SURGERY OF THE PAROTID GLAND

AN ESSAY

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General Surgery

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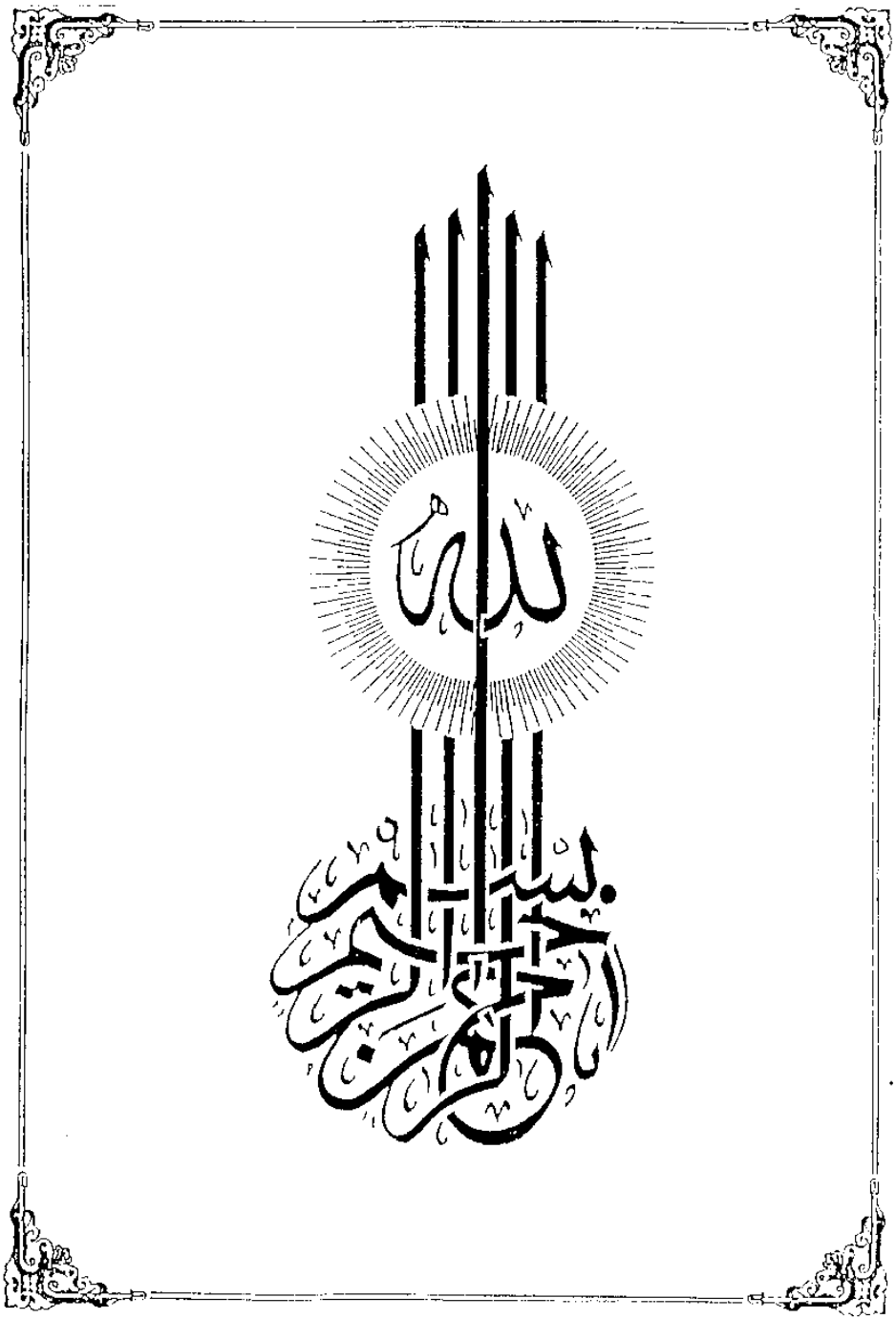
DEDICATED ;

TO MY FAMILY



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INTRODUCTION

INTRODUCTION

Tumours of salivary glands in general constitute about 5% of head and neck tumours, and affect major salivary glands about 5 times more ofen than minor glands.

