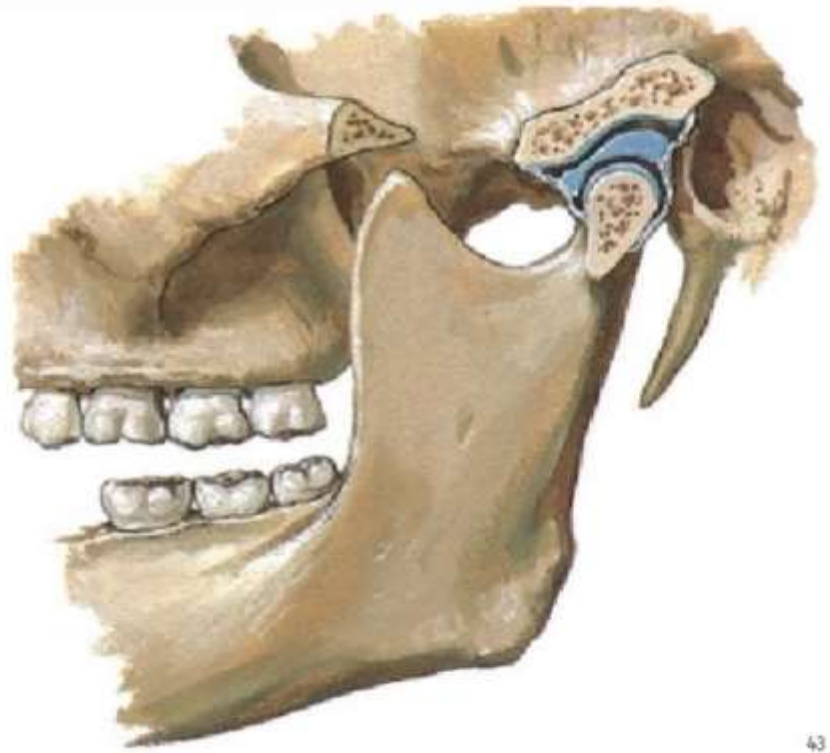
MUSCLES PRODUCING MOVEMENTS

- lateral/side to side movements

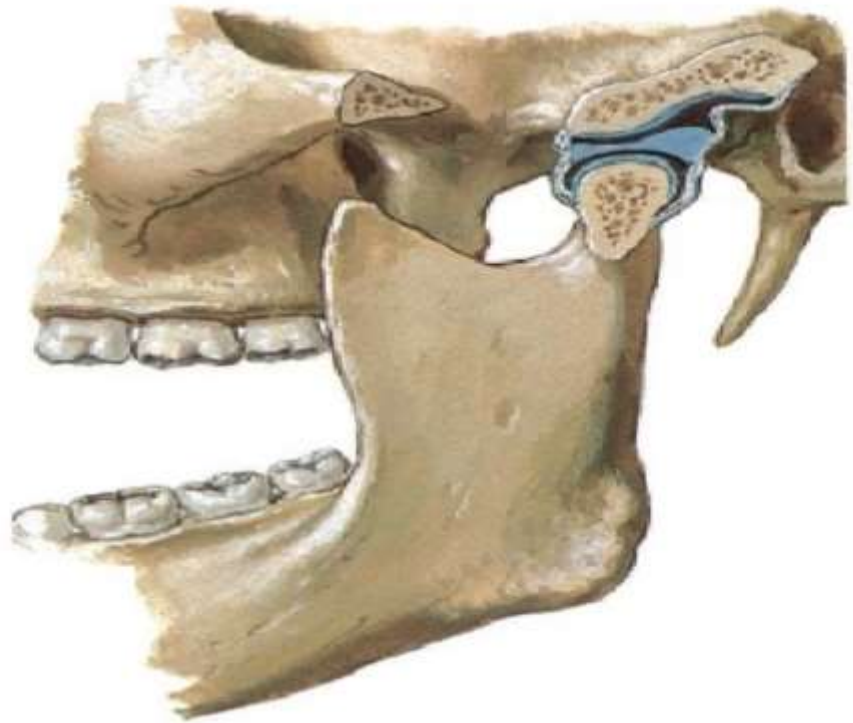
1. Lateral pterygoid
2. Medial pterygoid
3. Temporalis anterior fibers
4. Masseter deep fibers

