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**Dr. Damini Y Bisen**  
Department of Periodontology,  
Govt. Dental College and  
Hospital, Nagpur, Maharashtra,  
India

**Dr. Jyoti Khade**  
Assistant Professor, Department  
of Periodontology, Govt. Dental  
College and Hospital, Nagpur,  
Maharashtra, India

**Dr. Ajay Khade**  
Professor and Head, Department  
of Pharmacology, Datta Meghe  
Medical College, Nagpur,  
Maharashtra, India

**Corresponding Author:**  
**Dr. Damini Y Bisen**  
Department of Periodontology,  
Govt. Dental College and  
Hospital, Nagpur, Maharashtra,  
India

## Can vitiligo affect the periodontal status of a diabetic patient? A case report

**Dr. Damini Y Bisen, Dr. Jyoti Khade and Dr. Ajay Khade**

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### Abstract

Periodontitis is a microorganism-driven and host-mediated disease that leads to loss of periodontal attachment and alveolar bone. It is a highly prevalent disease with multiple etiological and risk factors.

Vitiligo is a disorder which affects the production and function of melanocytes. Total absence or reduced number of melanocytes can be a risk factor for periodontitis. However, there is a lack of sufficient evidence about the relationship of vitiligo with periodontitis.

Similarly, Type 2 Diabetes is a highly prevalent chronic non-communicable disease with periodontitis as one of its complications.

Here, we are reporting a case of periodontitis in a known patient of diabetes and vitiligo. The aim of this report is to create awareness about the probable association between diabetes, vitiligo and periodontitis.

**Keywords:** Periodontitis, diabetes, vitiligo

### Introduction

Vitiligo is a non-contagious acquired pigmentation disorder characterized by defined white patches of variable shape and dimensions, increasing in size and number with time <sup>[1]</sup>. It is a common non-infectious dermatological disorder characterized by acquired, idiopathic, progressive and circumscribed hypo-melanosis of the skin and hair, with the total absence of melanocytes microscopically <sup>[2]</sup>. Globally, the prevalence of vitiligo is found to be 2%. In India, the incidence of vitiligo is between 0.1 to more than 8.8% <sup>[3]</sup>. This disease can affect the psychology of patient as it hampers the aesthetics especially in females, children and dark-skinned individuals.

Type II diabetes is one of the most commonly occurring non-communicable disease seen in all populations. Common complications seen in diabetes include neuropathy, nephropathy, retinopathy, microvascular changes, delayed wound healing and periodontitis.

Diseases of periodontium are mostly chronic inflammatory in nature, with microbial aetiology that leads to destruction of tooth supporting structures including periodontal ligament and alveolar bone.

A bidirectional relationship between diabetes and periodontitis has been established through multiple clinical studies <sup>[4]</sup>. But there is limited evidence to support an association between vitiligo and periodontitis. Inflammatory cytokines like TNF $\alpha$ , IL-1, IL-6, C-reactive protein, oxidative stress and endothelial dysfunction are some of the markers and events common to chronic diseases like diabetes, periodontitis, and others <sup>[5]</sup>.

Here, we are reporting a case of periodontitis diagnosed in a known patient of vitiligo and diabetes. Also, the aim of this paper is to briefly review about the possible association between these three conditions.

**Case Report:** A 49 years old male patient reported to periodontology department with chief complaint of sensitivity and pain with mandibular anterior teeth for two days. He also experienced bleeding gums occasionally since 3 to 4 months.

Patient is a diagnosed case of generalised vitiligo for more than 18 to 20 years. Patient was completely devoid of melanin pigmentation in skin of his entire body excluding few residual spots. (Figure: 1)



**Fig 1:** Complete lack of melanin pigmentation on face except few remaining spots (arrow) around the eyes.

Patient is recently been diagnosed with diabetes around 6 months back and is under medication for the same (Tablet metformin 500 mg once a day). He also has the habit of tobacco chewing for the past 20 years.

Intraoral examination (Figure: 2) revealed supragingival and subgingival calculus, generalised attrition, cervical abrasion, stains due to tobacco chewing, gingival recession with mandibular anterior teeth and few maxillary posterior teeth, clinical attachment loss of 3 to 4 mm with more than one third existing teeth. Severe attachment loss and mild mobility was seen with mandibular central incisors and left side maxillary first molar. Grade I furcation involvement was also present with maxillary first molars.



**Fig 2:** Intraoral clinical photograph

Based on the findings of history and clinical examination the patient is diagnosed as generalized stage II and grade B periodontitis modified due to tobacco chewing, diabetes and vitiligo. Patient is subjected to nonsurgical periodontal therapy (Figure: 3 and 4) including supra- and subgingival scaling and root planing, oral hygiene instructions, regular evaluations by both dentist/ periodontist and physician and supportive periodontal therapy. Patient is also advised to discontinue tobacco chewing by educating him about the ill-effects of the same. But as the patient belongs to poor socioeconomic status, his compliance is not satisfactory, both

in terms of keeping up with the recall appointments as well as about following instructions. Nevertheless, patient is advised to continue periodontal and systemic therapy as needed.



