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Tongue Lesions - A Review

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Abstract

Tongue is a vital organ within the oral cavity that has varied function,and it may act as an index for the underlying systemic diseases.The investigation of the tongue diseases may begin with mere clinical examination .This review is to highlight the signs and symptoms of the various lesions that affects the tongue and especially to talk in brief about the benign and malignant tumours that affect the tongue along with other inherited and congenital abnormalities.Tongue lesions are categorized as tumours,infections,reactionary,congenital,developmental,acquired,autoimmune and potentially malignant disorders for easy understanding and to arrive at appropriate diagnosis.Tongue playing an important role in maintaining the harmony in the oral environment,it should be treated from diseases.

Keywords: Tongue lesions,benign tumours,malignant tumours,diseases of tongue.

CLASSIFICATION OF LESIONS AFFECTING THE TONGUE.

BENIGN TUMOURS OF THE TONGUE

- Capillary hemangioma
- Fibroma
- Cavernous hemangioma
- Giant cell granuloma
- Lipoma
- Lymphangioma
- Schwannoma

MALIGNANT TUMOURS OF TONGUE

- Squamous cell carcinoma
- Veruccous carcinoma
- Non-Hodgkin's lymphoma

TRAUMATIC/REACTIONARY LESIONS OF THE TONGUE

- Fibrous reactive hyperplasia
- Traumatic ulcer
- Pyogenic granuloma
- Frictional keratosis

INFECTIOUS LESIONS OF TONGUE

- Oral squamous papilloma
- Oral hairy leukoplakia

- Candidiasiis
- Median rhomboid glossitis
- Sublingual abcess

INHERITED,CONGENITAL,DEVELOPMENT AND ACQUIRED ABNORMALITIES OF TONGUE

- White sponge nevus
- Foliate papillitis
- Angina bullosa hemorrhagica
- Geographic tongue
- Fissured tongue
- Median rhomboid glossitis
- Bifurcated/tetrafurcated tongue
- Bald;depapillated tongue
- Papillomatous change

AUTO IMMUNE DISORDERS

- Lichen planus
- Vesiculobullous lesion

POTENTIALLY MALIGNANT DISORDERS

- Leukoplakia
- Oral submucous fibrosis

BENIGN TUMOURS OF TONGUE

Capillary hemangioma

Capillary hemangioma,a benign tongue lesion.Clinically,capillary hemangioma is a smooth or lobulated exophytic lesion manifesting as small, red erythematous papules on a pedunculated or sometimes sessile base, which is usually hemorrhagic and compressible[1.]Clinically the lesion is slow, asymptomatic and

painless but it may also grow rapidly.Treatment includes observation for spontaneous remission and using topical, intralesional and systemic corticosteroids, cryosurgery, radiation, embolization and laser therapy.

Fibroma

Traumatic or Irritational fibroma is a common benign exophytic and reactive oral lesion that develops secondary to injury[2].Fibroma is a result of a chronic repair process that includes granulation tissue and scar formation resulting in a fibrous submucosal mass[3]. Recurrences are rare and may be caused by repetitive trauma at the same site. The lesion does not have a risk for malignancy.They may exhibit inflammation on the epithelial surface when traumatized .Surgical removal of the growth is needed, and the dental professional should evaluate any chronic habits that may be the causative factor.

Cavernous hemangioma

Cavernous hemangioma is formed by large, thin walled vessels, or sinusoids lined by epithelial cells separated by thin layer of connective tissue septa.It is almost never encapsulated. Treatment of the tongue vascular abnormalities is usually the preoperative endovascular embolization followed by the surgical resection of the lesion or partial resection of the tongue, depending on the size of the lesion.[4]

Giant cell granuloma

An exuberant reactive proliferation of multinucleated giant cells forming a mass on tongue.It is a reactive process with no malignant potential[5].Clinical features includes Reddish-blue rubbery nodules that range in size from a few millimeters to 3 cm.Treatment includes local surgical excision.

