SIALORRHEA

Thesis

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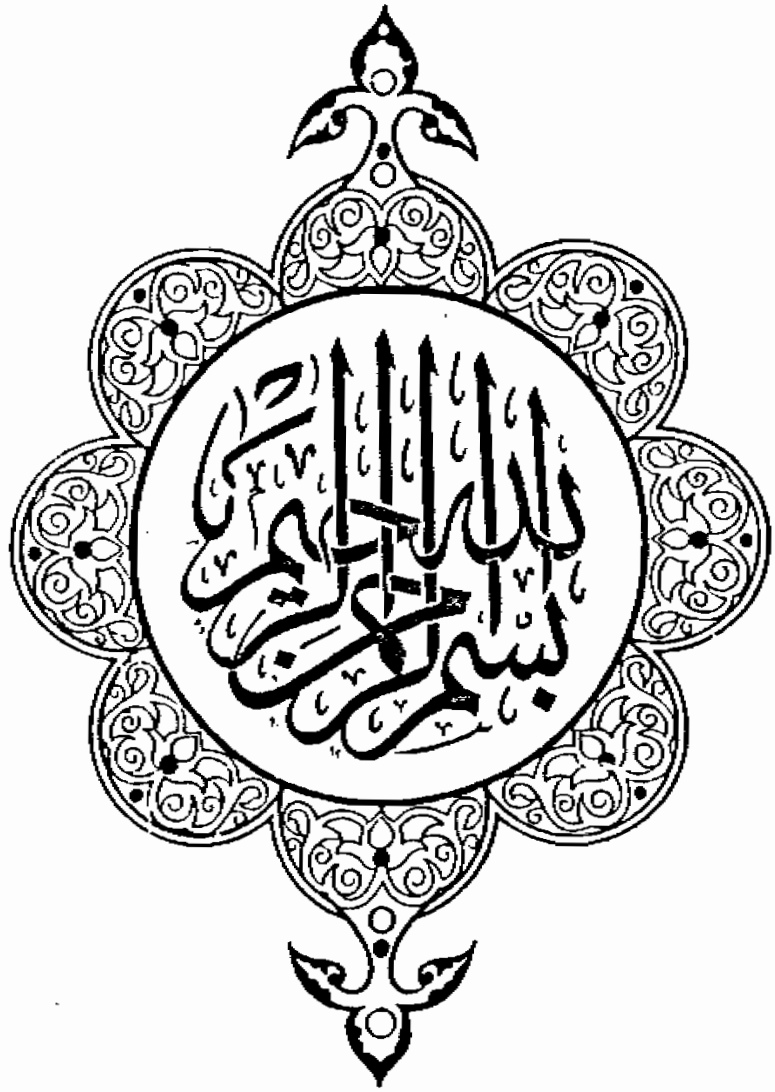

