

Knowledge of Systemic Diseases Presenting the Oral Signs and Symptoms: A Short Review

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Dent J Adv Stud 2019;7:56–60

Abstract

The accurate examination of oral cavity may acknowledge findings that demonstrate the presence of underlying systemic, which helps in earlier diagnosis as well as treatment. The oral tissues are accountable to damage as a disease consequence that primarily affects other body systems. Various systemic diseases show oral manifestation. Some of these oral conditions include oral ulcers, caries, dry mouth, gingival bleeding, and gingival hypertrophy. This review article is prepared to make general physicians as well as dentist aware about systemic disorders or conditions that show dental or oral manifestation.

Keywords

- ▶ oral manifestations
- ▶ systemic diseases
- ▶ disorders

Introduction

Inadequate oral health is an utmost problem worldwide. There are many investigations done to check the relationship between various systemic diseases and oral health. Various epidemiology-based studies have related the bad oral conditions to different conditions such as cardiovascular diseases, respiratory diseases, adverse pregnancy outcomes, stroke, malignant diseases, obesity, and rheumatoid arthritis.¹⁻⁵

Oral inspection or investigation shows clinical features of various diseases such as hematologic conditions, endocrinopathies, immunologic diseases, nutritional disorder, and systemic infections.⁶ Mouth may be considered as a reflector of diseases or health. Various systemic diseases show their oral manifestation.⁷

Various Systemic Diseases with Their Oral Manifestation

Pulmonary Disorder and Oral Manifestation Chronic Obstructive Pulmonary Diseases

Smoking is considered as a significant risk factor for chronic obstructive pulmonary disease (COPD) as well as periodontal abnormalities. As per the study conducted by Katancik et al in 2005, a remarkable relationship between periodontal disorders and airway obstruction was noticed.⁸ Another study was conducted by Prasanna in 2011 to check the relationship between periodontal diseases and COPD. He proposed that periodontitis is important risk factors for COPD.⁹

In the year 2014, Öztekin et al in their study noted that there is association between the periodontal diseases and COPD.¹⁰

received
July 28, 2019
accepted
July 29, 2019
published online
October 18, 2019

DOI <https://doi.org/10.1055/s-0039-1698361>
ISSN 2321-1482.

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Asthma

According to Thomas et al, most common oral conditions that are related to asthma are periodontal diseases, dental cavities, oral candidiasis, and erosions¹¹ principally asthmatic patients possess habit of breathing from mouth. As a result, gingival inflammation occurs because of alveolar mucosa dryness.¹²

Tuberculosis

Pulmonary tuberculosis shows oral lesions in primary as well as secondary stages. According to Mignogna et al, 0.05 to 5% of tuberculosis patients show oral lesions.¹³ Oral manifestations of tuberculosis can be seen in the form of ulcers, fissures, nodules present on the lips, palate, or tongue, along with cervical lymphadenopathy.^{13,14}

Sarcoidosis

Sarcoidosis is an acquired systemic disease. Being a granulomatous disease, it shows the occupancy of granulomas in lungs. Sarcoidosis shows some oral manifestations in the forms of local swellings, palatal ulceration, inflamed gingiva, and labial as well as buccal mucosa ulcerations.¹⁵

Wegener Granulomatosis

Wegener granulomatosis is considered as systemic diseases categorized as necrotizing granulomatous inflammation of small-to-medium vessels. The oral manifestation is expressed as oral mucosal ulceration or palatal ulceration and mobile tooth. "Strawberry gingivitis" can be seen.^{16,17}

Pneumonia

Limeback¹⁸ observed in his study that a patient who is suffering from aspiration pneumonia should have poor oral hygiene. In another study by Loesche and Lopatin,¹⁹ it was noted that patients who are suffering from aspirational pneumonia have more chances of having periodontitis.

Gastrointestinal Disorder and Oral Manifestation

Crohn's Diseases

Oral manifestations noted in Crohn's diseases are commonly seen in young patients with 20 to 50% prevalence range.²⁰ The oral manifestations include papules, ulcers, and edema with most common locations such as gingiva, lips, and vestibular sulci.^{21,22}

Dupuy et al observed in their study that 0.5% of the patients suffering from Crohn's diseases show oral manifestations. Oral lesions are nodular or linear or have diffuse mucosal thickenings. They are generally firm and painless while examining. But, if they are ulcers, they possess severe pain on pressing. These ulcers are constant and deep.²³

Ulcerative Colitis

Pellicer et al²⁴ stated that ulcerative colitis shows oral manifestations in the form of superficial hemorrhagic ulcers, aphthous ulcers, or angular cheilitis. Elahi et al²⁵ observed in their study that patients having ulcerative colitis show higher frequency of tongue coating, oral ulceration, acidic taste, halitosis, and dry mouth.

Celiac diseases show various oral manifestations. Patients having celiac diseases exhibit increased possibility of developmental enamel defects mainly enamel hypoplasia.²⁶ Because of the celiac disease, there is decreased rate of flow of saliva that in turn results in dry mouth.²⁷

Avşar and Kalaycı²⁸ observed in their study that the children with celiac disease have increased risk of enamel defects and these enamel defects are responsible for occurrence of caries.

Gastroesophageal Reflux Diseases

Di Fede et al²⁹ noted in their study the significant relationship between gastroesophageal reflux disease (GERD) and erythema of palatal mucosa as well as uvula. Wang et al³⁰ in their study observed a significant relationship between GERD and dental erosions.