The incidence of malignancy among salivary gland tumours varies inversely with the size of the gland, and about 25% of parotid tumour are malignant.

Since 70% of salivary gland tumours occur in the parotid gland, and the three fourths of these are benign; so the majority of salivary gland` neoplasms are benign.

Parotid tumours occur predominantly in the white population. An incidence of 90% is given by **Byrne,(1988)**.

Benign tumours tend to occur in the younger age group in the fifth decade of life, while patients with malignant neoplasms tend to be older. And non neoplastic lesions occur in younger age group.

Salivary tumours are thought to originate from two cell types; ***intercalated*** and ***excretory duct*** reseve cells. Myoepithelial cells are present in many salivary tumours, but rarely as the principal malignant cell type.

The commonest benign tumour is the mixed parotid tumour or"Pleomorphic adenoma " which account for about 70% of parotid tumours. Although benign they recur unless completely removed.

Enucleation is inadequate and when the tumour recurs the facial nerve is at great risk from damage during re-operation than it was during initial procedure. Other benign tumours of the parotid gland include adenolymphomas, oncocytomas which are composed of large oxyphilic cells called oncocytes with its cytoplasm packed with mitochondria, and monomorphic adenomas which are rare parotid tumours, usually epithelial in origin.

Malignant tumours of parotid include Mucoepidermoid carcinoma which is the most common parotid cancer. Acinic cell carcinoma derived from serous acinar cells and thus are found almost exclusively in the parotid gland. The uncommon Adenoid cystic carcinomas which have a great propensity for local recurrence even after 15 years and perineural invasion. Less common malignant tumours include carcinoma arising in a pleomorphic adenoma and primary squamous cell carcinoma.

Metastatic parotid tumours arise mostly from regional disease, and more rarely are metastatic malignant melanoma, metastatic synovial cell sarcoma from temporomandibular joint, metastatic sebaceous cell carcinoma from the eye lid and metastatic basal cell carcinoma from the auricle.

Non neoplastic parotid gland swellings constitute 15% of all parotid masses, and include 7.8% calculous sialoadenitis, 4.3% sialolithiasis, 1.7% post-radiation parotitis, 0.9% cysts, 3.9% lipomas, 1.7% granulomatous disease, and 1.3 hyperplastic lymph nodes **(Byrne, 1988).**

Parotid surgery is hazardous and carries the risk of recurrence and injury to the facial nerve or one of its branches. More and more frequently we see patients with parotid tumours who have already been operated on unsuccessfully and they have been sent elsewhere for definitive treatment. This unsuccessful management is due to wrong operative procedures such as enucleation and incisional biopsy. A great part of the hazard entailed in parotid surgery is due to failure to safeguard the facial nerve and its branches during surgery. Hazards also include operative bleeding, Frey's syndrome, salivary fistula, local recurrence and bad cosmetic results.

The proper knowledge of surgical anatomy of the parotid gland and facial nerve is necessary for the correct performance of parotid operations.

In the surgical removal of parotid tumours there are at least two cardinal principles ; **first** , the tumour must be completely removed,and **second** , unnecessary injury to the facial nerve or its larger branches must be avoided whenever possible.

The best method for avoiding such injury is " The routein exposure and identification of the nerve". It's certainly a sound practice to identify any important structure in an operation when it's liable to damage, while injury to the facial nerve is not vitally damaging, the resultant cosmetic deformity brings great pcychic distress to the patient due to loss of facial expression. The most serious sequela from a functional standpoint is an inability to close the eyelids which may lead to exposure and damage of the cornea.