Lipoma

Lipomas are the most common soft tissue mesenchymal neoplasms and usually exhibit slow and asymptomatic growth.The lipoma is characterized by a significant fibrous component intermixed with the lobules of fat cells.Clinically, they usually present as well demarcated, slowly growing, painless, submucosal swellings which may appear yellowish in colour or similar in colour to the surrounding mucosa depending on the thickness of the overlying epithelium.Surgical excision is the treatment for these lesions. The recurrence rate for lipomas in tongue has been reported to be 3 – 62.5% .[6]

Lymphangioma

Lymphangioma is a rare, benign, congenital disease of unknown etiology that originates from lymph vessels [7].Tongue lymphangiomas typically demonstrate multiple blister like nodules or a pebbly surface that resembles a cluster of translucent vesicles on the enlarged dorsal surface of tongue.Lymphangiomas of tongue have been divided into four categories.This lesion is common and mostly occurs on the dorsal surface and lateral border of the tongue.The anterior two-thirds on the dorsal surface of the tongue is the most common site for intraoral lymphangiomas leading to macroglossia.Treatment is aimed at complete surgical excision. Partial surgical excision, injection of sclerosing solutions electrocoagulation, cryotherapy, embolization, steroid administration, radiation and laser surgery may be the other modalities of treatment of diffuse lymphangioma of the tongue

Schwannoma

Schwannoma is a benign, encapsulated, slow-growing and generally solitary tumour that arise from schwann cells of the peripheral nerve sheath[8].Schwannomas originate from schwann cells and are commonly encapsulated.Schwannomas of the tongue most commonly occur between the second and fourth decades of life and has no gender predilection, and often present as a painless mass.Transoral resection is the standard approach for the treatment of the vast majority of these tumours. The recurrence rate is very low and malignant transformation is very rare.

MALIGNANT TUMOURS OF TONGUE

Squamous cell carcinoma

Squamous cell carcinoma of the tongue (SCCOT) is one of the most common tumors of the head and neck region.About 95% of oral cavity cancers are squamous cell carcinoma.Usually occurs between 50 - 70 years of age[9]. Usually occurs at the dorsal surface of tongue,base of the tongue and metastasize to submandibular and jugular nodes.The most commom sign of squamous cell carcinoma on tongue is a painless mass or ulcer that becomes more painful if secondarily infected.The tumour is usually superficially indurated with slightly raised borders and proceeds to develop a fungating exophytic mass,or to infiltrate the deep layers of the tongue producing fixation and induration without much change in the surface of the tongue.The posterior portion of the tongue is usually at a high risk of malignancy,metastasize earlier and offer a poorer prognosis due to inaccessibility to treatment. Metastasis occurs at a greater frequency in case of tongue cancer.Treatment procedure is usually surgical excision and radiation therapy.

Verrucous carcinoma

Verrucous carcinoma is a rare variant of well differentiated squamous cell carcinoma that has some unique characteristics.The neoplasm is usually exophytic and appears to be papillary in nature which has a pebbly surface which sometimes covered by white leukoplakic film.The lesions commonly have rugae-like folds with deep clefts between them[10].Regional lymph nodes are often tender and enlarged.Pain and difficulty in mastication are the common complaints. Treatment includes surgery or radiation.

Non hodgkin's lymphoma

Lymphomas are malignant neoplasms of the lymphocyte cell lines.Non-hodgkin's lymphoma (NHL) of the oral region is rare. It is usually identified by asymmetry of the tongue,on digital palpation a large sub-mucosal mass usually involves the lateral border of the tongue. The most common symptoms are swelling, pain and discomfort ,involvement of the intrinsic tongue musculature causing restriction of movement, dysarthria and dysphagia[11].Occasionally, the tumor may cause upper airway obstruction.The most common treatments for non-Hodgkin's lymphoma include chemotherapy,radiation,immunotherapy including monoclonal anti bodies tyrosine kinase inhibitors,stem cell transplant and surgery.

