

**White lesion and red fiery tongue with angular Chelitis as the oral manifestations in chronic periodontitis patient**

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**Abstract**

When the body's supply of the nutrients is exceeded by its demand then nutritional deficiency occurs in the body. The first sign of vitamins and mineral deficiencies appeared in the oral cavity as a manifestation due to the unique environment and rapid cell turnover of the oral mucosa. White lesions of the oral cavity are also not uncommon though the majority of them are benign. This case report aims to outline the oral signs and symptoms occurring with vitamin deficiencies, inflammations, and idiopathic linear leukoplakia by emphasizes the importance of proper and thorough examination of the oral cavity by the professional dentists. These oral manifestations are

timely to find out and needful treatments suggested. The significance of red fiery tongue, angular cheilitis, and white lesion on buccal mucosa and hard palate with their proper management was also discussed.

**Keywords:** Oral cavity, White lesions, Red fiery tongue, Angular chelitis.

**Introduction**

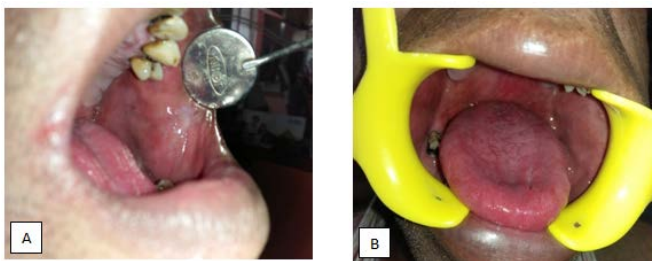
The oral cavity is a reflection of healthy or diseased state of the body, a sentinel or early warning system. As oral cavity is the gateway to the body, a constant barrage of invaders like bacteria, viruses, fungi and parasites challenges the mouth. Vitamins and other nutritional deficiencies along with many systemic diseases have oral manifestations. These lesions

develop on the oral mucosa, tongue, gingiva, dentition, periodontium, salivary glands, facial skeleton, extra oral skin and other related structures. These oral manifestations must be properly recognized if the patient is to receive appropriate diagnosis and referral for treatment.<sup>1</sup> Any condition that increases the thickness of the epithelium causes it to appear white by increasing the distance to the vascular bed. Most often lesions appear white because of a thickening of the keratin layer, or hyperkeratosis. Other common causes of a white appearance include acanthosis, an increase in the amount of edema fluid in the epithelium, and reduced vascularity in the underlying lamina propria. Surface ulcerations covered by a fibrin cap can also appear white, as would collapsed bullae.<sup>2</sup> The development of oral white patches is not uncommon, but, fortunately, the majority of lesions are due to benign conditions. However, a small percentage of white patches may represent either oral cancer or have an association with the likelihood of the development of oral cancer. The presence of sinister lesions cannot be assessed by clinical appearance alone and clinical diagnosis of any persistent white patch should therefore be confirmed histologically.<sup>3</sup> Due to riboflavin deficiency Initially glossitis involving the tip and/or the lateral margins of the tongue, followed later by complete atrophy of all papillae. The tongue has a magenta color. Pallor, involving oral mucosa followed by cheilosis, maceration and fissuring at the angles of the mouth. In deficiency of niacin oral mucosa becomes fiery red and painful. glossitis, pain, redness and ulceration begin at the interdental papillae and spread rapidly.<sup>4</sup> Deficiency of vitamin B12/cyanocobalamin and/or B9/folic acid cause megaloblastic anemia in which tongue appear beefy and fiery red. Thus oral cavity is an important diagnostic area not just because it