MOVEVMENT OF TMJ

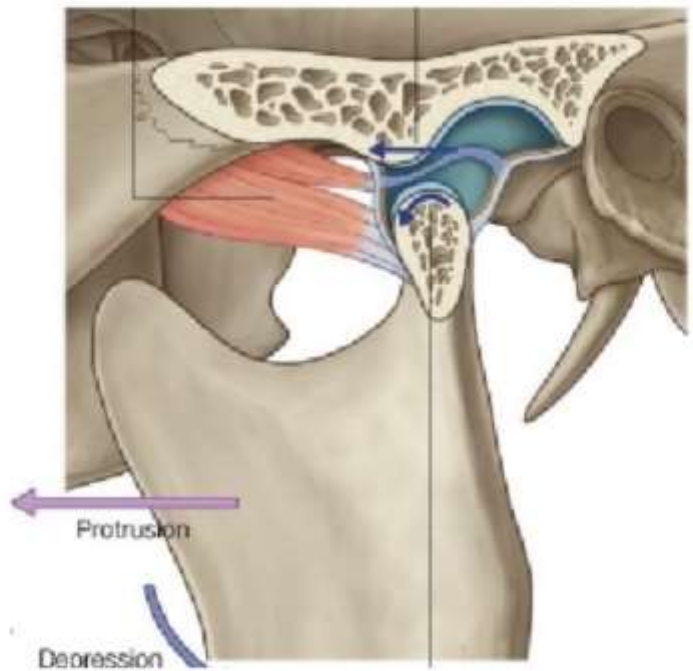
In slight opening of mouth:



In wide opening of the mouth:



Chewing movements:

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Sublingual Space

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Sublingual Space

-This space is a V-shaped trough lying lateral to muscles of tongue, including:- hyoglossus, genioglossus and geniohyoid.

Involvement

The teeth which frequently give rise to involvement of sublingual space are the mandibular incisors, canines, premolars and sometimes first molars. The apices of these teeth are superior to the mylohyoid muscle.

The infection perforates lingual cortical plate below the level of the mucosa of the floor of the mouth and passes into the sublingual space . It is a paired space; but the two sides communicate anteriorly. This space communicates with submandibular space around the posterior border of mylohyoid muscle.

Surgical Anatomy

Boundaries

It is covered
Superiorly: Only by the mucosa of floor of the mouth
Inferiorly: Mylohyoid muscle
Laterally: Medial side of the mandible, above the mylohyoid muscle
Medially: Hyoglossus, genioglossus and geniohyoidmuscles
Posteriorly: Hyoid bone
Laterally and inferiorly by mylohyoid muscle and lingual side of mandible.

