

White Patch- A Puzzling Entity!!!

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Dental practitioners encounter numerous lesions in the oral cavity in day to day practice, of these the white lesions constitute a vast majority. Though these white lesions have been studied in detail over the years, quite frequently their final diagnosis is mystifying.

There is a range of factors causing white lesions such as local, congenital, inflammatory (infective and non-infective), pre-neoplastic and neoplastic. These lesions of the oral mucosa can be broadly categorized as scrapable and non-scrapable. Scrapable lesions are those which can be wiped off with a gauze, such as material alba, necrotic epithelium (e.g. after burn), fungal infections (e.g. candidiasis). Whereas non-scrapable are the ones which cannot be wiped off and are generally composed of thickened keratin which looks white when wet. A few rare lesions like white sponge nevus, which are congenital, can present in this form but most of the white lesions are acquired. In addition vesiculo-bullous lesions sometimes may have a white or grayish-white appearance. It is important to know this because though classified as a separate group the vesiculo-bullous lesions can have a significant white component when blisters are intact and for a day or two after they rupture. Often the white lesions in the oral cavity are inconsequential and caused by friction or trauma. But occasionally when carcinoma or certain other pathologies like lichen planus are present in this way, biopsy is must.

This article provides an overview of commonly encountered white lesions in the oral cavity, in an attempt to help the dental practitioners in solving this puzzle that has been termed as a "White Patch".

Fordyce's Granules (fordyce's Spots)

Fordyce's granules are considered a normal anatomic variation and represent ectopic sebaceous glands.

Clinical Features: They are multiple and seen on buccal mucosa and lateral portion of vermilion of upper lips. The lesions are asymptomatic and present as multiple yellow or yellowish-white popular lesions (Fig.1).

Treatment: No treatment is required as they represent normal anatomic variation.

Frictional Keratosis

Frictional keratosis is a white lesion that is caused due to mechanical irritation on an oral mucosal surface.

Clinical Features: It occurs on buccal mucosa, lateral margins of tongue, lips and edentulous ridges (denture wearers/professional musicians playing air instruments). The affected area has roughened keratotic surface and appears opacified (Fig.2).

Treatment: Lesion should resolve after elimination of trauma otherwise biopsy is mandatory.

Dentifrice Associated Slough

It is reaction to a component in the dentifrice, possibly detergent or flavouring compounds.

Clinical Features: It is asymptomatic and appears as a superficial white slough on buccal mucosa which peels off.

Treatment: No treatment is indicated and lesion resolves with change to another, blander toothpaste.

Mucosal Burn

Mucosal burn can be due to varied number of factors such as topical application of chemicals like aspirin, overzealous use of mouth rinses, products containing phenol, hydrogen peroxide, eugenol etc. Burns can also be thermal or electrical in nature.

Clinical Features: Mucosal burn due to chemicals present as white area with mild localised erythema (Fig.3). With increased exposure time and concentration, necrosis may occur in the affected region. Thermal burns are erythematous whereas in electrical burns charring of tissue can occur.

Treatment: Chemical and mild thermal burns can be treated symptomatically and by maintaining proper oral hygiene. Alcohol based mouthrinse should not be prescribed. In case of severe thermal and electrical burns, patient should be referred to Oral and Maxillofacial Surgeon.

Geographic Tongue:

Geographic tongue, also known as benign migratory glossitis or wandering

rash of tongue, is a condition of unknown etiology, believed by some to be an oral form of dermal psoriasis. It has been associated with other conditions like fissured tongue, seborrhic dermatitis, Reiter's syndrome and atopy. Stress has been thought to aggravate the lesion. It has been observed in 1-2% of the population with a female predilection.

Clinical features: Geographic tongue is characterized by presence of atrophic areas surrounded by whitish, elevated keratotic margins. Atrophic areas are areas of desquamation/ depapillation which are erythematous/ red and may be tender (Fig.4). This gives the lesion a map like appearance and hence the name "geographic tongue". The pattern of the lesion keeps changing over a period of time. The lesion disappears and then even location changes in episodes of recurrence as is suggested by its other name "benign migratory glossitis or wandering rash of tongue". It may occasionally occur in other parts of the oral cavity and then should be carefully differentiated from other lesions like leukoplakia, lichen planus, lupus erythematosus etc. Most cases are asymptomatic but there may be occasional complains of irritation/ tenderness on consuming spicy foods or alcoholic beverages, particularly in active phase of the lesions.

