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ROLE OF RADIOLOGY AND IMAGING
IN OROPHARYNGEAL DYSPHAGIA

THESIS

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Requirement of the Master Degree
(Radiodiagnosis)

BY

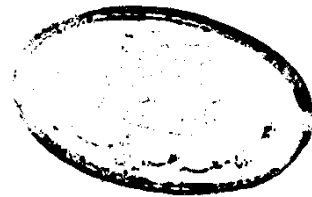
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A C K N O W L E D G M E N T

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INTRODUCTION AND AIM OF WORK

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The swallowing disorder is a common complaint, and frequently signifies functional or organic disease.

A cause should always be thought since treatment is often possible and malignancy is not uncommon. Dysphagia may be due to oral, oropharyngeal, oesophageal or psychogenic causes.

The aim of this work is to assess the role of radiology and different imaging modalities in the diagnosis of the oropharyngeal causes of dysphagia.

In order to fulfill this aim a short note on the anatomy of this region and the pathology of the different causes is first given.

CHAPTER I

ANATOMY OF OROPHARYNGEAL REGION

A N A T O M Y

Oral Cavity:

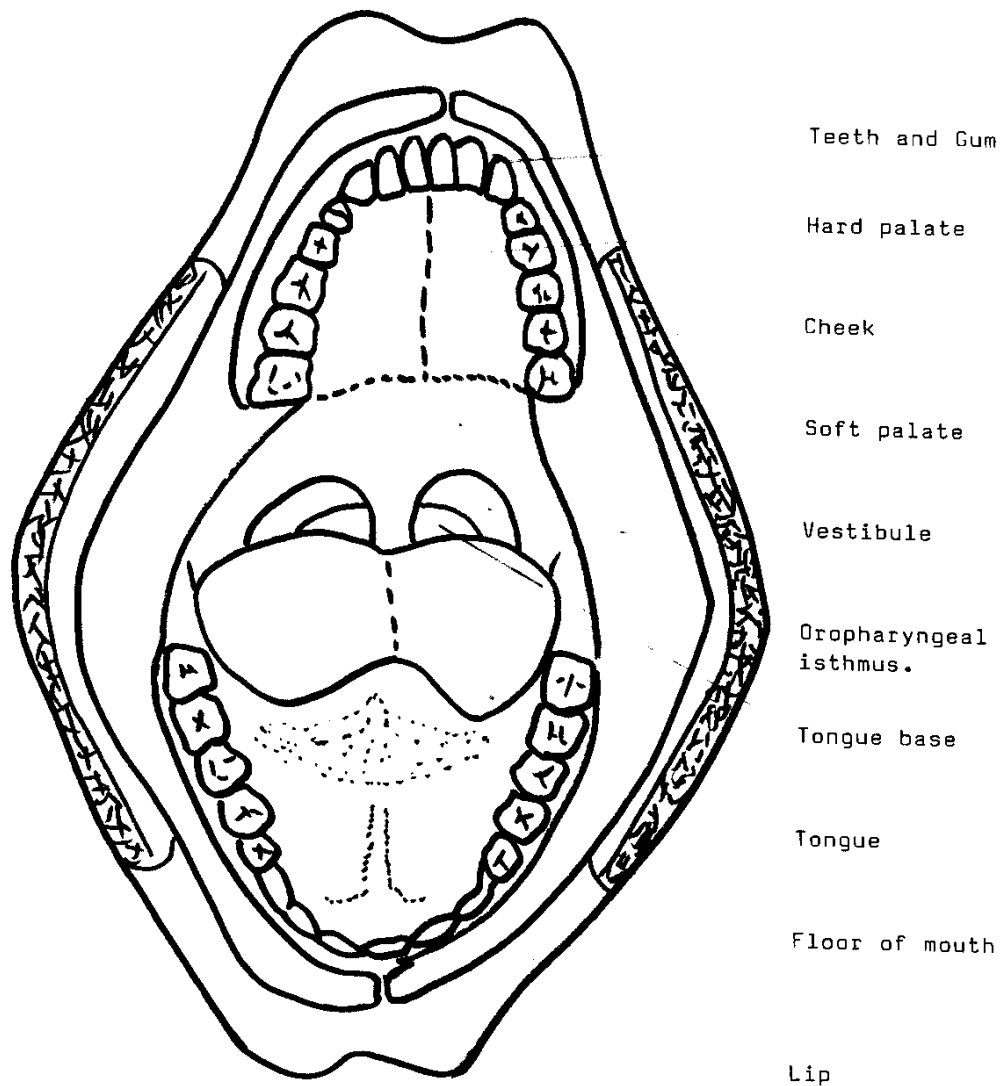
Oral cavity is the portal of entry to the aerodigestive tract ; it extends from the lips anteriorly to the faucial arches posteriorly. The cavity of the mouth comprises a smaller external portion, the vestibule and a larger internal portion the oral cavity proper (Fig.1) (Gardner et al., 1975).