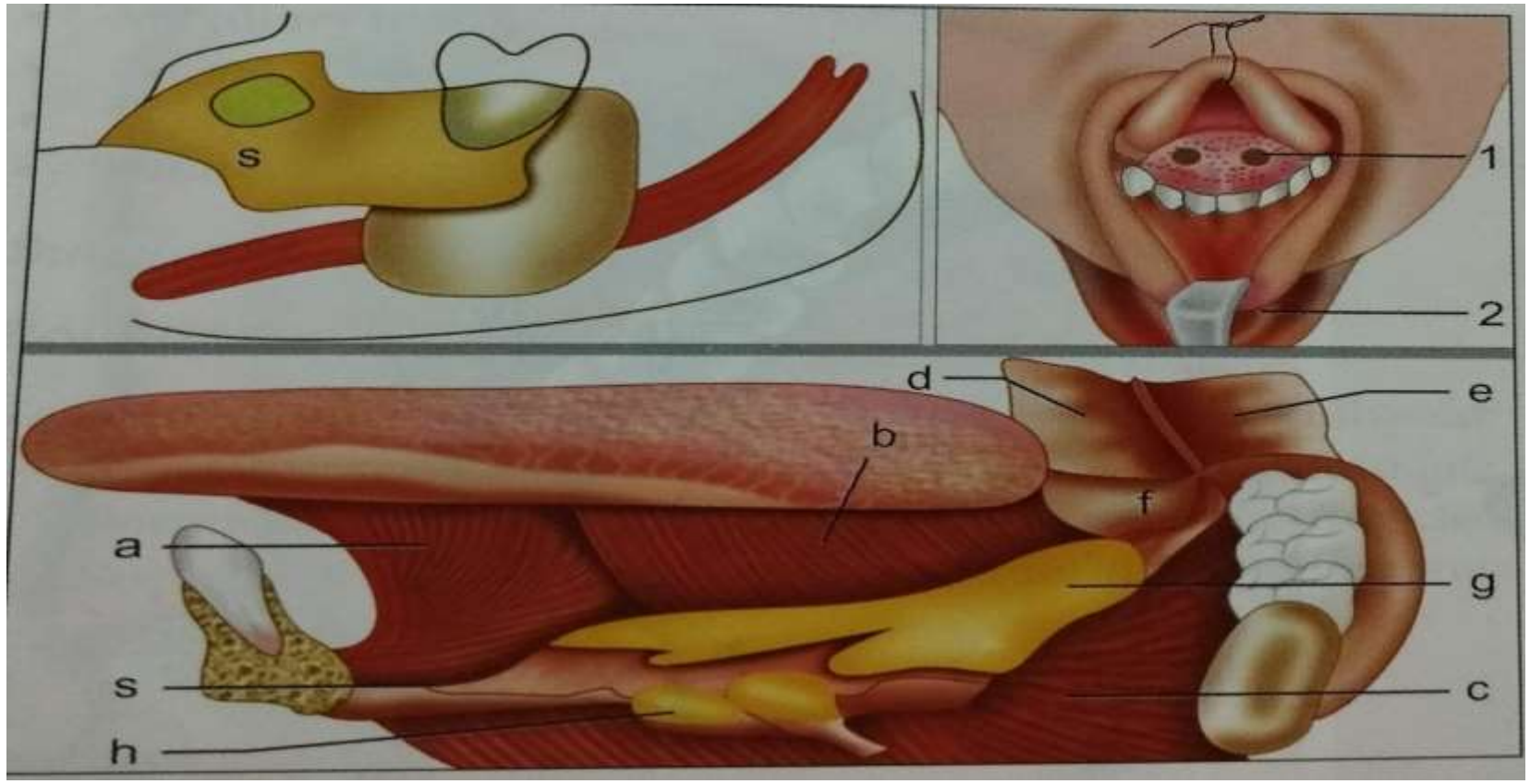

Fig: Sublingual space anatomy [(a) genioglossus, (b) hyoglossus, (c) mylohyoid, (d) superior constrictor of pharynx, (e) buccinator, (f) styloglossus, (g) deep part of submandibular gland, (h) sublingual gland, (S) sublingual space, (1) Sublingual space infection intraoral swelling. (2) Submental swelling]

Contents

-Major contents include: Geniohyoid and genioglossus muscles, and the hyoglossus muscle complex.

It also contains;

(i) deep part of the submandibular salivary gland and its duct anteriorly

(ii) sublingual salivary gland

(iii) lingual nerve and

(iv) hypoglossal nerve

Clinical Features

Extraoral: There is little or no swelling. The lymph nodes may be enlarged and tender. Pain and discomfort on deglutition. Speech may be affected.

Intraoral: Firm, painful swelling seen in the floor of the mouth on the affected side. The floor of the mouth is raised. The tongue may be pushed superiorly. This will bring about airway obstruction. The ability to protrude the tongue beyond the vermillion border of upper lip is affected.

Incision and Drainage

• Intraorally: An incision is made close to the lingual cortical plate, lateral to the sublingual plica, as the important structure at this site is the sublingual nerve which is deeply placed and less likely to be damaged by this approach. The other important structures lie medial to the plica and include the Wharton's duct, sublingual artery and veins and the lingual nerve. The sinus forceps is then inserted and opened to evacuate the pus.

