
Oral Manifestation of Diabetes Mellitus: Analytical Essay

Introduction

It is a common disorder of carbohydrate metabolism that is thought to have several causes, although basic problem is one of either decreased production of insulin or tissue resistance to the effects of insulin. The net result of this abnormal state is an increase in the blood glucose level (hyperglycemia).

It is usually divided into types:

1. Type I—characterized by complete, or nearly complete, lack of insulin production
2. Type II—characterized by inadequate insulin production or resistance of target tissues to the effects of insulin

Type I diabetes mellitus was known as insulin-dependent diabetes mellitus or juvenile-onset diabetes. Type II diabetics often require insulin injections in order to manage their disease, and from 5% to 10% of type 1 diabetics develop their disease after 30 years of age. Patients with type 1 diabetes mellitus usually exhibit severe hyperglycemia and ketoacidosis without treatment, and they require exogenous insulin injections to survive.

Type II diabetes mellitus usually occurs in older, obese adults, but it may be seen in obese adolescents. Although hyperglycemia is present, ketoacidosis rarely develops. Furthermore, patients can produce some endogenous insulin. Certain patients may require insulin to help control their disease; the insulin injections, however, are usually not necessary for the patient's survival.

The cause of diabetes mellitus is essentially unknown, although most cases of type I diabetes appear to be caused by autoimmune destruction of the pancreatic islet cells, and this immunologic attack may be precipitated by a viral infection in a genetically susceptible individual. In Type II diabetes, no destruction of the islet cells is seen microscopically and genetic abnormalities have been detected in patients with certain types of type II diabetes, which may explain why the condition occurs so often in families.

Oral manifestation of diabetes mellitus

1. Gingivitis

It is a reversible and mildest form of periodontal disease. Plaque accumulation is greatest in interdental region so gingiva inflammation tends to start in interdental papilla and spread from there to neck of teeth. For consistency of gingiva is soggy puffiness that pits on pressure. The size of gingiva is increased. For texture of gingiva, loss of stippling (orange peel-like appearance) is present. It presents as smooth and shiny, firm and nodular, peeling of surface and minutely nodular surface. There will also present chronic recurrent, spontaneous bleeding or slight bleeding. Gingiva color changes from coral pink to reddish. The marginal gingiva becomes rolled or rounded, interdental papilla become blunt and flat.

2. Periodontitis

Chronic periodontitis is defined as an infectious disease resulting in inflammation with in supporting tissues of teeth, progressing attachment loss and bone loss. It effects both sexes equally and increase with age. Patient often will have bleeding gum during brushing or eating. There will increasing spacing between teeth as a result of tooth movement which will leads to loose tooth. It is usually painless but sometimes localized dull pain radiating deep into jaw. Sensitivity to heat, cold or both due to exposure roots and there will be food impaction, halitosis and gingival tenderness or itching. Pocket formation is most obvious to be seen. Pocket depth are variable and both horizontal and vertical bone loss can be found. Pocket depths are variable and both suprabony and intrabony pockets can be found. There will be furcation involvement in molars which are common in advance cases of chronic periodontitis. Tooth mobility often appears in advanced cases when bone loss has been considerable. For gingiva appearance, color will become pale red to magenta with soft or firm consistency, loss of stippling, blunted or rolled gingival margin and also flattened or cratered papillae.

3. Dental caries and loss tooth

Patients with diabetes are susceptible to oral infections that lead to tooth decay and loss. Salivary secretion dysfunction, periodontal and sensory disorders could increase the likelihood of developing new and recurrent dental caries and tooth loss. Cleansing and buffering capacity of the saliva is diminished in patients with diabetes mellitus resulting in increased incidence of dental caries, especially in patients who suffer from xerostomia.

4. Xerostomia

It is dry mouth. Even though the mouth is present as dry and saliva sparse, stringy or frothy, many patients with mild xerostomia make no complaint of dry mouth, but rather of difficulty eating or speaking or having an unpleasant taste in the mouth. Most find severe dryness almost unbearable. Challacombe scale is present for assessing dry mouth clinically. Mild dryness will have mirror sticks to buccal mucosa and tongue, saliva frothy. Moderate dryness will have no saliva pooling in floor of mouth, tongue shows generalized mild depapillation and smooth gingiva architecture. Severe dryness will present as glassy appearance of oral mucosa, especially palate, lobulated or fissured tongue, cervical caries in more than 2 teeth, debris on palate or sticking to teeth. Xerostomia's significant sequelae are caries especially root caries and candidosis.

5. Taste dysfunction

It is defined as altered taste sensation in oral cavity. Salivary dysfunction can contribute to altered taste sensation or elevation of detection thresholds. [1] Taste dysfunction has been reported to occur more frequently in patients with poorly controlled diabetes compared to healthy controls. [2] Diabetic patients who suffer from neuropathy have a higher taste threshold.

6. Oral mucosal disease

Both lichen planus and recurrent aphthous stomatitis have been reported to occur in patients with diabetes. [3] Oral lichen planus (OLP) is a skin disorder that produces lesions in the mouth. OLP

is reported to occur more frequently in patients with type 1 diabetes compared to type 2 diabetes. [3] The reason for this is that type 1 diabetes is considered an autoimmune disease, and OLP has been reported to have an underlying autoimmune mechanism. Patients with diabetes are subjected to a prolonged state of chronic immune suppression especially in type 1 diabetes. In addition, acute hyperglycaemia causes alteration in the immune responsiveness in diabetes mellitus. Atrophic-erosive oral lesions are more common in patients with diabetes with OLP. [4]

It has a characteristic but not entirely specific appearance and distribution and usually bilateral and very often symmetrical, sometimes strikingly. Buccal mucous membranes, particularly posteriorly, are by far the most frequently affected site, but lesions may spread forward almost to the commissures. Next most common site is tongue, either lateral margins or, less frequently, the dorsum. Gingivae are often affected at least focally, by desquamative gingivitis (inflamed gingiva with peeling of the surface epithelium). Only gingiva around teeth is affected; lichen planus resolves on extraction of teeth and rarely affects edentulous ridges. Unlike skin lesions, oral lesions are difficult to treat, and most patients will suffer oral lesions for life, although severity may wane with age.

Atrophic lichen planus produces red areas of epithelial thinning, often combined with striae. Inflamed submucosa is visible through the thin epithelium, appearing red.

Ulcerated lichen planus is often incorrectly called erosive lichen planus. Erosions result from loss of the epithelial surface, as in pemphigus. Conversely, the ulceration in lichen planus results from severe basal cell destruction to the extent that the epithelium cannot renew itself and ulcers develop. The ulcers are shallow and irregular and covered by a smooth, slightly raised yellowish layer of fibrin. Ulcers are usually surrounded by atrophic areas, and striae may be seen around the margins.