SALIVARY GLAND TUMOURS

An Essay

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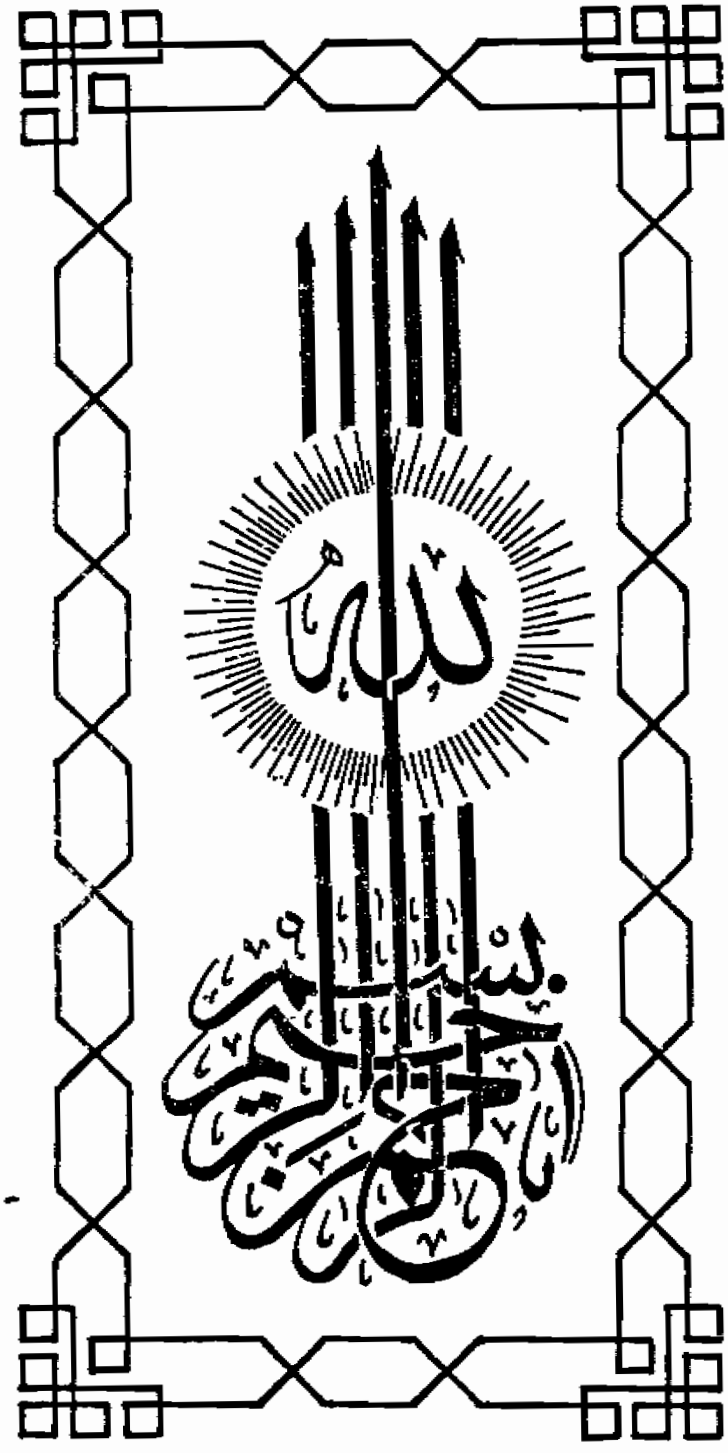