Treatment: It is generally self limiting and asymptomatic hence does not require any treatment. If symptomatic, treatment is empirical. Good results are achieved using mouth rinses of sodium bicarbonate in water. Even topical steroids containing anti-fungal agents can be beneficial. Reassuring the patient, that the condition is benign and not any serious disease helps relieve the anxiety.

Leukoedema

Leukoedema is a generalised opacification of buccal mucosa that is regarded as a variation of normal. The exact cause is unknown although it is more common and severe in smokers.

Clinical Features: It is asymptomatic and usually occurs bilaterally on buccal mucosa. With stretching of the buccal mucosa, the opaque changes dissipate

(Fig.5a,b).

Treatment: No treatment is necessary although biopsy can be performed, if lesion cannot be diagnosed clinically.

Nicotine Stomatitis

This is a common condition observed in people using smoking tobacco in form of pipes or cigars. Severity of condition is directly related to intensity of smoking and is thought to be caused as a reaction to the heat generated.

Clinical features: Initially the lesion is erythematous followed by opacification/keratinization of palatal mucosa on which inflamed orifices of salivary gland ducts are seen as slightly elevated red dots (Fig.6). Areas covered by any prosthesis, are spared from such changes.

Treatment: This is not a premalignant lesion and usually disappears rapidly after the habit is discontinued

Hairy Leukoplakia

It is an unusual white lesion associated with immune suppression (especially AIDS and organ transplantation). It represents an opportunistic infection by Epstein-Barr virus that is found almost exclusively in human immunodeficiency virus infected individuals.

Clinical features: It is an asymptomatic lesion seen on lateral margins of tongue, often bilateral. It presents as a well demarcated white lesion that varies in architecture from flat and plaque-like to papillary/ filliform or corrugated lesion (Fig.7).

Treatment: No specific treatment is required unless the condition is cosmetically objectionable. Anti-viral and anti-retroviral agents are likely to cause the lesion to regress although on discontinuation of therapy lesion may reoccur.

Tobacco Pouch Keratosis (smokeless Tobacco Keratosis/snuff Dipper's Lesion:

Chronic frictional and chemical insult to the oral mucosa is seen in patients who have the habit of chewing coarsely cut tobacco leaves (chewing tobacco) or holding finely ground tobacco leaves (snuff) in oral vestibule.

Clinical features: This habit produces epithelial thickening and hyperkeratosis in similar to chronic friction caused by sharp tooth, cheek biting etc (Fig.8). It generally induces keratinisation of non-keratinised epithelium and additional keratin formation in keratinised epithelium. The development

of this lesion is strongly influenced by habit duration, brand used, early onset of use, duration and quantity of daily use and number of sites routinely used for tobacco placement.

The affected mucosa has soft velvety feel on palpation and stretching of mucosa often reveals a distinct pouch caused by flaccidity in chronically stretched tissues in area of tobacco placement. Stretched mucosa generally appears fissured or rippled. No ulceration, induration or pain is noticed. It takes 1-5 years to develop. The surface may show brownish encrustation due to stains.

Treatment: The patient is advised to discontinue the use of tobacco and kept under regular follow-up.

Idiopathic Leukoplakia (leukokeratosis)

(Leuko= white, plakia=patch) Leukoplakia is a clinical term indicating a white patch/plaque on oral mucosa that cannot be rubbed off. This is basically a negative diagnosis reached by exclusion of other lesions which can affect the oral mucosa, like lichen planus, leukoedema etc. explained in this article.

Clinical Features: This lesion is generally found in middle-aged and elderly people often with a history of tobacco use. Gender predilection in Indian population is towards males where as western countries have an equal gender distribution. Most commonly involved sites are the vestibule and the buccal mucosa but it can involve palate, alveolar ridge, lip, tongue and floor of the mouth (Fig.9). The highest risk of malignant transformation being when it involves the floor of the mouth. Though this lesion is a white patch it can have a varied clinical appearance as follows:

1. Homogenous: lesions that are uniformly white.
2. Non-homogenous: lesions in which part of lesion is white and rest appears reddened. Alternatively, it can be more elaborately subdivided as:

1. Homogenous
 - a) smooth, b) fissured (furrowed), c) ulcerated
2. Non-homogenous nodulospeckled: well demarcated raised white areas, interspersed with reddened areas.