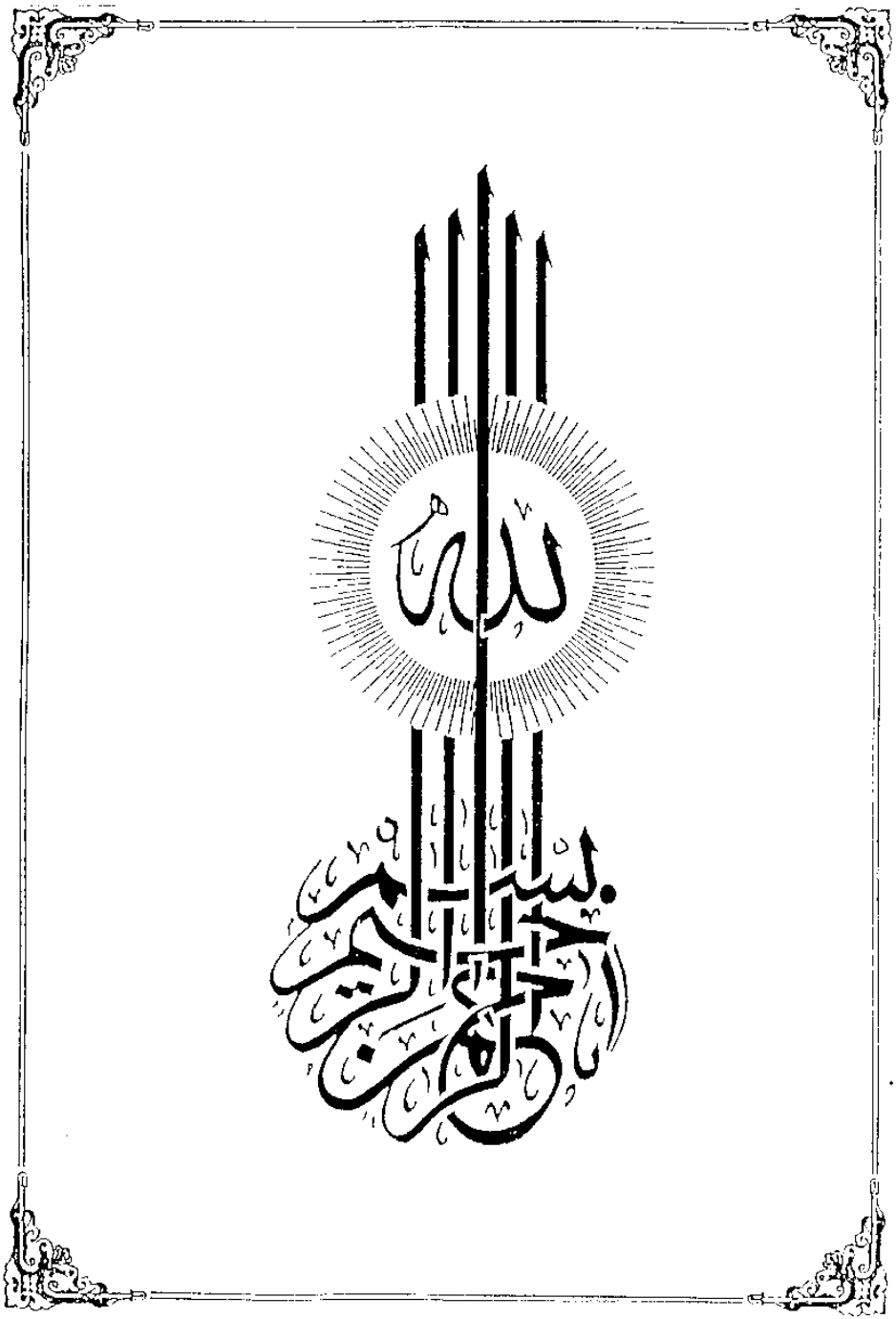

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INTRODUCTION

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Saliva serves a broad spectrum of physiologic needs and is critical for maintaining oral health and promoting normal functions of all tissues of the mouth.

During infancy, drooling is accepted as a normal part of development, after this period, salivary incontinence is culturally unacceptable.

Drooling (sialorrhea) is a problem on many conditions including cerebral palsy, motor neurone disease, head injury, ... etc. It increases the burden of an individual already severely handicapped socially. Of all problems, the social stigma attached to drooling is the most serious and can cause isolation, demolarization and depression.

The aim of the work is to review the literature concerning the subject of sialorrhea. This will be supplemented by experimentally induced unilateral chorda tympani nerve sectioning of ten guinea pigs as a method of surgical control for sialorrhea.

Many attempts to develop an effective treatment have been made to give successful control of drooling which can transform the quality of life for the sufferer not least improving his appearance and self-esteem. Unfortunately, recurrence of symptoms after successful management is not uncommon.

REVIEW

OF

THE LITERATURE

ANATOMY OF THE SALIVARY GLANDS

*The salivary glands are exocrine glands whose secretions flow into the oral cavity, conventionally, a distinction is made between two groups:-

The major salivary glands:-

They comprise three pairs of large glands (parotid, submandibular and sublingual) which lie at some distance from the oral mucosa, with which they communicate through one or more extraglandular ducts.

The minor salivary glands:-

They include the anterior lingual glands, von Ebner's glands in the mucous membrane of the tongue, labial, buccal and palatal glands which lie in the mucosa or submucosa and open directly or indirectly via many short excretory (collecting) ducts, on to the epithelial surface of the mucosa.

Descriptive Anatomy

Major Salivary Glands

The Parotid Gland:-

It is the largest gland, having a lobulated irregular wedge shape and an average weight of about 25 gm. It lies as a silver which insinuates itself into the gap between the condyle of the mandible and external auditory meatus, downwards filling the retromandibular sulcus (Shaheen, 1987)

The outer aspect of the gland is covered by an extension of the deep cervical fascia which is continuous posteriorly with the fascial envelop of the sternomastoid muscle, anteriorly with the fascia covering the masseter muscle, superiorly the external layer of the parotid fascia is bound firmly to the zygomatic arch. While inferiorly it blends with the deep cervical fascia anterior to the sternomastoid muscle. The posteromedial deep extension blends with the styloid and deep to that with the carotid sheath, however, from the styloid process to the angle of the mandible, it condenses into a tough band called the stylomandibular ligament. The fascia offers considerable resistance to swelling of the gland externally while its absence on the deep surface allows extension of suppuration to the parapharyngeal space, the fascia also sends strong septa dividing the gland into lobules.

The parotid gland is like an inverted 3, sided pyramid; it presents a small superior, superficial, anteromedial, and posteromedial surfaces. The lower part of the gland tapers to a blunt apex.

The Superior Surface:

Is related to the cartilagenous part of the external acoustic meatus and to the posterior surface of the temporomandibular joint.

The Superficial Surface:

Is covered with the skin and the superficial fascia which contains the facial branches of the great auricular nerve, The superficial parotid lymph nodes and the posterior border of the platysma. It extends upwards to the zygomatic arch, backwards to overlap slightly the anterior border of the sternomastoid, 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 related from outwards inwards to the masseter, to the posterior edge of the ascending mandibular ramus, lateral aspect of temporomandibular joint and to back edge of the medial pterygoid muscle.