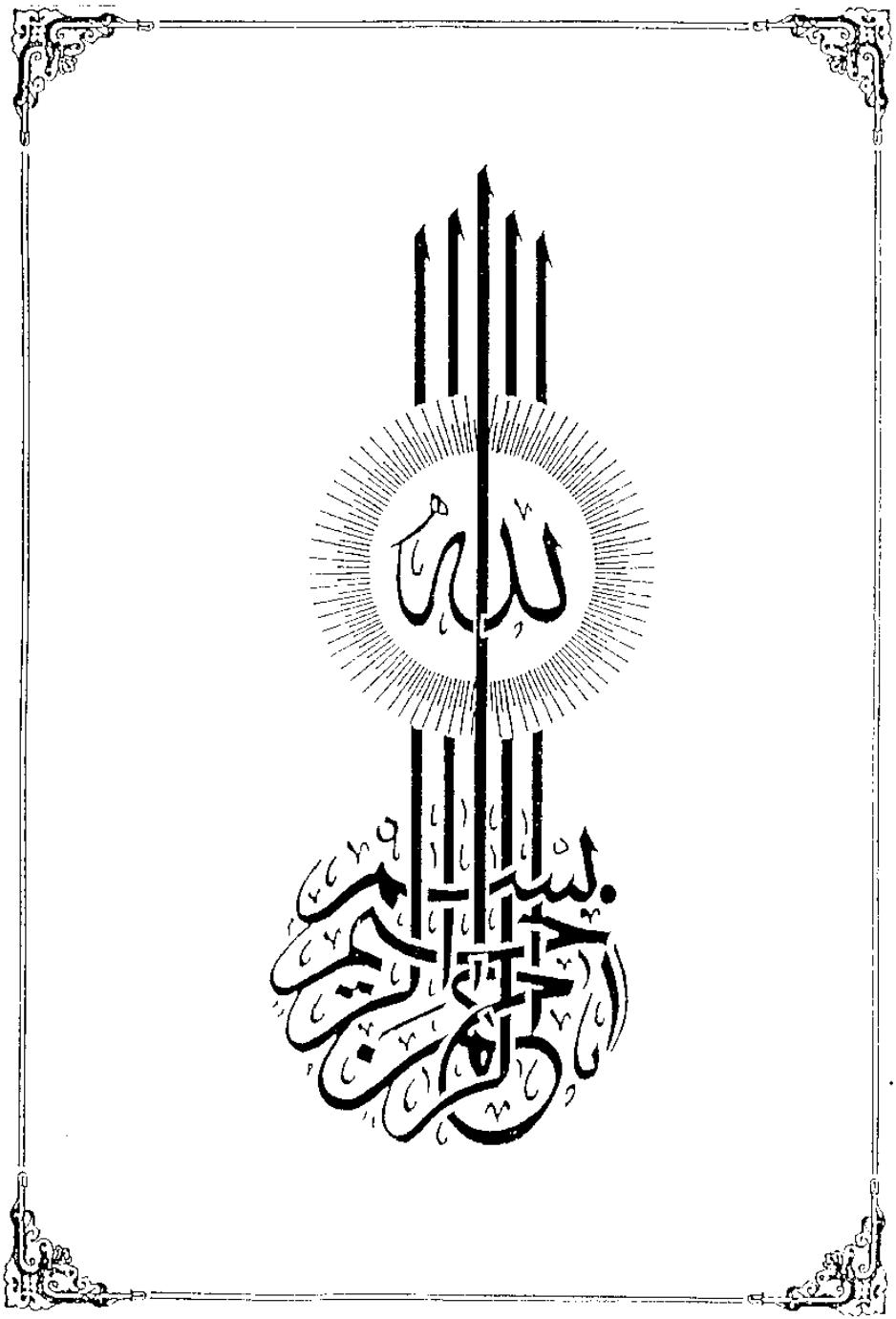

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1 - INTRODUCTION

INTRODUCTION

Tumours of salivary glands constitute a small percentage among all the tumours of the body . Benign tumours are more common than malignant ones .

The salivary glands are classified as major and minor and are parincipally ringed in a roughly U-shaped pattern around the oral cavity .

Great advances have been occured recently as radiological and scanning techniques which helps in early diagnosis and proper management .

2 - SURGICAL ANATOMY

ANATOMY OF SALIVARY GLANDS

Anatomy of the parotid gland

The parotid gland is the largest of the 3 major paired salivary glands , and it has an average weight of about 25gm . It forms an irregular , lobulated yellowish mass , lying below the external acoustic meatus , between the mandible and the sternocleidomastoid muscle . It projects foreward on to the surface of the masseter muscle , where a small part of it , usually more or less detached , lies between the zygomatic arch above and the parotid duct below , this detached portion is called the accessory part of the gland .