Treatment: Once a white lesion has been confirmed clinically as leukoplakia biopsy should be performed. Multiple site biopsy is required in case of large lesions to avoid sample error. Clinically most suspicious areas i.e. red, ulcerated or

indurated should be included in the area to be biopsied. The following is recommended after histopathologic diagnosis:

1. Absence of dysplasia/atypical changes-periodic examination, elimination of tobacco habits or other suspicious factors. Re-biopsy is done in case of new suspicious lesions.
2. Mild dysplasia - If lesion is small, excision is the best. If lesion is large and its location not favourable for excision, follow-up surveillance is acceptable.
3. Moderate to severe dysplasia Excision is obligatory, which can be by scalpel, cryosurgery, electrocautery or laser. Grafting may be required after excision of large lesions. Removal of these lesions is necessary with regular follow up because 5-28% of leukoplakias show malignant transformation and also these lesions can recur after complete removal.

Oral Submucous Fibrosis

Oral submucous fibrosis (OSF) is a precancerous/premalignant condition which has a chronic and insidious biological course.

Clinical Features: This condition is most prevalent in south-east asia particularly in age group of 20-40 years. Though gender predilection in various studies is varied, females appear to be more susceptible to changes associated with OSF. This pathology is primarily thought to be caused by areca nut usage. Though in early stages the condition may be characterized by vesicle, petechiae, melanosis, excessive salivation, burning sensation of the oral mucosa (especially on intake of spices) and then xerostomia. Advanced stages of OSF show loss of resilience and elasticity of oral mucosa, blanching (marble-like appearance), fibrous submucosal bands (in soft palate, buccal mucosa, labial mucosa), reduced mouth opening/ trismus, difficulty in eating,/ blowing/ whistling etc., immobility of tongue with atrophy of papillae and uvula may also be diminished in size (Fig.10). The surface of involved mucosa often shows leukoplakia or betel chewer's mucosa.

Treatment: Alleviating the habit is a part of management of OSF (though it does not cause regression) therapeutics include intra-lesional injections of chymotripsin, hyaluronidase and dexamethasone, along with regular physiotherapy to help in increasing the mouth opening. In highly advanced cases surgical excision/splitting of bands has been recommended. But all

modalities are of modest help in this essentially irreversible condition. Recently intralesional injection of interferon gamma have been show to improve maximum mouth opening, reduce mucosal burning and increase suppleness of the oral tissues.

Lichen Planus

Lichen planus is a chronic mucocutaneous pathology of unknown etiology. It may be an immunologic disturbance, either local or general and perhaps of autoimmune character.

Clinical features: It is seen affecting 0.2-2% of the population and has a female predilection. This lesion is more common in middle age. It typically has bilateral symmetric presentation on buccal mucosa with varied clinical types like reticular, erosive, plaque, bullous or atrophic lichen planus. Patient complains of pain in erosive and atrophic forms. The severity of disease generally parallels the patient's level of stress.

The reticular form is characterised by interlacing white keratotic lines or striae (Wickman's striae) which have a lacy pattern (Fig.11). The plaque form which clinically resembles leukoplakia most often affects the tongue and the buccal mucosa. The atrophic form is seen as red patches with very fine white striae. It may be seen in conjunction with reticular or erosive variants. This form commonly affects the gingiva and is associated with burning sensation and generalised discomfort. The erosive form of lichen planus shows a central area of ulceration. The pattern of the lesion changes over time but keratotic striae are seen at the periphery. The most rarely encountered form of lichen planus is the bullous variant. The bullae which are few millimeter to centimeter in diameter are short lived and rupture leaving a painful ulcer. These are more often seen in posterior part of buccal mucosa but may affect tongue, gingival and labial mucosa. This form also shows the presence of striae. It is considered that oral lesions precede the skin lesions but it may not always be so. Skin lesions have a typical presentation and are associated with itching.

