

## Original ARTICLE

### Prevalence of oral manifestations in diabetic patients

Abhishek Choudhary<sup>1</sup>, Hemant Sharma<sup>2</sup>, Harsh Choudhary<sup>3</sup>

<sup>1</sup>MDS (Oral Pathology & microbiology & forensic odontology), Private Consultant, Rajasthan, <sup>2</sup>Assistant professor, Rajasthan Dental college, Rajasthan, <sup>3</sup>MDS (Oral Pathology & microbiology & forensic odontology), Senior Dental Consultant in Bharat Vikas Parishad, Jodhpur

#### ABSTRACT

**Background:** Diabetes is a growing health concern and a common chronic metabolic disease worldwide. Hence; the present study was conducted for assessing the prevalence of oral manifestations in diabetic patients. **Materials & methods:** A total of 50 diabetic patients were enrolled. Complete demographic details of all the patients were obtained. Blood samples were obtained from all the patients and glycaemic profile was assessed. Mouth mirror and probe was used and complete oral examination was carried out for assessing the incidence of diabetes associated oral lesions. Also, correlation of prevalence of oral lesions with duration of diabetes was assessed.

**Results:** Xerostomia, periodontal pathologies, burning mouth syndrome and altered taste sensation were found to be present in 46 percent, 58 percent, 36 percent and 32 percent of the diabetic patients. While correlating the prevalence of oral lesions with duration of diabetes, non-significant results were obtained. **Conclusion:** Oral lesions are a common phenomenon among diabetic patients. Therefore; oral examination should be carried out in diabetic patients at regular intervals for controlling the severity of disease.

**Key words:** Diabetic, Oral manifestations

**Corresponding author:** Dr. Abhishek Choudhary, MDS (Oral Pathology & microbiology & forensic odontology), Private Consultant, Rajasthan

**This article may be cited as:** Choudhary A, Sharma H, Choudhary H. Prevalence of oral manifestations in diabetic patients. HECS Int J Comm Health Med Res 2019; 5(4): 89-91.

#### INTRODUCTION

Diabetes is a growing health concern and a common chronic metabolic disease worldwide. Diabetes mellitus represents a group of metabolic diseases that are characterised by hyperglycaemia due to a total or relative lack of insulin secretion and insulin resistance or both. The metabolic abnormalities involve carbohydrate, protein and fat metabolism. Diabetes mellitus (DM) affects all age groups, but is more common in adults. The World Health Organization (WHO) has recently declared it to be a pandemic.<sup>1-3</sup>

Patients with diabetes present impaired function of polymorphonuclear leukocytes (leukocyte adhesion, chemotaxis, and phagocytosis), impaired bactericidal activity, altered response to exposure to antigens, and alteration to the function of T lymphocytes (2). Many studies have shown a clear link between chronic inflammation and the development of Type 2 Diabetes Mellitus (DM2).<sup>4</sup>

Among the oral manifestations related to DM described are: dry mouth, tooth decay, periodontal disease and gingivitis, oral candidiasis, burning mouth syndrome (BMS), taste disorders, rhinocerebral zygomycosis (mucormycosis), aspergillosis, oral

lichen planus, geographic tongue and fissured tongue, delayed wound healing, and increased incidence of infection, salivary dysfunction, altered taste and other neurosensory disorders, impaired tooth eruption, and benign parotid hypertrophy.<sup>5, 6</sup> Hence; the present study was conducted for assessing the prevalence of oral manifestations in diabetic patients.

#### MATERIALS & METHODS

The present study was conducted with the aim of assessing the incidence of oral manifestations in diabetic patients. A total of 50 diabetic patients were enrolled. Exclusion criteria for the present study included:

- Hypertensive subjects
- Subjects with presence of any form of benign or malignant neoplasms
- Subjects with presence of any other metabolic disorder
- Subjects with presence of any allergic disorder

Complete demographic details of all the patients were obtained. Blood samples were obtained from all the patients and glycaemic profile was assessed. Mouth mirror and probe was used and complete oral examination was carried out for assessing the

incidence of diabetes associated oral lesions. Also, correlation of prevalence of oral lesions with duration of diabetes was assessed. All the results were analyzed by SPSS software. Chi- square test was used for assessment of level of significance. P- value of less than 0.05 was taken as significant.