Removal of the tumour by enucleation or excision without orderly identification of the nerve puts the nerve in jeopardy specially when this procedures are carried out through a small incision and when proper haemostasis is not obtained, in addition the tumour may rupture, seeding the operative field or may be partially removed. The high incidence of recurrences of mixed tumours of parotid glands after limited surgery (18%-30%) are of importance because they tend to grow rapidly and dissiminate far into the normal tissues.

Furthermore 25% of recurrent mixed tumours are malignant, which carry more and more risks to facial nerve (**Sadek et al., 1971**).

Aim of the Work:

The aim of this essay to present an update comperhensive review of parotid-facial nerve relations,the anatomical variations and the commonest display, together with a detailed description of common pathological entities and different surgical approaches in an attempt to clarify its hazards and complications of surgery with the possible management of these complications to be well aquainted with the safe procedures one has to adopt.

ANATOMY

ANATOMY OF THE PAROTID GLAND

The parotid gland is the largst salivary gland and has an average weight of about 25 gm. It forms an irregular , lobulated yellowish mass lying between external acoustic meatus , mandible and the sternomastoid. It projects forwards onto the surface of the masseter , where a small part of it usually more or less detached, and lies between the zygomatic arch above and the parotid duct below. This detached portion is named the accessory part of the gland. **(Williams and Warwick, 1980).**

Parotid fascia:

In its development, parotid gland grows into the fascia of its region and becomes dissiminated through it rather than growing within a well defined capsule (**Romanes, 1975).**

The capsule of the gland is derived from the deep cervical fascia; the part covering its superficial surface is dense, closely adherent to the gland, and attached to the zygomatic arch. The deep part of the capsule is attached to the styloid process, mandible and tympanic plate and blends with the fibrous sheath of the muscles related to the styloid process and the angle of the mandible is thickened to form the stylomandibular ligament, which intervenes between the parotid and submandibular gland (**Williams and Warwick,1980).**

Gross anatomy:

The parotid is an inverted, flattened, three-sided pyramid; it presents small superior surface, superficial, anteromedial , and posteromedial surfaces. The lower part of the gland tapers to a blunt apex (**Romans, 1975).**

Surfaces of the gland :

The superior surface: is concave and is related to the cartilagenous part of external acoustic meatus and the posterior surface of the temperomandibular joint ; the auriculo temporal nerve winds round the neck of the mandible, embedded in the gland or in the capsule around it. (**Bailey, 1948).**

The apex of the gland overlaps the posterior belly of diagastric muscle and the carotid triangle to a variable extent.

The superficial surface (lateral surface) :is covered with skin and the superficial fascia which contain the facial branches of great auricular nerve, the superficial parotid lymph nodes and the posterior border of platysma. It extends upwards to the zygomatic arch, backwards to overlap slightly the anterior border of the sternomastoid muscle, downwards to its apex behind and below the angle of the mandible, and forwards across the superficial surface of masseter below the parotid duct.

The anteromedial surface: is grooved by the posterior border of the ranus of the mandible . It covers the posteroinferior part of the masseter, the lateral aspect of the temporomandibular joint and the adjoining part of the mandibular ramus , and passes forwards on the deep aspect of the ramus to reach the medial pterygoid. The branches of the facial nerve on the face form under cover of the anterior margin of this surface.

The posteromedial surface: is moulded to the mastoid process and the sternocleidomastoid and to the posterior belly of digastri, the styloid process and the styloid group of muscles. The external carotid artery grooves this surface before it enters the substance of the gland. The internal carotid artery and internal jagular vein are separated from the gland by the styloid process and the styloid muscles. The anteromedial and posteromedial surfaces meet along a medial margin which may project so deeply as to be in contact with the side wall of the pharynx (**Williams and Warwick, 1980).**

Borders of the gland:

The anterior border : separates the superficial surface from the anteromedial surface. It usually extends from the caudal extemity obliquely, cranially and ventrally to the parotid duct and then dorsally to the posterior border of the external ear so as to form two sides of the triangular superficial surface. Near the superior extent of the anterior border the parotid duct leaves the gland. The branches of the facial nerve also emerge from under the anterior border.