

Expanding the Role of Oral Physician in Early Diagnosis of Commonly Occurring Systemic Diseases

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ABSTRACT

Dentistry deals with the identification, mitigation, and prevention of diseases of teeth, gums, mouth, and jaw. Dentistry can have an effect on your overall health and for treating patients with chronic diseases and other conditions safely and effectively, dentists need to have a solid knowledge of basic clinical medicine. Dentists should possess the same level of knowledge as physicians in all other branches of medicine due to changes in life expectancy and lifestyles, as well as the rapid advancement of biomedical sciences and help in diagnosing systemic diseases based on oral findings. The present review throws a spotlight on these activities and also suggests some of the measures that can be adopted to modify dental education to turn dentists into oral physicians by early diagnosing of systemic diseases.

Keywords: Dentistry, disease, education, physician, primary care

INTRODUCTION

The majority of the population nowadays have good oral health and preserve their healthy teeth for the rest of their lives. However, this is not true for everyone. Cavities still remain the most common chronic illness in children. Many individuals assume that they only need to visit a dentist if they are in pain or suspect that something is amiss, but they are oblivious to the wider picture. A dental appointment entails being evaluated by an oral health practitioner capable of identifying and treating diseases ranging from ordinary to exceedingly complicated. ^[1,6,7]

Dentists' areas of interest include not only their patient's teeth and gingiva but also the muscles of mastication, the head, neck, and jaw, the tongue, salivary glands, lymph

nodes, the nervous system of the head and neck, and vascular anomalies associated. During a thorough examination, dentists also examine for any abnormalities, such as lumps, swellings, discolorations, ulcerations, or lumps. Procedures like biopsies, FNAC, specific testing for infectious or chronic disorders, and salivary gland function tests may be performed as per requirements. Oral cancer screenings have also become a necessary aspect of routine oral check-ups due to the increased instances of consumption of tobacco products among the younger generation. Early warning signs of disease that may be present elsewhere in the body can be found by dentists in the mouth and hence can serve as an important tool in diagnosing systemic diseases. ^[1,2]

Oral manifestations of systemic diseases

The oral tissues are physically linked to the rest of the body via the blood, nerve, and lymphatic channels. Endocrinological, immunological, and dietary factors also have a significant role and are relevant, hence oral cavity can show signs of underlying systemic illness and can be used as an indication of overall health and in the early diagnosis of systemic diseases. [3,4]

Gastrointestinal Diseases [2,3,4]

The oral cavity is a visualized part of the Gastrointestinal tract (GIT), and has the same protective stratified squamous epithelium as that of the pharynx and esophagus, hence oral mucosa can reflect the disease activity of GIT due to its direct relation and effects of medication can also be measured using oral findings e.g. Oral ulcers in coeliac disease, Oral mucosal lesions in inflammatory bowel disease, etc.

Oral manifestations: Diffuse painless nodular swelling in lips, Angular cheilitis, Aphthous ulcer, Cobblestone appearance of buccal mucosa, etc are amongst the common findings. Oral findings may precede intestinal symptoms or maybe the only manifestations in some cases.

Ulcerative Colitis

It is a chronic inflammatory condition affecting colonic mucosa and may be seen in any age group.

Oral manifestations: Destructive oral ulceration due to immune-mediated vasculitis. Pyostomatitis Vegetans: microabscesses on lips, palate, and ventral tongue may manifest as aphthous ulcers. Exacerbation & remission of oral symptoms is commonly seen.

Gastroesophageal Reflux Disease

It is commonly seen in the age group of 16-35 years due to lifestyle changes and patients report heartburns, dysphagia, odynophagia, history of weight loss, gastrointestinal bleeding, nausea, and/or vomiting to the clinic.

Oral manifestations: Mucosal & gingival erosion caused by acid, Erosion of tooth enamel, and oral ulcers.

Plummer Vinson syndrome

It is commonly encountered in postmenopausal females. Patients develop localized esophagitis causing dysphagia and clinically evident iron deficiency anemia resulting in glossitis and angular cheilitis.

Peutz-Jeghers Syndrome

It is an Autosomal dominant disorder associated with oral and perioral melanocytic pigmentation, benign hamartomatous polyps of the gastrointestinal tract, and increased risk for developing malignancies.

Oral manifestations: Mucocutaneous pigmentation & intestinal polyposis (hamartomas), Black spots (macule) develop on the perioral skin, lips, buccal mucosa, and tongue.

Sweet Syndrome

It is characterized by accumulation of neutrophils in the skin, Fever, leucocytosis, arthralgia, myalgia with ocular involvement, and skin lesions with nonpruritic, erythematous papules, & vesiculobullous lesions.

Oral manifestations: painful, aphthous-like ulcer-lips, tongue, buccal mucosa & palate.

Liver diseases [2,3,4,6]

Alcoholic cirrhosis

It is a severe form of liver disease caused by excessive alcohol consumption and develops over time.