The musculoskeletal bed of the parotid gland :

The parotid gland lies in and superfacially overlaps the borders of a musculoskeletal recess formed by portions of the temporal bone , atlas and the mandible , and their related muscles . The bony fossa is limited posteriorly by the anterior surface of the mastoid process . Its superior margin is formed postersuperiorly by the conves surface of the external acoustic meatus (the cartilagenous portion superficially and osseous portion more deeply) , and antero superiorly by the head of the mandible articulating in the mandibular fossa .

The mandibular ramus is an anterior limit . Marking the medial wall of bony recess superiorly is the styloid process with its sheath , and the lower down , the prominent tip of the transverse process of the atlas .

The mastoid process forms the posterior limit .

The muscles having origin from or insertion on the framework outlined above , complete the musculosketelal bed of the parotid gland . The mastoid process is hidden from view by the insertion of the strenocleidomastoid muscle . The medial wall of the fossa is covered by the posterior belly of the digastic muscle and those muscles originating from the styloid process . Its anterior border overlaps the tip of the transverse process of the atlas . The styloglossus , stylohyoid , and stylopharyngeus muscles pass anterior to the transverse process of the atlas and fan out to their insertion , from above downwards as named . Anteriorly , three muscles insert on the ramus of the mandible , the masseter laterally and the two pterygoid muscles medially .

The gland is enclosed within a capsule derived from the deep cervical fascia ; (the fascia colli) . At the lower pole of the gland the general investing layer of this fascia splits to enclose it . The deeper of the two layers passes up under the gland to be attached to the base of the skull . The more superfacial layer passes up lateral to the masseter muscle to be attached to the zygomatic arch ; it is this layer which is called the parotidomasseteric fascia .

It is of great strength and density which accounts the sever pain produced by the inflammatory swellings of the gland , and it is clossely adherent to it (Du Plessis,1975) . A portion of the fascia attached to the styloid process and the angle of the mandible is thickened to form stylomandibular ligament which

intervenes between the parotid and submandibular glands , and is pierced by the cervical part of the facial artery .

Davis and Co-workers (1956) described the facial investment of the gland as superfacial and deep layers of connective tissue that fuse peripherally to enclose it . They further described the continuity of this fascia with numerous septa passing inbetween the lobules of the gland , as well as the connective tissue surrounding the intraglandular portion of the facial nerve .

All surgical procedures in the parotid region are facilitated by the existence of these fascial elements . The presence of these fascial prolongations within and between then parotid lobules makes possible techniques of blunt dissection by which damage to the facial nerve is best avoided (Beahers,1977) .

The parotid gland is roughly pyramidal in shape , it presents a small , superior surface and superficial , anteromedial and posteromedial surfaces . The lower part of the gland tapers to blunt extremity . The superior surface is concave and is related to the cartilagenous part of the external auditory meatus ,and to the posteriorsurface of the tempromandibular joint .

The lower extremity of the gland overlaps the posterior belly of digastric and the caratid triangle to a variable extent .

The superfacial surface is covered by skin and the superfacial fascia (deep cervil) ,containing the facial branches of the great auricular nerve , the superficial parotid lymph nodes and the platysma . It extends upwards to the zygomatic arch , backwards to overlaps the anterior border of sternocleidomastoid ,

downwards to its apex behind and below the angle of the mandible and forwards across the superficial surface of the masseter below the parotid duct .

The anteromedial surface is grooved by the posterior border of the ramus of the mandible . It covers the postero inferior part of the masserter, the lateral aspect of the tempromandibular joint and the adjoining part of the mandibular ramus , and the medial pterygoid muscle deep to it . The branches of the facial nerve emerge on the face from under cover of the anterior margin of this surface .