**RESULTS**

In the present study, a total of 50 diabetic patients were enrolled. Mean age of the patients of the patients of the present study was 48.5 years. 42 percent of the patients belonged to the age group of 40 to 55 years. 28 percent of the patients belonged to the age group of more than 55 years. 62 percent of the patients were males while the remaining diabetic patients were females. In the present study, xerostomia, periodontal pathologies, burning mouth syndrome and altered taste sensation were found to be present in 46 percent, 58 percent, 36 percent and 32 percent of the diabetic patients. While correlating the prevalence of oral lesions with duration of diabetes, non-significant results were obtained.

**Table 1:** Demographic data

Parameter	Number	Percentage	
<b>Age group (years)</b>	Less than 40	15	30
	40 to 55	21	42
	More than 55	14	28
<b>Gender</b>	Males	31	62
	Females	19	38

**Table 2:** Prevalence of oral lesions

Oral manifestations	Number of patients	Percentage of patients
<b>Xerostomia</b>	23	46
<b>Periodontal pathologies</b>	29	58
<b>Burning mouth syndrome</b>	18	36
<b>Altered taste sensation</b>	16	32
<b>Others</b>	8	16

**Table 3:** Correlation of prevalence of oral lesions with duration of diabetes

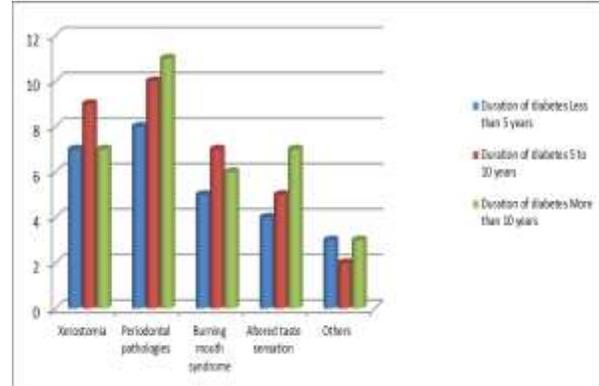
Oral manifestations	Duration of diabetes			p- value
	Less than 5 years	5 to 10 years	More than 10 years	
<b>Xerostomia</b>	7	9	7	0.352 (Non-significant)
<b>Periodontal pathologies</b>	8	10	11	
<b>Burning mouth syndrome</b>	5	7	6	
<b>Altered taste sensation</b>	4	5	7	
<b>Others</b>	3	2	3	

**DISCUSSION**

Different inflammatory diseases and soft tissue pathologies in oral cavities are associated with diabetes mellitus; however, awareness of these complications is lacking worldwide. Periodontal diseases have been proposed as the sixth most prevalent complication of diabetes mellitus following the other diabetic complications. It has

been reported as a more frequent oral complication of diabetes compared to other oral manifestations such as dry mouth and caries.<sup>5- 8</sup> Hence; the present study was conducted for assessing the prevalence of oral manifestations in diabetic patients.

**Graph 1:** Correlation of prevalence of oral lesions with duration of diabetes



In the present study, mean age of the patients of the patients of the present study was 48.5 years. 42 percent of the patients belonged to the age group of 40 to 55 years. 28 percent of the patients belonged to the age group of more than 55 years. 62 percent of the patients were males while the remaining diabetic patients were females. Xerostomia can lead to numerous problems such as difficulty in eating, swallowing, and speaking. It can actually have a negative effect on patients' quality of life. Many studies have detected impaired salivary function in adults with diabetes. The etiology is unknown, but may be related to polyuria, autonomic neuropathies, and microvascular changes and alterations in the basement membranes of salivary glands. There is a significant relationship between the degree of xerostomia and glucose levels in saliva. Notably, the highest level of salivary dysfunction is observed in diabetics with poor glycemic control.<sup>9, 10</sup>