Oral manifestations: Bilateral parotid swelling, Hyposalivation, High content of potassium, calcium, and amylase in saliva, bleeding gums, bruising, etc.

Endocrine Diseases [2,3,4,5,6]

1] Thyroid Diseases

Hypothyroidism:

May develop in any age group due to insufficiency of thyroid hormone. Mental

and physical growth retarded if occurs at an early age.

Oral manifestations: Underdeveloped mandible, wide maxilla, disproportionate head, Macroglossia, Delayed teeth eruption, Spongy gingivae.

Congenital Hypothyroidism: Macroglossia, pronounced lips, & delayed tooth eruption with malocclusion is seen.

Hyperthyroidism: Excessive thyroid secretions are produced in this condition.

Facial & skin manifestations: upper eyelid retraction, exophthalmos, hyperpigmentation, & skin erythema.

Oral manifestations: Early loss of primary teeth with the subsequent rapid eruption of permanent teeth (young children), lymphoid tissue hyperplasia- tonsillar & oropharynx (Grave's disease).

2] Pancreas

Diabetes Mellitus

It develops due to an abnormal increase in blood glucose levels and is most commonly seen in the older age group.

Oral manifestations: Xerostomia, altered taste, pain, burning mouth syndrome, salivary changes like an increase in calcium and glucose contents, candidal infection due to reduced salivary flow and altered microflora, increased incidences of periodontal disease and dental caries.

3] Parathyroid glands

Controls calcium and phosphate metabolism and Influences tooth development and maintenance of healthy bone.

Hyperparathyroidism

Oral manifestations: Complete or partial loss of lamina dura, Alveolar bone demineralization (ground glass appearance), Giant cell fibrous bone lesion, Browns tumor.

Hypoparathyroidism and hypocalcemia

Low serum calcium levels are encountered in this condition.

Oral manifestations: in congenital form, mottled teeth are present whereas, in acquired form, no specific dental findings are present.

4] Adrenal gland

Cushing's Syndrome

It develops in patients undergoing long-term, high-dose corticosteroid therapy.

The patient will present with a moon or round face, buffalo humps, central obesity, osteoporosis, Diabetes mellitus, and Hypertension.

Oral manifestations: Increased susceptibility to oral infections (candidiasis), muscle weakness, difficulty in speaking, & swallowing, osteoporosis resulting in pathological fracture of a bone, and delayed healing.

Addison's Disease

Occurs due to primary adrenal insufficiency.

Oral manifestations: diffuse or patchy pigmentation of the skin & mucous membranes due to the increased levels of ACTH cross-reacting with melanin receptors. Pigmentation of buccal mucosa, palate, lips & gingiva is seen.

Gonads ^[2,4,6]

Puberty and pregnancy

Oral manifestations: Gingivitis, Pyogenic granulomas, Menstrual cycle-related recurrent aphthous ulcers.

Perimenopausal

Oral manifestations: Burning sensation of tongue/ oral cavity, change in taste sensation.

Renal Disease ^[2,4,6]

Uremic Stomatitis

Oral manifestations: Painful plaques and crust on the buccal mucosa, dorsum of the tongue, & floor of mouth covered with greyish pseudo membrane exudate & painful ulcers. Urea secreted in saliva; Urease enzyme produced by oral microflora liberates free ammonia leading to oral mucosal damage. Staining of teeth, enamel hypoplasia, Xerostomia, unpleasant taste, burning mouth, uriniferous breath odor.

DISCUSSION

Dentistry in 1840 was centered on removing decaying teeth and filling cavities. Dentists

today employ advanced procedures for prevention, diagnosis, and treatment. We implant teeth, detect oral malignancies, restructure jaws using 3-D imaging, and even treat certain tooth decay medically, without the need for a drill. We've also learned a lot more about the close relationship between dental health and overall health. Diabetes, high blood pressure, and cardiovascular disease have all been related to periodontal disease, often known as gum disease. Pregnant women who have periodontitis are more likely to have pre-eclampsia, a potentially fatal pregnancy complication, and have low-birth-weight kids. [6]

The American Dental Association recommends that dental appointments commence no later than a child's first birthday to create a "dental home." Dentists may advise children and parents, provide preventative oral health care, and identify and treat dental disease in its early stages. This regular dental treatment will assist both children and adults in maintaining good oral health for the rest of their lives. [7]

In addition to providing dental care, dentists are expected to emphasize and integrate the link between oral and systemic disease as a factor in their patient's overall health and quality of life. In keeping with what is hopefully happening with other orofacial specialties, such as ophthalmology, ENT, etc., oral physicians are shifting away from treating the patient as a whole in recognition of the growing complexity of medical care for both young and aging patients. [8]

CONCLUSION

A complete medical history is required for all patients since it aids in the identification of disorders that may impact dental treatment, raises the risk of a patient encountering a medical emergency, and aids in the diagnosis of oral symptoms of systemic illness. Hence the role of an oral physician is much greater than the dental setup.

Declaration by Authors

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