

ORAL MANIFESTATIONS OF DIABETES MELLITUS: A REVIEW

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ABSTRACT

Oral cavity is the mirror of whole body. Oral cavity has the great role in the maintenance of general health. Respiratory disorders, gastrointestinal disorders, bleeding disorders, hormonal disorders, dermatological disorders, metabolic disorders e.g. Diabetes mellitus have many oral complications. Diabetes mellitus is a chronic metabolic disease. It is one of the leading causes of mortality and morbidity worldwide. There are so many chronic complications of diabetes mellitus e.g. retinopathy, nephropathy, oral complications. The common oral complications of diabetes mellitus are oral candidiasis, periodontitis, gingivitis, lichen planus, lichenoid reaction, oral ulcers, dental caries, salivary flow alteration, delayed wound healing etc.

KEYWORDS: Diabetes mellitus; oral health; oral hygiene; dental caries; periodontal disease.

INTRODUCTION

Diabetes is a chronic disease that affects millions of people and their families.^[1] It currently affects approximately 20.8 million people in the United States, and an estimated 6.2 million

of those people have not yet been diagnosed.^[2] Diabetes is a serious health problem with many complications such as renal complications, heart complications, oral complications, ocular complications, neural complications, increased susceptibility to illnesses e. g. influenza and pneumonia etc. People with diabetes have mild to severe forms of nervous system damage about 60 to 70%.^[2] The results of nervous system damage can include impaired sensation or pain in the feet or hands, slowed digestion of food in the stomach, carpal tunnel syndrome, and other nerve problems. Also, more than 60% of nontraumatic lower-limb amputations occur in people with diabetes.^[2] Furthermore, poorly controlled diabetes during pregnancy can cause major birth defects and spontaneous abortions, and can result in excessively large babies, posing a risk to both mother and child. Overall, the risk for death among people with diabetes is about twice that of people without diabetes of similar age.^[2]

ORAL COMPLICATIONS

Fungal Infections

Oral fungal infections are very common in the patients with diabetes mellitus. The incidence of fungal infections in patients with diabetes mellitus has been recognised for many years.^[3] Candidal infection is reported to be more prevalent in patients with diabetes especially in those patients who smoke, wear dentures, have poor glycaemic control and use steroids and broad spectrum antibiotics.^[4] In addition, salivary dysfunction in patients with diabetes can also contribute to higher carriage of fungi in this group of patients. It is clear from these studies that both local and systemic predisposing factors might increase candidal carriage rate and hence increase the risk of oral candidal infection in patients with diabetes.^[5]

Mucormycosis is a rare fungal infection. It is serious systemic fungal infection which may occur in uncontrolled diabetic patients. Mucormycosis is an aggressive, frequently fatal invasive fungal infection that can develop in immunocompromised patients. Mucor is often recognized as a triad of symptoms, such as uncontrolled diabetes mellitus, periorbital infection and meningoencephalitis.^[6]

*Candidiasis*

Oral Lichen Planus

Lichen planus is a mucocutaneous disorder. Oral lichen planus is a precancerous condition which is characterised by white areas of the mucosa that do not wipe off may be a sign of a condition known as lichen planus, a chronic subepithelial inflammatory disorder that results in a characteristic lacy or patch-like white pattern over reddened mucosa.^[7,8]

*Lichen planus*

Lichenoid Drug Reaction

Lichenoid reactions may be symptomatic with pain, burning sensation, and sensitivity to acidic foods. They are associated with an increased risk for dysplastic or cancerous transformation.^[9]

*Lichenoid Reaction*

Dental Caries

There are several factors which are responsible for dental caries such as decrease salivary flow, increase glucose level in saliva, increase glucose level in crevicular fluid, poor oral hygiene etc. Although the total oral intake of refined carbohydrates may be reduced in diabetic patients, ingestion of food still occurs at frequent intervals throughout the day and causes a repeated reduction in the pH of the oral cavity which is another factor for the increased susceptibility.^[10]

Gingivitis and Periodontitis

Gingivitis and periodontitis are common inflammatory lesions and common manifestations of several systemic diseases. Diabetes is associated with increased gingival inflammation response to bacterial plaque. Diabetes increases the prevalence and severity of periodontitis. Periodontitis has been reported as sixth complication of diabetes along with retinopathy, nephropathy, neuropathy, microvascular and macrovascular diseases.^[11] Diabetes increases the risk of alveolar bone loss and attachment loss.^[12]



Aggressive Gingivitis



Periodontitis

Impaired Salivary Gland Function

According to a study^[13] there is a significantly higher degree of xerostomia in type 2 diabetes mellitus. Similarly, xerostomia has been observed in undiagnosed diabetes mellitus with the evidence of salivary hypo-function.

Another study^[14] showed that *Candida pseudohyphae* and oral soft tissue manifestations of candidiasis such as median rhomboid glossitis, denture stomatitis and angular cheilitis were more prevalent in type 1 diabetes mellitus. The other acknowledged oral manifestations are burning mouth syndrome, altered taste, lichen planus and parotid enlargement.^[15]

Another study showed^[16] a significant difference in hyposalivation between diabetic patients and controls and they reported that hyposalivation was present in 30.8% of the cases. Hyposalivation is said to be a very common symptom of the disease and has been linked with dysfunction of the parenchyma of the major salivary glands.

OTHER ORAL COMPLICATIONS

Other less common oral complications of diabetes mellitus are halitosis, taste impairment, median rhomboid glossitis, benign migratory glossitis, burning mouth syndrome and fissuring of the dorsum of the tongue, traumatic ulcers and irritational fibroma etc.

PREVENTION OF ORAL COMPLICATIONS

A routine visit to the oral physician and regular monitoring of the glucose level are very important for minimizing the oral complications in the diabetic patient.

INSTRUCTION FOR THE PATIENTS WITH DAIBETES

- Monitor and Control your blood glucose.
- Use fluoride toothpaste twice daily and floss each day.
- Use warm saline gargle each day.
- Routinely visit to oral physician.
- Quit the bad habit e. g. smoking.

CONCLUSION

Diabetes is a metabolic disorder. It has many oral complications so awareness is very important regarding the diabetes mellitus. It has also many other systemic complications. Regular glucose monitoring and routine check-up of oral cavity is important to minimise the oral complications.

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