In the present study, xerostomia, periodontal pathologies, burning mouth syndrome and altered taste sensation were found to be present in 46 percent, 58 percent, 36 percent and 32 percent of the diabetic patients. While correlating the prevalence of oral lesions with duration of diabetes, non-significant results were obtained. Kathiresan TS et al determined the frequency of oral changes in diabetic patients and to study the relationship between periodontal disease and diabetes mellitus. The study sample consisted of 440 known diabetic patients between the age group of 20–80 years, of which 212 were males and 228 were females. One hundred and six patients were below 40 years, 138 patients between 41 and 50 years, 97 in 51–60 years, and 99 above 60 years of age. Data were statistically analyzed by Student's t-test. Nearly 57% of the patients showed a Russell's Periodontal Index score of 2–4.9, which suggested an established periodontal disease. Risk factors for the people above the age of 40 years to develop diabetes were 76%. The frequency of oral manifestations in diabetic patients was significantly high, hence showing a relationship of gingival and periodontal diseases with diabetes mellitus.<sup>11</sup> Diabetes is a risk factor for gingivitis and periodontitis, and the degree of glycemic control appears to be an important determinant in this relationship. Individuals with type 1 diabetes and high blood glucose levels are more likely to have advanced periodontal diseases, and there are increases in the prevalence and severity of gingival inflammation and periodontal destruction in these

patients. In people with poorly controlled type 2 diabetes, one study found an 11 times higher risk of alveolar bone loss over a 2-year period compared to control subjects without diabetes.<sup>12</sup>

## CONCLUSION

From the above results, the authors concluded that oral lesions are a common phenomenon among diabetic patients. Therefore; oral examination should be carried out in diabetic patients at regular intervals for controlling the severity of disease.

## REFERENCES

1. Moore PA, Orchard T, Guggenheimer J, Weyant RJ. Diabetes and oral health promotion: A survey of disease prevention behaviors. *J Am Dent Assoc.* 2000;131:1333–41.
2. Al Habashneh R, Khader Y, Hammad MM, Almuradi M. Knowledge and awareness about diabetes and periodontal health among Jordanians. *J Diabetes Complications.* 2010;24:409–414.
3. Mirza KM, Khan A, Ali MM, Chaudhry S. Oral health knowledge, attitude, and practices and sources of information for diabetic patients in Lahore, Pakistan. *Diabetes Care.* 2007;30:3046–7.
4. Sousa MG de M, Costa A de LL, Roncalli AG. Clinical study of the oral manifestations and related factors in type 2 diabetics patients. *Braz J Otorhinolaryngol.* 2011;77:145–52.
5. Miralles Jorda L, Silvestre Donat FJ, Grau García-Moreno DM, Hernandez-Mijares A. Buccodental pathology in patients with insulin-dependent diabetes mellitus: a clinical study. *Med Oral.* 2002;7:298–302.
6. Bharateesh J, Ahmed M, Kokila G. Diabetes and Oral Health: A Case-control Study. *Int J Prev Med.* 2012;3:806–9.
7. Vernillo AT. Dental considerations for the treatment of patients with diabetes mellitus. *Am Dent Assoc.* 2003;134:24–33.
8. Yuen HK, Wolf BJ, Bandyopadhyay D, Magruder KM, Salinas CF, London SD. Oral health knowledge and behavior among adults with diabetes. *Diabetes Res Clin Pract.* 2009;86:239–46.
9. Cicmil A, Govedarica O, Lečić J, Mališ S, Cicmil S, Čakić S. Oral Symptoms and Mucosal Lesions in Patients with Diabetes Mellitus Type 2. *Balk J Dent Med.* 2017;21:50–54.
10. Mauri-Obradors E, Estrugo-Devesa A, Jané-Salas E, Viñas M, López-López J. Oral manifestations of Diabetes Mellitus. A systematic review. *Med Oral Patol Oral Cir Bucal.* 2017;22:e586–e594.
11. Kathiresan TS, Masthan KMK, Sarangarajan R, Babu NA, Kumar P. A Study of Diabetes Associated Oral Manifestations. *J Pharm Bioallied Sci.* 2017;9(Suppl 1):S211–S216.
12. Taylor GW, Burt BA, Becker MP, et al. Noninsulin dependent diabetes mellitus and alveolar bone loss progression over 2 years. *J Periodontol* 1998;69:76–83.