Oral manifestations of systemic diseases

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Outline

- **Cardiovascular Diseases**
- Respiratory Diseases
- Renal Diseases
- Diabetes Mellitus
- **GIT Diseases**
- Blood Disorders
- HIV
- **Vitamin deficiency**

- The oral cavity is a mirror that reflects many of the human body's internal secrets. Some of these manifestations are disease specific and may be accompanied by many systemic diseases. It is very important to recognize them and provide correct diagnosis.

Cardiovascular Diseases

- Angina Pectoris
- Congestive Heart Failure (CHF)
- Cyanotic and non cyanotic valvular heart diseases
- Arthrosclerosis

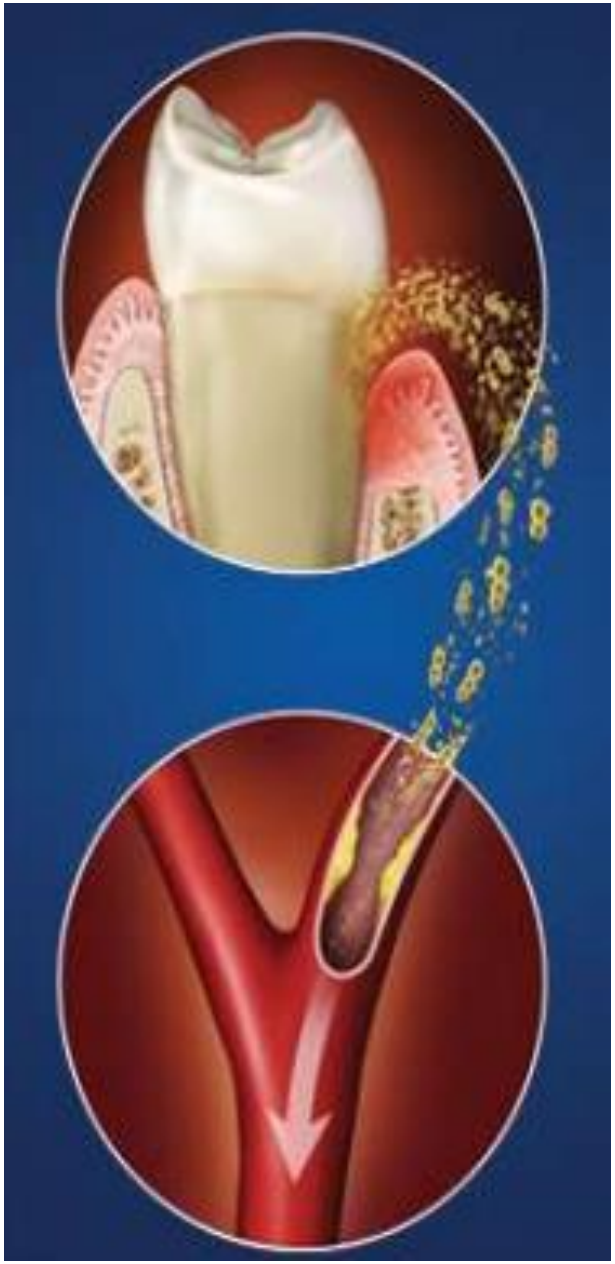
The classical risk factors

- hypertension
- hyper-cholesteroleamia
- cigarette smoking

biological mechanisms that explain the relationship between cardiovascular disease and periodontal disease

- Bacteria from periodontal disease may enter the circulation and contribute directly to the atheromatous or thrombotic processes.
- Systemic factors alter the immune inflammatory process involved in both periodontal and cardiovascular diseases.

cardiovascular disease and periodontal disease



Cardiovascular disease Oral manifestations

- Periodontal disease
- Lichenoid stomatitis
- Xerostomia
- Gingival hyperplasia
- Hemorrhagic complication

GIT diseases

- GASTROESOPHAGEAL REFLUX DISEASE
- Ulcerative colitis
- Crohn’s disease
- Peutz-Jegher’s Syndrome

GASTROESOPHAGEAL REFLUX DISEASE

- Most common disease of upper GI tract
- Gastric contents passively move up from the stomach into the esophagus

Symptoms/signs

- Heart burn (pain/burning sensation extending from epigastrium to the neck) – commonly felt after a meal
- esophagitis, esophageal ulceration & stricture
- Chest pain (mimics anginal pain)
- Dysphagia

Oral Manifestations & Dental Considerations

- erythema and mucosal atrophy
- dysgeusia, sensitivity & erosion (palatal aspects of upper anteriors and premolars)
- erosion leads to dentin sensitivity & irreversible pulpal involvement (gastric content pH – as low as 1)

GIT diseases, **Gastroesophageal reflux**

- reduction of the pH of the oral cavity below 5,5 – enamel damage
- damage of the dentin – higher sensitivity (to temperature..), caries

enamel damage

Bowel Disease

- Ulcerative colitis
- Crohn’s disease (regional enteritis, ileitis)

- Ulcerative colitis: Inflammatory process usually extends from rectum proximally in a continuous fashion involving variable lengths of large intestine but confined to mucosa & superficial submucosa. Destructive oral ulceration due to immune mediated vasculitis Polystomatitis Vegetans: microabscess on lips, palate, ventral tongue May manifests as aphthous ulcers

Treatment

- Sulfasalazine
- 5 aminosalicylates
- Corticosteroids (Topical & Systemic)
- Immunosuppresents (Tacrolimus, Cyclosporine, Infliximab)
- Surgery

CROHN'S DISEASE

- Affects entire thickness of intestinal wall, in segments forms strictures and scarring Small intestine - 40% Large intestine - 30% Both intestines- 30%

