Introduction

The tongue is an anatomically complex muscular structure. Three-dimensional ultrasound is a practical and economical imaging technique that provides data about the three-dimensional structure of the partially resected and reconstructed tongue **(Bressmann et al., 2007).**

Ankyloglossia is the result of a short, fibrous lingual frenum or a highly attached genioglossus muscle, which may be partial or complete. Incidence ranges from 0.04% to 0.1% with an equal male to female ratio. Diagnosis is made when the tongue cannot contact the hard palate and when it cannot protrude more than 1 to 2 mm past the mandibular incisors. Complete ankyloglossia is present when there is a total fusion between the tongue and floor of mouth **(Mueller and Callanan, 2007).**

Fissuring of the tongue, or lingua plicata, is believed to be an inherited trait found in 0.5% to 5% of the general population. When found in association with persistent and recurrent orofacial swelling and facial nerve palsy it may be part of the Melkersson-Rosenthal syndrome, a rare granulomatous disease of unknown cause. No specific therapy is required for tongue fissures alone, although brushing the tongue surface should be advised to remove any trapped food particles **(Winnie and DeLuke, 1992).**

Median rhomboid glossitis presents as a well-demarcated, depapillated, pink- to plum-colored patch on the dorsal surface of the tongue. This patch may be round to rhomboid in shape and ranges from 0.5 to 2.0 cm wide. Most lesions are found immediately anterior to the foramen cecum at the location of the embryologic tuberculum impar, but may present off-center or more posteriorly. Some patients describe persistent pain, irritation, or pruritus, whereas others

remain asymptomatic. Cause has traditionally been considered developmental because of its consistent location at the site of the tuberculum impar. Ectopic thyroid tissue develops because of failed or incomplete descent of thyroid tissue during embryogenesis. The tissue can be located at any point along the normal path of descent from the foramen cecum to the low neck; however, 90% are found at the posterior tongue in the midline **(Mueller and Callanan, 2007).**

Causes of congenital enlargement of the tongue include vascular malformations, hemihyperplasia, cretinism, Beckwith-Wiedemann syndrome, Down syndrome, mucopolysaccharidoses, neurofibromatosis, and multiple endocrine neoplasia, type 2B. Severity can range from mild to severe, with drooling, speech impairment, difficulty eating, stridor, and airway obstruction **(Cohen, 2005).**

Extreme microglossia is uncommon, with fewer than 50 cases described. Isolated microglossia occurs, but most cases are found in association with limb abnormalities. Gorlin classified hypoglossia–hypodactylia syndrome, one of the oromandibular-limb hypogenesis syndromes **(Thorp et al., 2003).**

Epidermoid and dermoid cysts are benign lesions, occasionally (1.6%) located within the oral cavity. These are true cysts with a wall composed of keratinized, stratified squamous epithelium and, in the case of dermoid cysts, fibrous connective tissue containing one or more skin appendages. They usually present early in life as asymptomatic masses and are treated by simple excision **(Bitar and Kumar, 2003).**

Mucoceles are common lesions of the oral mucosa resulting from leakage of salivary mucin into the surrounding soft tissues with a granulating tissue response. Because these cysts lack a true epithelial lining, they are classified as pseudocysts. The most common location is the lower lip, where 60% are found

(Andiran et al., 2001). Tongue abscesses seem to be very uncommon infections, in so far as little mention is made of them in most modern textbooks. Over the last 30 years, 50 cases of glossal abscess have been reported in the English literature, consisting mostly of single-case reports **(Brook, 2002).**

The base of the tongue is the posterior third of the tongue or the part posterior to the circumvalate papilla. It extends inferiorly to end at the level of vallecula and houses the lingual tonsil **(Mukherji et al., 1997).**

SCC of the base of the tongue is often occult and asymptomatic; the lesions are often large by the time they cause symptoms, such as dysphagia or referred ear pain. Some patients present with nodal metastases without signs of a primary tumor **(Mukherji, 2003).**

The imaging of oral cancers involves the evaluation of the primary neoplasm as well as searching the neck for metastases to lymph nodes. In most hospitals, primary oral neoplasms, like other head and neck neoplasms; usually are evaluated by CT and MRI. The search for lymph node metastases also is usually performed with one of these modalities. Positron emission tomography (PET) is usually reserved for equivocal cases in institutions where it is available. It can be used to evaluate the primary neoplasm and to search for metastases. Some institutions also use ultrasound (US) to evaluate lymph nodes. Each of these modalities may play a role in the full evaluation of a patient who has an oral neoplasm **(Simon and Rubinstein, 2006).**