



Dental Implant/s in a Diabetic patient– Case Report

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ABSTRACT

Dental implant surgery is now a frequently utilized, safe, and controlled method for dental rehabilitation. Increased failure rates may be the result of local and systemic risk factors. Chronic diabetes mellitus has many different adverse effects and is accompanied by hyperglycemia. It is debatable if diabetes is a relative contraindication to implant surgery. There are more diabetic individuals requesting implant surgeries as the number of patients with diabetes rises. Hence; we have presented case report of diabetic patient who underwent prosthetic rehabilitation by dental implants.

Key words: Diabetes, Implants, Dental

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INTRODUCTION

Diabetes mellitus (DM) is a chronic metabolic disorder characterized by persistent hyperglycemia. It may be due to impaired insulin secretion, resistance to peripheral actions of insulin, or both. According to the International Diabetes Federation (IDF), approximately 415 million adults between the ages of 20 to 79 years had diabetes mellitus in 2015. DM is proving to be a global public health burden as this number is expected to rise to another 200 million by 2040.¹⁻³ Type -1 diabetes causes decreased bone mineral density, as well as reduced bone formation and higher bone resorption whereas Type -2 diabetes produces normal or greater bone mineral density in some patients. It has been observed that insulin not only reduces the deleterious effect of hyperglycemia by controlling it but also stimulates osteoblastic

activity. Hence, bone matrix formation in insulin treated experimental models is similar to control ones.⁴

High concentrations of blood glucose will eventually result in secondary complications associated with diabetes. These complications are microvascular disease, susceptibility for infection, and delayed wound healing. Such complications may also affect the healing potential following endosseous implant treatment. For this reason, patients with diabetes were not considered suitable for implant treatment when the treatment was introduced in the 1970s.⁴⁻⁶ Hence; we have presented case report of diabetic patient who underwent prosthetic rehabilitation by dental implants.

CASE REPORT



We presented case report of a 27 year old female patient who reported for prosthetic rehabilitation of missing 36. On medical examination, patient was found to be diabetic and gave history of taking Metformin for the same. Treatment planning was done and

diagnostic casts were made. Blood sugar and HbA1c levels were checked and dental implant procedure was carried out under adequate septic conditions. Follow-up was done and radiographic examination was done. Excellent results were obtained.