**Fig: 3 and 4:** Intra-oral photograph with occlusal view of maxillary and mandibular teeth after supra- and subgingival scaling showing gingiva and hard palate devoid of melanin pigmentation.

### Discussion

There is no age limit to the development of lesions of vitiligo, but the general opinion is that its onset is usually between the ages of 10 to 30 years [6]. These findings are consistent with the present case as patient was diagnosed of vitiligo at around 30 years age.

Involvement of cell mediated autoimmune response leading to destruction of cutaneous melanocytes and absence of melanin pigment in the skin of the affected area is seen in vitiligo patients [7]. Melanin produced by melanocytes residing in the basal cell layer of the gingival epithelium have the capacity to neutralize reactive oxygen species (ROS) generated by dental plaque-induced inflammation in the periodontal microenvironment. A recent report shows that markers of gingival inflammation are reduced in subjects with pigmented gingiva compared to subjects with non-pigmented gingiva, despite comparable dental plaque levels in both groups of subjects [8]. Melanin itself can neutralise bacteria-derived enzymes and toxins, and since it has strong binding properties, it can also act as a physical barrier against microorganisms. Furthermore, melanocytes can act as antigen presenting cells, which can stimulate T-cell proliferation thereby helping in phagocytosis. Therefore, melanocytes and

melanin may be viewed as an integral part of the innate immune system with a role in neutralising the products of bacterial and fungal infective agents [9]. These findings suggest of a protective role of melanocyte and melanin in chronic inflammatory periodontal disease. And, as in the current case report we have a known vitiligo patient with periodontitis, the prognosis could be worse if not addressed adequately.

Diabetes and periodontitis are two very commonly occurring chronic diseases with multiple factors playing a role in their progression. These two conditions have the capacity to influence each other through various well-established mechanisms as shown in multiple studies [10, 11].

Ironically, the present case is diagnosed with vitiligo, diabetes and periodontitis simultaneously thus complicating the thorough management of this patient. And with an added tobacco chewing habit, prognosis is worsened and overall morbidity is increased.

### Conclusion

General dentist/ periodontist and physician should be aware about influence of oral and systemic diseases on each other, as it can help in holistic management of patients with simultaneous presentations of multiple conditions. Also, as diabetes and periodontitis are commonly found chronic diseases, simultaneous presentation of other systemic conditions like vitiligo, calls for a more guarded and broader approach in terms of treatment.

### Consent

Informed consent was obtained from the patient for the publication of this report and for use of any accompanying images.

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### Conflict of Interest

Not available

### Financial Support

Not available

### References

1. Dummett CO. The oral tissues in vitiligo. *Oral Surg Oral Med Oral Pathol.* 1959;12:107-39.
2. Lawoyin D, Brown R, Reid E, Sam F, Obayomi T. Concurrent presentation of cutaneous and oral soft tissue vitiligo: a case report and literature review. *Internet J Dent Sci.* 2006;5:1-4.
3. Dayakar MM, Kumar J, Pai GP, Srivastava S. Gingival vitiligo: A very rare clinical entity. *SRM J Res Dent Sci.* 2015;6:211-3.
4. Sanz M, Ceriello A, Buysschaert M, Chapple I, Demmer RT, Graziani F, *et al.* Scientific evidence on the links between periodontal diseases and diabetes: Consensus

report and guidelines of the joint workshop on periodontal diseases and diabetes by the International Diabetes Federation and the European Federation of Periodontology. *Diabetes Res Clin Pract.* 2018;137:231-41.

5. Albandar JM, Susin C, Hughes FJ. Manifestations of systemic diseases and conditions that affect the periodontal attachment apparatus: Case definitions and diagnostic considerations. *J Clin Periodontol.* 2018;45:S171-89.
6. Nagarajan A, Masthan MK, Sankar LS, Narayanasamy AB, Elumalai R. Oral manifestations of vitiligo. *Indian J Dermatol.* 2015;60:103.
7. Dahir AM, Thomsen SF. Comorbidities in vitiligo: Comprehensive review. *Int J Dermatol.* 2018;57:1157-64.
8. Nilima S, Vandana KL. Melanin: a scavenger in gingival inflammation. *Indian J Dent Res.* 2011;22:38-43.
9. Mackintosh JA. The antimicrobial properties of melanocytes, melanosomes and melanin and the evolution of black skin. *J Theor Biol;* c2001.
10. Preshaw PM, Alba AL, Herrera D, Jepsen S, Konstantinidis A, Makrilakis K, *et al.* Periodontitis and diabetes: a two-way relationship. *Diabetologia.* 2012;55:21-31.
11. Wu CZ, Yuan YH, Liu HH, Li SS, Zhang BW, Chen W, *et al.* Epidemiologic relationship between periodontitis and type 2 diabetes mellitus. *BMC Oral Health.* 2020;20(1):1-5.

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