TRAUMATIC TUMOURS OF TONGUE

Reactive fibrous hyperplasia

Reactive hyperplastic lesions are tumor-like non neoplastic proliferations due to chronic irritation or trauma.The clinical appearance of reactive lesions is very similar to that of neoplastic proliferations.Clinically it is sessile or pedunculated mass.It is few millimeters in diameter, soft and painless, that gradually gets hard and sometimes pedunculated[12].Color may be similar to mucosa or vary depending on extent of inflammation.It is generally isolated.The lesions are asymptomatic.Recurrence rate is low and treatment is surgical excision.

Traumatic ulceration of tongu

If an ulcerative lesion lasts for two weeks or longer, it is considered chronic; otherwise, it is regarded as an acute ulcer.They are caused by mechanical damage, thermal, electrical, or chemical burns.Traumatic ulcers are most common on the tongue.These lesions may persist for a few days or even several weeks.The borders of traumatic ulcers are usually slightly raised and reddish, with a yellowish-white necrotic pseudomembrane.Traumatic ulcers normally become painless within three days and after the injury has been eliminated , it mostly heals within 10 days.[13]

Pyogenic granuloma

Pyogenic granuloma or granuloma pyogenicum is a well-known oral lesion.Pyogenic granuloma of the oral cavity is known to involve the gingiva and tongue commonly[14].The etiology of the lesion is not known .It is said that pyogenic granuloma could possibly originate as a response of tissues to minor trauma and chronic irritation.Clinical features include a sessile lesion to an elevated mass. Pyogenic granulomas generally are soft, painless, and deep red to reddish-purple in color.Pyogenic granulomas have a relatively high rate of recurrence after simple excision.

Frictional keratosis

The clinical appearance can vary depending on the degree of trauma.The etiology of frictional keratosis includes mild abrasion of the mucosal membrane by sharp tooth,cheek and lip biting,irritation from masticatory function,due to constant rubbing of an external object eg.tobacco pipe or due to ill fitting or broken dentures[15].Linea alba is the term used to describe the white keratotic line on the buccal mucosa along the occlusal plane.The clinical findings can be of an ill-defined area of gray or white papules and plaques and may be associated with erosions and ulcers if the bite trauma is extensive.

INFECTIOUS LESIONS OF TONGUE

Oral squamous papilloma

Oral squamous papilloma is caused by HPV (Human Papilloma Virus).In oral cancers almost all lesions including the tongue are caused by HPV16, a subtype of the HPV virus.Researches indicates that approximately 70% of the oral cancers are caused by HPV16.Usually occurs as soft,painless pedunculated exophytic growth with numerous finger like projections that imparts a cauliflower like appearance.[12]Projections usually be pointed or blunted.Lesions are usually white,slightly red or normal in color of mucosa depending on the amount of surface keratinization.Treatment includes conservative surgical excision.

Oral hairy leukoplakia

Oral hairy leukoplakia is usually seen in HIV infected patients. OHL appears clinically as an asymptomatic white lesion on the lateral border of the tongue, unilateral or bilateral, with a flat, corrugated or hairy surface and non scrapable[16].The lesion is usually asymptomatic and microscopic examination shows hyperkeratosis, mild acanthosis, and a mild, chronic inflammatory infiltrate.Oral hairy leukoplakia appears to be caused by productive replication of EBV(Epstein Barr virus) in the oral mucosal epithelium, particularly of the lateral borders of the tongue.

Candidiasis

Candidiasis, is a fungal infection caused by Candida albicans.Oral candidiasis can be classified as pseudomembranous,erythematous,hyperplastic and angular chelitis.Most common are pseudomembranous and erythematous.Smoking has been recognized as the main risk factor associated with candidiasis[17].Smoking favors candidal colonization by causing localized epithelial alterations such as increased epithelial keratinization[18].Management of candidiasis involves the elimination of predisposing factors, chiefly smoking and antifungal therapy (both topical and systemic).