Treatment: The lichen planus generally cannot be used but is satisfactorily controlled with corticosteroids which can modulate inflammation and immune response. These drugs are either typically applied or locally injected and often give better results with antifungal regimen. This may be due to elimination of secondary

candida albicans and prevention of overgrowth of these microorganisms due to corticosteroid use. Topical Vitamin A and retinoids may provide reversal of white striae due to antikeratinising effect.

Systemic corticosteroids are used in severe cases but side effects of this should be kept in mind. There is a lot of controversy on malignant potential of this lesion and this transformation is more likely associated with erosive and atrophic form.

Lichenoid Reaction

There are lesions which clinically and histologically resemble lichen planus (Fig.12) and occur as a reaction to a wide variety/range of drugs like methyl dopa, anti-malarials etc. These are termed lichenoid reactions. The exact mechanism underlying these reactions is unknown. Lichenoid lesions have also been reported in some patients to be associated with hypersensitivity to mercuric salts released from corroding amalgam restoration. In such cases the lesion is confined to the contact area between the restoration and the oral mucosa, suggesting type IV hypersensitivity reaction and a contact allergy similar to that occurring in skin in association with other metals such as nickel. Oral and cutaneous lichenoid lesions are also seen as a part of graft versus host reaction in patients who have received bone marrow transplants implicating immunological mechanism.

Treatment: Temporary relief is obtained using topical or systemic steroids. The lesions generally resolve fairly rapidly after withdrawal of the offending drug or replacement of amalgam restoration with more suitable substitutes (like composites).

Oral Candidiasis

Candidiasis is a common opportunistic oral mycotic infection that develops in the presence of one of the several predisposing factors like immunodeficiency, immunologic immaturity of infancy, AIDS, diabetes mellitus, pregnancy, systemic antibiotic therapy, xerostomia, poor oral hygiene, malignancies and their therapy.

Clinical features: This condition has a variable clinical presentation in the form of:

1. Acute candidiasis a) pseudo-membranous (thrush), b) erythematous
2. Chronic Candidiasis a) erythematous, b) hyperplastic
3. Mucocutaneous a) localised (oral, facial, scalp, nails), b) familial, c) syndrome associated

Of the above mentioned forms it is the pseudomembranous and hyperplastic candidiasis which presents as white lesions.

Patient with pseudomembranous candidiasis may complain of burning sensation, tenderness or sometimes pain in the area of the affected mucosa. Spicy food may cause occasional discomfort due to increased sensitivity of the affected mucosa. Those infections are more common in women and in patients over 40 years of age. It may present as fine, whitish deposits on an erythematous patch of mucosa or as more highly developed small, soft, white, slightly elevated plaques that appear like curdled milk (Fig.13). It may have solitary, diffuse or patchy distribution generally in vestibule or on buccal mucosa with slight erythematous areas adjacent or in between. It can affect tongue, palate, floor of mouth and lips. This lesion can be stripped off or rubbed off with a dry gauze sponge leaving behind normal mucosa or an erythematous or raw bleeding area.

Chronic candidal infections are also capable of producing a hyperplastic tissue response which manifests as chronic hyperplastic candidiasis. When it occurs in retrocommisural area, it resembles speckled leukoplakia and is sometimes referred to as candidal infection. It occurs in adults with no apparent predisposition to infection by *Candida albicans* and is believed to be a premalignant lesion by some clinicians.

Treatment: Important component of management is to attend to the predisposing factors. Majority of infections may singly be treated with topical application of nystatin suspension (sometimes ineffective due to short contact time). Nystatin cream/ointment is more effective when applied directly to the affected tissues on gauze pads. Clotrimazole can be conveniently administered in atrophic form. Application of these is continued for atleast one week beyond disappearance of clinical lesions.

For hyperplastic candidiasis topical and systemic antifungal therapy may be ineffective at completely removing the lesions. In such circumstances surgical management may be necessary to complement antifungal medications.

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Legends

- Fig.1: Fordyce's spots on buccal mucosa.
 Fig.2: Frictional keratosis on lower labial mucosa
 Fig.3: Mucosal burn
 Fig.4: Geographic tongue
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