Schroeder et al³¹ in their study also observed that dental erosion is usually seen in GERD patients. Another oral manifestation seen in GERD is halitosis. Moshkowitz et al conducted a study to analyze the association between GERD and halitosis. They observed that halitosis is a routine manifestation of GERD.³²

Hematologic Disorder and Oral Manifestation

Anemia

Most frequent hematologic disorder is anemia. Iron deficiency anemia shows oral manifestation in the form of mucosal pallor, atrophic glossitis, and angular cheilitis.³³ Sickle cell anemia shows mandibular salmonella osteomyelitis, pulpal necrosis, and mandibular nerve paresthesia as oral manifestations. It also shows enamel hypomineralization, orofacial pain as well as diastema.³⁴⁻³⁶

Leukemia

Leukemia shows various forms of oral manifestations that include petechiae, gingival hypertrophy, ecchymosis, hemorrhage, and mucosal ulcers.³⁷ Numb chin syndrome may be seen occasionally.³⁸

In case of acute myeloid leukemia, most common oral features seen are oral ulceration, gingival bleeding, and gingival hyperplasia. Also, spontaneous bleeding can be seen in palate, gingiva, lips, or tongue. Oral ulcerations can be noted very commonly.³⁹⁻⁴¹ In patients who are suffering from acute lymphoblastic leukemia, oral features include gingival bleeding and ecchymoses along with lymphadenopathy that is a persistent sign.⁴²

Additionally, in case of chronic lymphocytic leukemia, oral features seen include localized swelling with pain and ulcers. Gingival bleeding as well as purpura can be noted.^{41,43} Some features such as gingival leukemic infiltration and palatal enlargement are linked with chronic lymphocytic leukemia.^{44,45}

Liver Diseases and Oral Manifestation

In liver malfunctioning, the oral cavity displays some manifestations in the form of gingivitis, gingival bleeding, mucosal membrane jaundice, petechiae, fetor hepaticus, xerostomia, and atrophic tongue. Chronic periodontal disease is the most common disease in these patients.⁴⁶⁻⁴⁸

Some manifestations such as gingivitis, angular cheilitis, and glossitis can be seen in patients suffering from alcoholic hepatitis.^{46,49} A study was conducted by Bagán et al⁵⁰ to check the dental status in patients having cirrhosis of liver. They noted the remarkable number of missing teeth and carious teeth in patients with cirrhosis of liver and concluded that substandard dental status was seen.

Renal Diseases and Oral Manifestation

Renal diseases may show various oral manifestations. These include mucositis, stomatitis, and glossitis that in turn lead to inflammation along with pain of oral mucosa and tongue. Also, some other manifestations, such as dysgeusia, Candida infection, and altered taste sensations, are established because of renal diseases.⁵¹

In a study done by Martins et al,⁵² it was observed that those chronic renal failure patients (children and adolescents) undergoing hemodialysis may show oral manifestations that include delayed tooth eruption, dry mouth, dental stains, and calculus. Koch et al⁵³ in their study noted that cases of chronic renal failure may influence the development of enamel in primary teeth that result in enamel hypoplasia.

Galili et al⁵⁴ in 1991 conducted a study to compare the dental pulp size in chronic renal diseases with healthy controls. They observed the significant relationship between renal diseases and narrowing of pulp in premolar as well as molar teeth. Jaffe et al⁵⁵ in their study concluded that children suffering from chronic renal failure shows delay in dental maturation.

Endocrine Disorders and Oral Manifestation

Diabetes Mellitus

Diabetes mellitus shows number of oral manifestations. The majority of patients suffering from diabetes shows xerostomia because of restricted salivary flow and rise in salivary glucose level. Other factors that contribute to oral manifestations include increased vulnerability to infections, collection of plaque and food debris, and poor healing.⁵⁶

Falk et al⁵⁷ in their study have observed the high frequency of dental caries in poorly controlled diabetic patients. Also, these patients show occurrence of loss of periodontal attachment.⁵⁸

Hyperparathyroidism

Most common oral manifestations seen in oral cavity include mobility of teeth, loss of bone density, and variations in tooth eruption calcifications of soft tissue. Also, loss of lamina dura with changes in jaw trabecular pattern can be seen.⁵⁹⁻⁶²

Hypoparathyroidism

Most common manifestations seen in hypoparathyroidism are enamel hypoplasia and delayed eruption.⁶³ Some teeth show root malformation along with interruption in the dental development and growth.⁶⁴ Facial twitching with lip or tongue paresthesia can also occur. Radiographic features, such as wide root canal, large pulp chambers, and thickened lamina dura, are some other oral manifestations.^{65,66}

Hyperthyroidism

Variety of oral manifestations are seen in cases of hyperthyroidism. Periodontal diseases, osteoporosis of maxillary, or mandibular portion of jaw increased vulnerability to dental caries and expedited dental growth.⁶⁷

Hypothyroidism

Hypothyroidism shows various oral manifestations that appear in the form of dysgeusia, substandard periodontal conditions, enlarged tongue, and delayed healing of wound.⁶⁸

Conclusion

The consequence of systemic diseases on oral cavity is well noted and it includes various soft tissue and hard tissue abnormality as well as pathology. Oral manifestation is the first sign of systemic diseases. General physicians and dentist need to be mindful of understanding the oral complaints.

Conflict of Interest

None declared.

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