- Pain & diarrhea Fistulas which connect different sites in GIT, urinary bladder, vagina, prostate and skin Arthritis, uveitis & erythema nodosum of skin are common in both diseases

Oral Manifestations (Crohn's disease)

- Oral granulomatous lesions as a nodular mass in the mucobuccal fold
- Lesions resembling aphthous ulcers
- Cobblestone appearance on buccal mucosa
- Linear hyperplastic folds with ulcers in the vestibule

- Swollen & indurated lips
- Granular red lesions on gingiva and alveolar mucosa and palatal ulcers (rarely)

Treatment

- High fiber diet
- sulfasalazine
- Corticosteroids
- Immunosuppresents
- Surgery

Peutz-Jegher's Syndrome

- Autosomal dominant
- Mucocutaneous pigmentation & intestinal polyposis (hamartomas)
- Black spots (macule): perioral skin, lips, buccal mucosa, tongue
- Treatment: Conservative or local excision

ORAL MANIFESTATION OF VITAMIN DEFICIENCY

VITAMIN A DEFICIENCY

- Teeth – vitamin A deficiency leads to defective formation of enamel.
- Hypoplasia of teeth – since enamel forming cells are disturbed.
- Dentin – lacks the normal tubular structure.
- Caries – there is increased risk for caries
- Eruption – delayed in prolonged deficiency.

- Alveolar bone – retarted in its rate of formation.
- Gingiva – gingival epithelium becomes hyperplastic, in prolonged deficiency it shows keratinization.
- Periodontal disease – tissue is easily invaded by bacteria that may cause periodontal disease.
- Salivary gland – undergo typical keratinizing metaplasia

TREATMENT

- vitamin deficiency should be treated urgently
- depending upon deficiency symptoms it is given in the dose of 7,500 to 15,000 mcg per day for one month
- nearly all of the early stages of xerophthalmia can be reversed by administration of a massive dose – 2,00000 IU or 110mg orally on two successive days.
- If Hypervitaminosis restriction of diet

VITAMIN - D

- It is also called SUNSHINE VITAMIN.
- It is available in 2 forms D3 – cholecalciferol D2 – calciferol
- vitamin D are found in both yeast and animal tissues
- In a natural way , exposure of skin to sunlight synthesizes vitamin D

Oral manifestation

- Teeth – developmental abnormalities of dentine & enamel.
- Caries – higher risk of caries
- Enamel – there may be hypoplasia of enamel, may be mottled, yellow gray in color
- Pulp – high pulp horns, large pulp chamber, delayed closure of root apices

MANAGEMENT

- Dietary enrichment of vitamin D in the form of milk
- Curative treatment includes 2000 to 4000 IU of calcium daily for 6 to 12 weeks.
- Patient with osteomalacia due to intestinal malabsorption require larger dose of vitamin D & calcium i.e. 40,000 to 1,00,000 IU of vitamin D &15 to 20 gms of calcium lactate.

VITAMIN- E

- Vitamin E is a naturally occurring antioxidant. It is essential for normal reproduction in many animals, hence known as anti sterility vitamin
- Many vegetable oils are rich sources of vitamin E. Wheat germ oil, cotton seed oil, peanut oil, corn oil, sunflower oil. It also present in meat, milk, butter and eggs

Oral manifestations

- loss of pigmentation ,
- atrophic degenerative changes in enamel

Vitamin - K

- It is available in 2 forms
- K1 – it is the form occurs in plant origin.
- K2 - is synthesized by intestinal bacteria.

sources of vitamin K

- SPINACH
- CABBAGE
- CAULIFLOWER
- SOYA BEAN
- WHEAT GERM
- CARROTS
- POTATOES
- TOMATOES
- MILK
- MEAT
- FISH

Biochemical functions of vitamin K

- it is essential for the hepatic synthesis of coagulation factor II, V, VII, IX, X
- CLOTTING – it prevents hemorrhage only in cases when there is defective production of prothrombin
- OXIDATIVE PHOSPHORYLATION – it acts as a co- factor in oxidative phosphorylation associated with lipid

Vitamin - C

- It is also called ascorbic acid and antibiotic vitamin.
- it is the most active reducing agent.
- it is powerful antioxidant

sources of vitamin C

- Citrus fruits, gooseberry, guava, green vegetables, tomatoes, potatoes are rich in ascorbic acid.
- High content of vitamin C is found in adrenal gland and gonads.
- Milk is poor source of ascorbic acid

Oral manifestations

- Scorbutic gingivitis: characterized by
- Ulcerative gingivitis
- Rapid periodontal pocket development
- Tooth exfoliation

B complex vitamins

- Most B complex occurs in nature in the bound form within the cells of vegetables or animal tissues.
- The digestion for the liberation of vitamins and its absorption is a result of breakdown of cellular structures in the gut.
- Excretion of vitamins occurs in the kidney.

Oral manifestation

- B1 - There is hypersensitivity of oral mucosa.Pain in tongue, teeth, jaw, and face
- B2 – glossitis, cheilosis
- B3 - Oral mucosa – becomes fiery red & painful & salivation is profuse. Tongue – epithelium of entire tongue is desquamated. The tongue becomes red swollen & beefy. In advanced cases, the tongue loses all the papillae & reddening becomes intense.

- B12 - Vitamin B deficiencies are one of the most common deficiencies that can affect your teeth and your mouth. Common oral effects of vitamin B deficiency are burning sensations in the mouth and on the tongue, trouble swallowing, swollen tongue, and pale tissues in the inner cheeks that could break apart easily and come off