Median rhomboid glossitis

Median rhomboid glossitis (MRG) is defined as the central papillary atrophy of the tongue and it affects 0.01%–1.0% of the population.It occurs in the midline of the dorsum of the tongue. It occurs as a well-demarcated, symmetric, depapillated area arising anterior to the circumvallate papillae[19].The surface of the lesion can be smooth or lobulated.It is usually asymptomatic.It gives persistent pain, irritation, or pruritus.A "kissing" lesion develops on the palate, directly opposite from the tongue lesion. This occurs due to the fungal organisms on the top of tongue being transferred to the palate during swallowing and similar movements.Predisposing factors associated with Median rhomboid glossitis are smoking, denture wearing, diabetes mellitus, as well as candidal infections[20].The most important diagnostic clue is the presence of candidal hyphae in the superficial epithelium. Treated using anti fungal drugs, including replacement of the toothbrush, and any other oral prosthesis that may cause reinfection by the organism.

INHERITED,CONGENITAL,DEVELOPMENT AND ACQUIRED ABNORMALITIES OF TONGUE

Foliate papillitis

Foliate papillae occasionally become inflamed or irritated, red in color, with associated enlargement and tenderness. These areas are enlarged, swollen and lobular with an intact overlying mucosa.It may occur as result of mechanical irritation of papillae, or as result of upper respiratory tract infection.Diagnosis is done by history of mechanical irritation to papillae site or history of upper respiratory tract infection,or by clinical features (inflammation of area, tenderness and color). The causative factors are treated to reduce the symptoms.[12]

Geographic tongue

Geographic tongue is a benign chronic relapsing recurring inflammatory condition of the oral cavity of unknown etiology.It can also be referred to as benign migratory glossitis, erythema migrans, annulus migrans, and a wandering rash of the tongue[21].It usually manifests as asymptomatic erythematous and migratory circinate patches that give its characteristic appearance of a map.The lesion persists for a period of several days to weeks and then disappears and reappears in a different location.Lesions usually occur on the lateral and dorsal aspects of the tongue.Psychosomatic and hereditary factors have been suggested to have a role in the etiology of geographic tongue.Geographic tongue has a slightly greater predilection for women than men.It is more commonly seen in patients with allergies to drugs, food, or others.Oral contraceptive pills that cause hormonal fluctuation have been associated with geographic tongue, further indicating a possible hormonal role in this disorder.Vitamin D, B6, B12, folic acid, iron, and zinc deficiency have also been proposed to play a role in the pathogenesis of geographic

tongue.Geographic tongue usually does not require any treatment if it is asymptomatic.For symptomatic lesions, topical corticosteroids, antihistamines, cyclosporine, vitamin A, zinc, acetaminophen, topical tacrolimus have been shown to be effective. Avoidance of alcohol, hot, spicy and sour foods, acidic fruits and beverages, and maintaining good oral hygiene is recommended to avoid worsening symptoms.

Fissured tongue

Fissured tongue is a benign condition characterized by numerous shallow to deep grooves or furrows on the dorsal surface of the tongue.Aging, malnutrition and local factors such as infection may contribute to fissured tongue.Fissured tongue may have a familial occurrence and can be associated with certain underlying syndromes.The etiology is unknown but hereditary plays a significant role. The condition may be congenital, present at birth, or may become apparent during childhood or later in life.Aging and local environmental factors may also contribute to its development.Fissured tongue is diagnosed clinically on the basis of fissures. Based on the position of the fissures, fissured tongue can be classified as median and lateral types.Fissured tongue is a benign condition and no specific treatment is indicated.Local measures to resolve the clinical manifestations can be done. The patient should be encouraged to maintain the oral hygiene and balanced diet.[22]

Glossitis

Glossitis is an inflammation of the tongue. The condition may present clinically as a painful tongue, as change in the surface appearance of the tongue changes in texture,color or both.The following could be the etiologies for glossitis. These include:

-Anemia
-Vitamin B deficiencies
-Infections(viral,bacterial,fungal,parasitic)
-Medications
-Psychological factors,Exposure to irritants
-Normal familial variants
-Mechanical irritation
-Poor hydration
-Down syndrome
-Psoriasis and other autoimmune conditions
-Burning mouth syndrome.