contains derivatives of all of the primary germinal layers, and includes tissues not demonstrable anywhere else in the body, but also because of its role played in diagnosing a number of systemic diseases just because of Inflammation at the corner of the mouth is known by several names as angular cheilitis, angular cheilosis, angular stomatitis, commissural cheilitis, and perleche. "Cheil" is a Greek word for lip and suffix "itis" indicates inflammation. Angular cheilitis is a lesion affecting the angle of the mouth either single or both side where both skin and mucosa may be affected and is characterized by maceration, erythema, and crust formation.<sup>5</sup> Lemaistre in 1886 gave name to this clinical picture as perlèche, (pourelécher in Limousin dialect means to lick), it having been observed that persons having this disorder frequently moistened the affected areas with the tongue.<sup>6</sup> Etiological factors reported in relation to angular cheilitis are infection, low vertical dimension and lack of lip support, old age, denture stomatitis, excessive carbohydrate consumption, deficiency of vitamins, iron deficiency, sensitivity to denture materials, prolonged use of antibiotics, etc.<sup>7</sup> Lemaistre and Finnerud considered infection as direct etiological factor. Lemaistre demonstrated what he termed as streptococcus plicatilis. Finnerud observed its appearance in several members of the same family in mild epidemic form and its apparent infectious nature and tendency to heal in one place and break down in another.<sup>8</sup> He isolated monilia chiefly. Microorganisms isolated from the angular cheilitis are Candida particularly, Candida albicans,<sup>9</sup> Staphylococcus aureus + C. albicans<sup>10</sup> and  $\beta$ -haemolytic streptococci along with these two organisms.<sup>11</sup> In the present study, we tried to examine clinical types and microbiological flora isolated from angular cheilitis.

## Case Report

A 44 years old male patient visited on 12th Feb 2019 in the Department of Periodontics Of Himachal Dental College Sundernagar H.P. with a Chief complaint of pain in teeth since 5 days. On careful examination of hard and soft tissues of the oral cavity it was found that patient have red fiery tongue ,angular Chelitis on right side of the corner of the mouth ,white patches on left side of buccal mucosa, on the hard palate, attrition on upper and lower anteriors teeth ,heavy plaque and calculus deposits with very. Poor oral hygiene having chronic generalized periodontitis. Patient gave no medical history of any systemic disease .Patient gave the history of smoking and he is under depression since six months.For depression he did not took any medicine. All these conditions restrict his nutritional intake.Due to restriced nutritional intake and generalized inflammation in the oral cavity leads to all these oral manifestations.



Clinical photographs of the patient taken on 12<sup>th</sup> Feb. 2019 showing Fig. A. White lesions on left side of buccal mucosa of cheek. Fig B. Red fiery tongue in chronic periodontitis patient.



Fig. C: Angular Chelitis on right side of corner of mouth. Fig. d: White lesions on hard palate in chronic periodontitis patient.

Stress may be the main cause of these oral manifestations, because during stress level of cortisol hormones increases many times and this leads to suppression of host immune system, which activates various inflammatory cascades that ultimately leads to the destruction of host cells. Blood taken for complete haemogram from the patient. Report was almost normal. Only ESR was raised which was the sign of underlying infection. White lesion of oral cavity was not uncommon, though majority of them were benign .In this case idiopathic linear leukoplakia of palatal gingival and left side of buccal mucosa of cheek with no apparent etiology was diagnosed. On clinical examination showed a non scrap able linear white lesion on marginal and papillary gingival of upper palatal region and buccal mucosa of cheek on left side .Incisional biopsy was taken for evaluating the pathological status of the patient. Histopathological reports did not show any dysplastic changes, premalignant and malignant lesions were not taken into considerations for the diagnosis. HIV test report was also negative. We did the proper oral prophylaxis of patient .Scaling and root planning was done. Patient education and motivation for maintaining good oral hygiene was given. Patient counseling for stress management was also given.

**Complete haemogram**

	Report	Normal values
Hb estimation	11.4 gm %	14-18 gm% (Male)
ESR count	34 mm/ hr	0-15 mm/hr (Male)
RBC count	4.8 million/mm <sup>3</sup>	4.5-6.5 millions/mm <sup>3</sup>
Total WBC count	5200 cells/mm <sup>3</sup>	4000-10000 cells/mm <sup>3</sup>
Platelet count	1.84 lacs/mm <sup>3</sup>	1-4 lacs/mm <sup>3</sup>
Bleeding time	2min 17 sec	1-5 min
Clotting time	4min 1sec	4-9 min
Neutrophils	54%	40-75%
Lymphocytes	38%	20-45 %
Monocytes	05%	02-08 %
Eosinophils	07%	01-04 %
Basophils	00%	00-01 %
Random Blood Sugar	137.0 gm %	70-160 gm %

