Mouth - A Diagnostic Mirror of Various Diseases

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The mouth is a unique site, due to the presence of hard and soft tissues in close approximation. It serves in various purposes of speech, mastication and digestion. It is an important entry point for many pathogens in the body. Many systemic diseases manifest in the oral cavity and mouth can show early signs or the only signs of a disease process at a site elsewhere. As the mouth is an easily accessible site, the indicators it shows of various diseases should not be overlooked. A dentist thus can frequently be exposed to such conditions and play a key role in the diagnostic procedure of various systemic diseases. Appropriate knowledge of these oral manifestations is essential for early diagnosis, treatment and referral of cases.

Keywords: Oral manifestations, Mouth, Systemic diseases

HEMATOLOGICAL DISORDERS

Blood disorders may be manifested early in the oral cavity. The manifestations that may show are that of hemorrhage, infections, and cellular infiltration of tissues pallor of the oral mucosa, loss of lingual papillae and burning sensation may be seen in anemia. The acute leukemias tend to produce oral manifestations like diffuse gingival hypertrophy. Gingival bleeding or accumulation of blood in tissues may occur in thrombocytopenia.

Anemia

The common oral manifestations seen in anemia are pallor of mucosa, generalized atrophy of the tongue and buccal mucosa, angular cheilitis, soreness or burning of the tongue. The filliform papillae over are first to undergo atrophy. In severe cases, fungiform papillae are also affected. Recurrent aphthous ulcerations and candida lesions can also occur secondary to anemia.

In pernicious anemia, the tongue is bald and beefy due to papillary atrophy and is known as hunter’s glossitis. In aplastic anemia, petechiae often are present over the soft palate. The oral manifestation of plummer vinson syndrome also includes the dysphagia due to pharyngo-oesophageal ulcerations.

Leukemia

Leukemic gingival enlargement is a common finding; Bleeding of gingiva can be a nearly sign of the leukemia. Other oral signs are petechiae, ecchymosis, mucosal ulcers and hemorrhage. Numb chin syndrome due to mental nerveneuropathy may be the presenting complaint, palatal ulcerations and necrosis may also be seen. Oral mucositis
taste and burning mouth in the un-controlled diabetes. It can also be the reason for the development of the oral infections. Which in turn may lead to infections of *Candida albicans*.11

### Hypoparathyroidism

The common reasons for hyperthyroidism may are autoimmune destruction of the parathyroid tissue or surgical removal.12 During tooth development stage if the patient develops hypoparathyroidism, the clinical features may be pitting enamel hypoplasia and failure of the tooth eruption.13

### Hyperparathyroidism

Loss of the lamina dura around the roots of the teeth may be seen radiographically. Alterations in the jaw trabecular pattern follow. The trabecular density may decrease, and the normal pattern may blur resulting in a “ground glass” appearance on the radiograph. Furthermore, “brown tumor” of hyperparathyroidism may develop. Radiographically these lesions are unilocular or multilocular well-demarcated radiolucencies that commonly affect the mandible, clavicle, ribs and pelvis.14

### Hypercortisolism

There is a tendency of pathological fractures of the jaw bones upon low even with trauma force that usually does not cause damage. The reason could be osteoporosis of the jaw bones. Post extraction healing of the extraction site is also compromised.15

### Hypoadrenocorticism

Orofacial manifestations include “bronzing” or hyperpigmentation of the skin. This is usually seen on the

<table>
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<tr>
<td>Vitamin and other nutritional deficiencies</td>
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<td>Vitamin A</td>
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<td>Vitamin C deficiency (Scurvy)</td>
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<td>Riboflavin deficiency</td>
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| Vitamin A deficiency (Eretics) | Retarded growth, delayed eruption, and delayed tooth development |
| Vitamin B12 deficiency (Megaloblastic anemia) | Retarded growth, delayed eruption, and delayed tooth development |
| Vitamin B6 deficiency (Depression) | Retarded growth, delayed eruption, and delayed tooth development |
| Vitamin B1 deficiency (Glossitis) | Retarded growth, delayed eruption, and delayed tooth development |
| Vitamin C deficiency (Scurvy) | Retarded growth, delayed eruption, and delayed tooth development |
| Vitamin D deficiency (Rickets) | Retarded growth, delayed eruption, and delayed tooth development |
| Vitamin K deficiency (Hemorrhage) | Retarded growth, delayed eruption, and delayed tooth development |

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sun-exposed areas and over the pressure-bearing areas. These skin changes are often preceded by oral mucosal melanosis. The usual site of the diffuse brown macular pigmentation is the buccal mucosa. The other sites affected can be the floor of the mouth, ventral tongue, and other areas of the oral mucosa.\textsuperscript{16}

**RHEUMATOLOGICAL DISORDERS**

**Sjogren’s Syndrome**

The most important clinical sign as well as symptom is xerostomia. Altered taste sensation, sore mouth, pain during deglutition and enlargement of salivary glands may be the other findings.\textsuperscript{17}

Another manifestation could be bacterial parotitis, along with fever and purulent discharge from the gland.\textsuperscript{18}

**Rheumatoid Arthritis**

The temporomandibular joint is a common joint to be involved with rheumatoid arthritis. It usually presents as erosions in the condyle, which may lead to limitation of motion of the jaw usually due to pain on opening and closing the jaw. Oral dryness and salivary gland swelling may also be noted.

**Scleroderma**

There is notable constriction of the mouth aperture, thus making it difficult for the patient to open the mouth.\textsuperscript{19}

Esophageal fibrosis leads to gastroesophageal reflux, there is dysphagia and heart burn. The tongue also may lose mobility and there may be salivary hypofunction.

**Lupus Erythematosus**

A major diagnostic manifestation of systemic lupus erythematosus (SLE) is oral or nasopharyngeal ulcerations.\textsuperscript{20}

Palate is the common site of presentation of the ulcerations. The ulcers are usually asymptomatic. Purpuric lesions such as ecchymosis and petechiae may also occur. About one-third of the patients with SLE also show salivary gland involvement and secondary Sjogren’s syndrome and severe xerostomia.\textsuperscript{21}

**RENAL DISEASES**

Painful plaques and crusts are distributed predominantly on the buccal mucosa, dorsum of the tongue, and floor of the mouth. This occurs when the intraoral concentration of urea exceeds 30 mmol/L.\textsuperscript{22} Uremic stomatitis clinically can present in two types. In Type-I, erythema of the oral mucosa is seen and pseudomembranous exudates that are thick and gray colored, that do not show bleeding when removed. In Type-II when the pseudomembrane is removed, there is bleeding and ulceration seen at the base. Type II is indicative of a more severe form of stomatitis and may be due to some other underlying systemic disease.\textsuperscript{22}

**CONCLUSION**

Oral cavity can serve as a diagnostic mirror for various systemic diseases. The dentist and the physician should be well aware of all the systemic conditions that have oral manifestations before and during the disease course, for early diagnosis and better treatment outcomes.

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