The history and physical examination are the most important evaluations in a patient with glossitis. Symptomatic treatment is possible with anti-inflammatory and analgesic mouth rinses.[23]

White sponge nevus

White sponge nevus is a rare benign autosomal dominant disorder with variable penetrance. It is characterized by asymptomatic white plaques affecting mainly the oral mucosa.Oral white sponge nevus appears as white or gray diffuse plaques thickened with multiple furrows and spongy texture located on buccal, labial, gingival mucosa and floor of the mouth.It is not most commonly seen in tongue and labial mucosa.[24]There is no treatment required in case of asymptomatic oral white sponge nevus.To reduce it clinically beta-carotene, antibiotics (penicillin, azithromycin, etc.), antihistamines, local applications of

retinoic acid, tetracycline mouth rinses, surgical resection, and laser ablation, can be used as treatment modalities.

Lichen planus

Lichen planus (LP) is a chronic mucocutaneous disorder that affects oral mucousa. The etiology includes stress,systemic medications,dental materials,chronic liver disease and hepatitis C virus,tobacco chewing,graft versus host disease.

It is seen frequently in all regions of the oral mucosa, mostly noticed in buccal mucosa, gingiva and tongue. They are present bilaterally in most cases.Classically present as six types clinically: Reticular (fine white striae cross each other in the lesion), Atrophic (areas of erythematous lesion surrounded by reticular components), papular type, bullous type, plaque type, erosive or ulcerative type. The reticular type of oral lichen planus is often asymptomatic,only can be seen clinically. Ulcerative type in which erythematous areas are seen surrounded by reticular elements.Oral lichen planus is classically present as lesion with radiating whitish gray lines thread like papules, velvety appearance. They can be lacy or reticular, annular, patches or strings.Even though there is no specific treatment for oral lichen planus, symptomatic treatment is indicated. Corticosteroids provide relief and first choice of drug.[25]

POTENTIALLY MALIGNANT DISORDERS

Leukoplakia

Oral leukoplakia (OL) is the most frequent potentially malignant lesion.It was first defined by World Health Organization in 1978 as a white patch or plaque which cannot otherwise be characterized clinically or pathologically as any other disease.The etiology of oral Leukoplakia is considered multifactorial, but smoking is appreciated to be a frequently involved factor.Alcohol and conflicting results of studies related to the possible role of Human Papilloma Virus infection.The clinical appearance of Oral Leukoplakia is classified in two main types,homogeneous type and non-homogeneous type which includes speckled and nodular.The homogeneous leukoplakia is a uniform, thin white area altering or not with normal mucosa. The speckled type is a white and red lesion, with a predominantly white surface.The clinical features of leukoplakia in tongue includes patches white or gray in color,thick or slightly raised,hardened and rough in texture.These patches may develop and change slowly over weeks to months. They are usually painless, but they may be sensitive to touch, heat, spicy foods, or other irritation.Patient should be advised to quit the habit.Treatment includes the surgical method that can use conventional surgery or laser ablation, electrocauterization, or cryosurgery.[26]

Oral submucous fibrosis

Oral submucous fibrosis (OSMF) is a chronic disease and potentially malignant condition that produces tissue fibrosis.The etiology of oral submucous fibrosis is mainly due to chewing areca nut.Oral submucous fibrosis occurs more often in women than men. The patient age range is 20–40 years(21).Clinical features include progressive inability to open the mouth (trismus) due to oral fibrosis[12].Oral pain and burning sensation on consuming spicy foodstuffs and increased salivation are present.The buccal mucosa is the most commonly involved site, but any part of the oral cavity can be involved.The features of the tongue involvement includes stiff and small tongue,blanched and leathery

floor of the mouth.The treatment of patients with oral submucous fibrosis depends on the degree of clinical involvement. If the disease is detected at a very early stage, cessation of the habit is sufficient.Medical treatment is symptomatic and predominantly aimed at improving mouth movements. Treatment strategies include steroids weekly submucosal intralesional injections or topical application of steroids.Surgical treatment is indicated in patients with severe trismus and/or biopsy results revealing dysplastic or neoplastic changes.[26]

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