**Discussion**

Oral white lesions reflect many different diseases and pathological changes. Some of them relate to diseases such as lichen planus and lupus erythematosus. Others are local changes with a clearly defined or highly probable etiology. Leukoplakia is the most prevalent precancerous lesion of the oral mucosa. The label "leukoplakia" was coined by Schwimmer.<sup>12</sup> Approximately 70% oral leukoplakias are found on the lip vermilion, buccal mucosa and gingiva.<sup>13</sup> Leukoplakia of the gingiva varies in appearance from a grayish white, flattened, scaly lesion to a thick, irregularly shaped keratinous plaque.<sup>14</sup> The cause of leukoplakia remains unknown though it can be associated with the use of tobacco. The lesions where

the etiology is not apparent can be termed as idiopathic leukoplakia.<sup>15</sup> In the present case, since histopathological reports did not show any dysplastic changes, premalignant and malignant lesions were not taken into considerations for the diagnosis. Tongue can be considered as a mirror of oral and/or systemic health. An oral medicine expert can be the first to observe the lingual status, and should be familiar with the different diagnoses of these conditions, e.g., being able to link lingual abnormalities with specific etiologic causes. Recognition of alterations relative to tongue's morphology, in the presence of a negative anamnesis, should lead to more accurate investigations, in order to ascertain if they are manifestations of an underlying systemic condition. Red fiery tongue occur due to vitamin deficiency especially vit B12 deficiency also called megaloblastic anemia. Associated with vitamin B12/cyanocobalamin and/or B9/folic acid deficiency, normal vitamin B12 ranges from 200 to 900 pg/mL. Normal vitamin B9 for adults ranges from 2 to 20 ng/mL.<sup>16</sup> Macrocytic anemia may be normochromic/hypochromic. It is also characterized by hypersegmented neutrophils and plays a major role in the synthesis of deoxyribonucleic acid and ribonucleic acid, in the prevention of genetic alterations, and is required for epithelial maturation. Tongue appears as beefy/fiery red.<sup>17</sup> Angular cheilitis is a relatively very common condition, accounting for between 0.7-3.8% of oral mucosal lesions in adults and between 0.2-15.1% in children, though overall it occurs most commonly in adults in the third to sixth decades of life.<sup>18</sup> It occurs worldwide, and both males and females are affected.<sup>19</sup> Angular cheilitis is the most common presentation of fungal and bacterial infections of the lips.<sup>20</sup> Angular cheilitis appears as reddish fissures at the corners of the mouth involving

the junction of the mucosa and may also represent a form of candidiasis. The lesions are more commonly symmetrically present on both sides of the mouth but sometimes only one side may be affected. In some cases, the lesion may be confined to the mucosa of the lips, and in other cases the lesion may extend past the vermilion border (the edge where the lining on the lips becomes the skin on the face) onto the facial skin. Angular cheilitis occur significantly more frequently in diabetic than in non-diabetic patients. Other causes of angular cheilitis that should be included in a differential diagnosis include vitamin deficiencies, anemia, staphylococcal infections, and decrease in face height caused by mouth over closure from loss of teeth. In people with angular cheilitis who wear dentures, often there may be erythematous mucosa underneath the denture (normally the upper denture), an appearance consistent with denture-related stomatitis.<sup>1</sup> On the basis of clinical finding, an erythematous fissure at the angles of the mouth, a diagnosis of angular cheilitis is determined.<sup>21</sup>

### Management

The main goal of this treatment is to reduce inflammatory process. Good oral hygiene is necessary, including thorough tooth brushing at least twice a day, and flossing at least daily. 0.2% chlorhexidine oral rinses for chemical control of inflammation. Corticosteroids such as prednisone may be given to reduce the inflammation of glossitis. Antibiotics, antifungal medications, or other antimicrobials may be prescribed if the cause of glossitis is an infection. Anemia, red fiery tongue and nutritional deficiencies (such as a deficiency in niacin, riboflavin, Vit B12, iron, or Vitamin E) must be treated, often by dietary changes or other supplements. Avoid irritants (such as hot or spicy foods, alcohol, and tobacco) to minimize

the discomfort. In some cases, tongue swelling may threaten the airway, a medical emergency that needs immediate attention. For angular cheilitis only prescribed him miconazole gel QID for 2 weeks and told to the patient to keep the area moist everytime.

### Conclusion

Oral manifestations often are the first or the most significant sign of systemic diseases. Dentists must aware with all systemic conditions that can affect the oral cavity, so that appropriate referral can be made. Physicians need to be aware of significance of oral complaints, their relationship to local causes, and potentially to systemic diseases. Thus oral cavity presents a window for easy observation of signs and symptoms of many systemic diseases because of its easy accessibility for visual investigation, and examination by palpation.

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