The posteromedial surface of the gland is molded on the mastoid process and the sternocleidomastoid muscle , the posterior belly of the digastric , the styloid process and its groupe of muscles . The external carotid artery grooves this surface before it enters the substance of the gland . The internal carotid artery and internal jugular vein are separated from the gland by the styloid process and muscles . The anteromedial and posteromedial surfaces meet along a medial margin which may project so deeply to be in contact with the side wall of the pharynx .

STUCTURES WITHIN THE GLAND

* The external carotid artery pierces the posteromedial surface of the parotid gland . It divides into two terminal branches within the gland . One of these branches - the maxillary artery - leaves the anteromedial surface of the gland and runs forwards

deep to the neck of the mandible ; while the other - The superfacial temporal artery - gives off its transverse facial branch , and then ascends to appear at the upper limit of the gland . The posterior auricular artery may rise from the external carotid artery within the gland , and it then leaves the latter on its postermedial surface .

* The posterior facial vein (the retromandibular vein) , formed in the upper part of the gland by the union of the maxillary and superfacial temporal veins , which enter the gland at the points of exit of their corresponding arteries . It lies superficial to the interglandular part of the external carotid artery . At its lower end , while in the parotid gland , it divides into anterior and posterior branches .

The posterior branch joins the posterior auricular vein to form the external jugular vein , while the anterior branch joins the anterior facial vein to form the common facial vein which drains into the internal jugular vein .

On a still or more superficial plane , The facial nerve transverses the gland . It enters the upper part of the posteromedial surface , and passes forwards and downwards behind the posterior border of the ramus of the mandible where it divides into two main divisions from which its five terminal branches arise . These 5 branches leave the anteromedial surface of the gland above , infront and below it , and pass to their destination from under cover of its anterior mergin .

It is agreed that the gland is divided by the facial nerve into a superficial and a subfacial plane (Du Plessis , 1975) . Parotid tumours should be removed by an anatomical dissection following the nerve forwards or its terminal branches backwards developing a plane of cleavage between the superficial and deep portions of the gland .

THE PAROTID (Stensen's) DUCT :

It is about 5cm. long . It begins by the confluence of two main branches within the gland . It crocesses the masseter muscle and at its anterior border it turns inwards nearly at a right angle to pass through the corpus adiposum and the buccinator muscle . It pierces the mucous membrane of the mouth and opens upon a small papilla on the oral surface of the cheek opposite the crown of the second upper molar tooth . While crossing the masseter muscle , it receives the duct from the accessory portion of the gland . In this position it lies between the upper and lower buccal branches of the facial nerve , with the accessory part of the gland and the transverse facial artery are above it . The duct can be felt in the living , either on the face or more easity from the mouth , as it dips forwards at the anterior border of the masseter mescle by pressing the index finger backwards on this border of the muscle while the teeth are clenched to make it tense , and moving the finger up and down across the line of the duct (Davis , 1969) .

Vessels and Nerves :

The arteries supplying the parotid gland are derived from the external carotid artery , and from the branches given off by it in or near the gland . The veins empty into the external jugular vein , through some of its tributaries . The gland receives both sympathetic and parasympathetic nerve supply .

Preganglionic parasympathetic fibers which are destined to end in the parotid gland begin in the inferior salivary nucleus of the brain stem . These fibers leave by the way of the glossopharyngeal nerve , enter the tympanic plexus of nerves in the middle ear from where they exit without synapse , then run in the middle cranical fossa as the lesser superficial petrosal nerve , and finally reach the otic ganglion by way of the foramen ovale . In the otic ganglion , they synapse with postganglionic parasympathetic fibers which then join the auriculotemporal nerve and leave this nerve during its course in the parotid gland . Those postanglionic parasympathetic fibers are secretory and motor fibers (secretomotor) to the blood vessels of the parotid gland

The sympathetic innervation of the parotid controls vasoconstriction of the vessels of the glandular tissue . The preganglionic sympathetic fibers which ultimately affect the parotid gland originate in the spinal cord , in the lateral horns of the first and second thoracic segments . They go on to the cervical sympathetic ganglia where they synapse with postganglionic fibers . Most of these fibers join the internal and external carotid arteries and are carried with the