The posteromedial surface:

Is moulded to the mastoid process, the sternomastoid muscle, the posterior belly of the digastric muscle and the styloid process and the styloid group of muscles separating it from the internal carotid artery and internal jugular vein.

The anteromedial and posteromedial surfaces meet along a medial margin in contact with the side wall of the pharynx.

*Structures Traversing The Gland:

*The Facial nerve:

The main trunk of the facial nerve enters the posteromedial surface of the parotid gland about one cm from its emergence from the skull through the stylomastoid foramen about midway between the angle of the mandible and the cartilagenous ear canal.

About one cm from its entrance into the gland, the nerve divides into six branches namely: Temporal, upper and lower zygomatic, buccal, mandibular and cervical with varying patterns of anastomosis between the individual branches, in most individuals an initial bifurcation forms upper temporo-facial and a lower cervico-facial division; before final division.

In general, the nerve and its branches lie in a plane dividing the deep and the superficial portions of the gland, but there is no true facial plane between these portions.

Great Auricular Nerve:

It runs upwards and slightly forwards on the deep cervical fascia covering the outer aspect of the sternomastoid to innervate the skin and fascia overlying the parotid gland (Shaheen, 1987).

Auriculo-Temporal Nerve:

It comes into contact with the gland as it winds its way round the neck of the mandibular condyle and then ascends anterior to the external auditory canal just behind the superficial temporal vessels (Shaheen, 1987).

Arteries:

The external carotid artery: enters through the posteromedial surface and divides into its terminal branches within its substance. One of these branches -The Maxillary artery - emerges from the anteromedial surface and runs forwards medial to the neck of the mandible.

The other - the superficial temporal artery- gives off its transverse facial branch and then ascends to exit from the upper limit of the gland.

The posterior auricular artery: may start from the external carotid artery within the gland and it then leaves the latter on its postero-medial surface.

Veins:

The superficial temporal vein enters the superior border of the parotid gland and receives the maxillary vein to become the posterior facial vein. Still within the gland the latter divides, the posterior branch joins the posterior auricular vein to form the external jugular vein while the anterior branch emerges from the gland to enter the common facial vein.

The vein is superficial to the artery deep to the facial nerve.

The Parotid duct: (The Stensen duct):

It is about 5 cm long. It begins by the confluence of two main branches within the anterior part of the gland, crosses the masseter, and at the anterior border of this muscle turns inwards nearly at a right angle piercing the buccinator; it then runs for a short distance obliquely forwards between the buccinator and 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 it receives the duct of the accessory lobe.

Relations of the parotid duct:

At the masseteric part of the gland, it lies between the upper and lower buccal branches of the facial nerve. The accessory part of the gland and the transverse facial artery are above it. The buccal branch of the mandibular nerve lies just below the duct at the anterior border of the masseter.

Blood Supply:

The external carotid artery and its terminal branches within the gland, namely: The superficial temporal artery and the maxillary artery . The veins drain into the posterior facial vein.

Lymph Drainage:

The parotid lymph nodes and deep cervical lymph nodes.

The Submandibular gland:

It occupies a triangle in the upper part of the neck medial to the inferior margin of the body of the mandible consisting of an oval-shaped main (superficial) part situated in the digastric triangle partly under cover of the body of the mandible, and another small (deep) part lying in the floor of the mouth above myelohyoid muscle, both portions are continuous around the free posterior border of this muscle.

Superficial portion:

Forwards, it reaches to the anterior belly of the digastric muscle, backwards, to the stylomandibular ligament separating it from the parotid gland,above it extends under cover of the body of the mandible, below, it usually overlaps the intermediate tendon of the digastric and insertion of the stylohyoid muscles.

It has three surfaces, an inferior , a lateral and a medial surfaces, and is partially enclosed between two layers of the deep cervical fascia which extend from the greater cornu of the hyoid bone downwards, and the lower border of the mandible, and myelohyoid line on the medial surface of the mandible.

Inferior Surface:

Is covered by the skin, platysma and deep fascia. It is crossed by the facial vein, the cervical branch of the facial nerve and the submandibular lymph nodes.

Lateral surface:

Is related to the submandibular fossa on the medial surface of the body of the mandible and medial pterygoid muscle insertion,the facial artery is embedded in a groove in the posterosuperior part of the gland lying first deep to it and then emerging between the lateral surface of the gland and the insertion of the medial pterygoid to reach the lower border of the mandible.

Medial surface:

Is related in front, to the myelohyoid separated from it by the myelohyoid nerve and vessels and by branches of the submental vessels. Posteriorly, to the styloglossus, stylohyoid ligament and IX nerve which separates it from the wall of the pharynx, in the intermediate part, to hyoglossus separated from it above downwards by the styloglossus, the lingual nerve, the submandibular ganglion, the XII nerve and the deep lingual vein.

The Deep portion:

It extends forwards as far as the posterior end of the sublingual gland and lies in the intermuscular interval between the myelohyoid below