Figure 1: Extraoral view



Figure 2: Intraoral view



Figure 3: Occlusal evaluation static



Figure 4: Occlusal evaluation dynamic

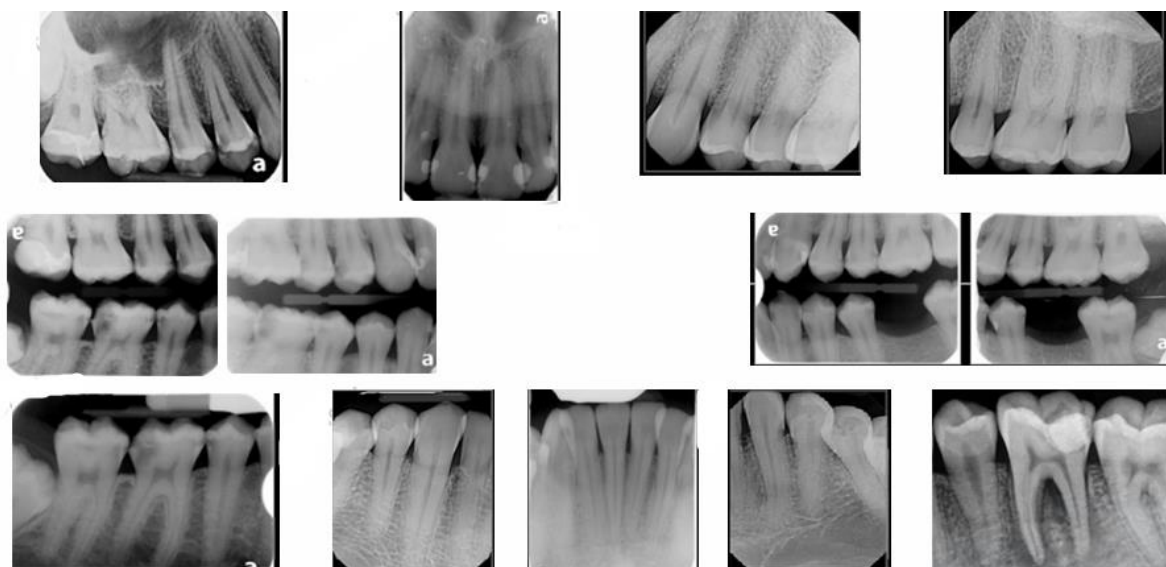


Figure 5: Radiograph



Figure 6: Postoperative

DISCUSSION

Diabetes is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction, and failure of differentorgans, especially the eyes, kidneys, nerves, heart, and blood vessels. Several pathogenic processes are involved in the development of

diabetes. These range from autoimmune destruction of the β -cells of the pancreas with consequent insulin deficiency to abnormalities that result in resistance to insulin action.⁴⁻⁶ Diabetes with its ever-increasing global prevalence has emerged as one of the most important and challenging health issues confronting the human population of the present world. The increase in the prevalence of diabetes in most regions across the globe

has been parallel to the rapid economic development, leading to urbanization and adoption of modern lifestyle habits.^{7, 8} Diabetes mellitus as well as prediabetic conditions represent a common and increasing health problem with extensive harmful effects on the entire organism. Although diabetes mellitus has been regarded as a relative risk factor for dental rehabilitation with implants, dental implant surgery was developed to be the most suitable and comfortable instrument for dental and oral rehabilitation in the past decades.^{8- 10} Hence; we have presented case report of diabetic patient who underwent prosthetic rehabilitation by dental implants. We presented case report of a 27 year old female patient who reported for prosthetic rehabilitation of missing 36. On medical examination, patient was found to be diabetic and gave history of taking Metformin for the same. Treatment planning was done and diagnostic casts were made. Blood sugar and HbA1c levels were checked and dental implant procedure was carried out under adequate septic conditions. Follow-up was done and radiographic examination was done. Excellent results were obtained. Oates TW et al assessed the clinical evidence guiding application of dental implant therapy relative to glycemic control for patients with diabetes. Clinical evidence is emerging from several investigations that diabetes and glycemic control are important considerations that may require modifications to therapeutic protocols, but may not be contraindications to implant therapy in diabetes patients.¹¹ In another study conducted by Sghaireen MG et al, authors compared the failure rate of dental implants between well-controlled diabetic and healthy patients. A retrospective study of case-control design was conceptualized with 121 well-controlled diabetic and 136 healthy individuals. More cases were reported to fail during the functional loading stage in contrast to osseointegration. A well-controlled diabetic status does not impose any additional risk for individuals undergoing dental implant therapy.¹²

Numerous studies have shown that patients with diabetes have a significantly increased risk of periodontal disease with resultant tooth loss. The risks of partial or complete edentulism in the diabetic population is of concern because it may affect the individual's ability to maintain a healthy diet due to a decreased chewing efficiency. These compromises in diet may have a negative impact on glycemic control. Ultimately, these patients may benefit from tooth replacement, and the appropriate application of implant therapy may become an important contribution to the health and wellbeing of diabetic patients looking to improve glycemic control.^{13, 14} Nobre M de A et al investigated the outcome of immediate function of dental implant rehabilitations in diabetic patients with and without coexisting cardiovascular diseases (CVD). Ten implants failed in 7 patients: CVD group with eight implant failures in 5 patients versus two implants in 2 patients in the non-CVD group with a non-significant difference between both groups. Complications occurred in 38 patients; with a non-significant difference between both groups. Implant rehabilitations represent a valid treatment for diabetic patients with or without coexisting CVD, with a good risk/benefit ratio.¹⁵

CONCLUSION

Under controlled diabetic conceptions, dental implants have excellent prognosis in diabetic patients.

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