Extraorally :

When both the submental and sublingual spaces contain pus, they can be drained via a skin incision placed in the submental region, pushing a closed sinus forceps through the mylohyoid muscle. Similarly, when the submandibular space is involved, a sublingual space abscess can be approached and drained through an incision in the skin overlying the submandibular space, via the submandibular space .

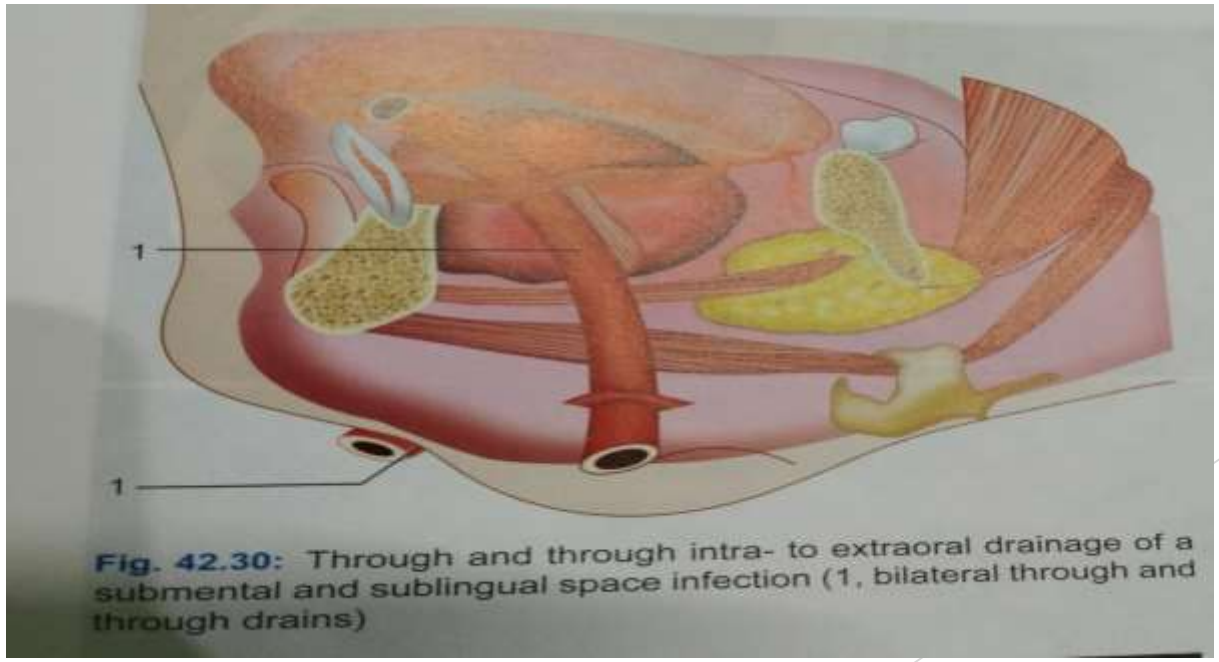

Fig. 42.30: Through and through intra- to extraoral drainage of a submental and sublingual space infection (1, bilateral through and through drains)

Spread

- Infection always crosses the midline, and can affect the space on the opposite side.

Infection from the posteroinferior part of the space. can spread around the submandibular salivary gland into submandibular space, and again can spread posteriorly, via the tunnel under the superior constrictor for the styloglossus into the pterygomandibular and parapharyngeal spaces.

Infection can also spread via the lymphatics submental or submandibular lymph nodes.

The sublingual space is separated from the submental space by the mylohyoid muscle, which forms a complete diaphragm in the floor of the mouth. The spread to the submental region occurs most often as a result of lymphatic spread to submental lymph nodes.

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However, there are also, perforating arteries which pass through the mylohyoid to form anastomosis between sublingual and submandibular arteries which accompany the nerves to the mylohyoid. In some patients, infection can spread to the submental space through the apertures in the muscle formed by these perforating arteries .

REFERENCES;

TEXT BOOK OF ORAL AND MAXILLOFACIAL SURGERY

INTERNET SOURCES


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