The vestibule is the cleft between the lips and cheeks externally and the teeth and gum internally.

The roof and floor of the vestibule are formed by the reflection of mucous membrane from the lips and cheeks to the gum.

The oral cavity proper is bounded in front and on each side by the alveolar arches , the teeth and the gum. It communicates behind with the oropharynx by means of an opening termed the oropharyngeal isthmus, which is demarcated on each side by the palatoglossal arches.

The roof of the oral cavity is the hard palate. The floor is largely occupied by the tongue, which is supported



(Fig. 1)

The Oral Cavity

The oral cavity extends from the vermillion border of the lips to the posterior margin of the hard palate and the junction of the glosso-palatine folds with the tongue. The soft palate and the base of the tongue are oropharyngeal structures.

Quoted from (Gardner et al., 1975).

by muscles and other soft tissues in the internal between the halves of the body of the mandible. These soft tissue structures are collectively termed the floor of the mouth. They particularly include the two mylohyoid muscles which form the diaphragma oris (Gardner et al., 1975).

The roof of the oral cavity is the hard palate. It is made by the palatine plates of the maxillae forming the anterior two thirds and the horizontal plate of the palatine bones forming the posterior third. The hard palate is covered by mucoperiosteum containing blood vessels, nerves and large number of palatine glands. Its epithelium is keratinizing, stratified squamous in type, (Breathnach, 1965).

The masseter and temporalis muscles as well as the medial and lateral pterygoid muscles retract or elevate the mandible. When acting unilaterally they achieve a side-to-side movement of the mandible. These muscles are innervated from the Trigemini (N.V.) (Ekberg and Hillarp, 1986).

The Tongue:

The tongue is a mobile organ which bulges upwards from the floor of the mouth, and its posterior part

forms the anterior wall of the oral part of the pharynx (Romanes, 1975).

It made up of paired sets of extrinsic and intrinsic muscles on either side of a fibrous lingual septum (Lufkin et al., 1986)^a.

The intrinsic muscles are really four interdigitating bundles of muscles fibers with characteristic orientations. The superior and inferior longitudinal fibers run from the tongue tip to the base. The vertical fibres extend from the mucosa downward. The transverse fibres attach to the fibrous septum and extend laterally (Lufkin et al., 1986)^a.

The extrinsic tongue muscles are in three sets: the genioglossus and the hyoglossus and styloglossus which are attached to the genial tubercle of the mandible, the hyoid bone, and the styloid process, respectively (Lufkin et al., 1986)^b. It is covered by stratified squamous epithelium and separated from the teeth by a deep alveololingual sulcus which is filled in by the palatoglossal fold posterior to the last molar tooth. In the depths of the sulcus the mucous membrane passes from the root of the tongue across the floor of the mouth on to the internal

aspect of the mandible. Internal to the sulcus, the root of the tongue contains the muscles which connect the tongue to the hyoid bone and mandible, and transmits the nerves and vessels which supply it (Romanes, 1975).

Innervation to the tongue is provided by the hypoglossal nerve (Motor) and lingual nerve (Sensory) to the anterior two thirds, the glossopharyngeal nerve (Sensory) to the posterior third (Last, 1978).

Blood supply of the tongue is via the lingual artery and veins that course between the interdigitation of the hyoglossus and styloglossus and the genioglossus muscles (Last, 1978).

The lymphatic drainage of the base of the tongue, consisting of the posterior third, from the lingual groove to the valleculae, drains bilaterally into the jugular nodes. The anterior part of the tongue drains into the submental and submaxillary nodes before reaching the jugular nodes (Bruneton et al., 1986).

The Fauces (Throat):

The opening of the mouth into the pharynx is not well defined, but its root can be taken to be the back