



CASE REPORT

REPLACEMENT OF UPPER CENTRAL INCISOR IN A DIABETIC PATIENT BY IMPLANT SUPPORTED PROSTHESIS AND FOLLOW UP - A CASE REPORT

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ABSTRACT

Esthetics in implantology is a topic which is currently gaining a lot of attention from dental implantologists all over the world. It includes both white and red esthetics. This was a case of missing maxillary anterior tooth that is left central incisor. Patient was wearing a removable partial denture and was not satisfied with the appearance of it and so wanted a fixed prosthesis with good esthetics which was compromised earlier. An ideal implant should have all the three dimensions stable that is mesio-distal, apicocoronal and orofacial for proper implant position in maxilla. Thus, it was planned for implant supported prosthesis - a more conservative and esthetic treatment modality. Patient was medically compromised as was suffering from diabetes mellitus and was under medication with oral anti-diabetic drugs and diet control.

INTRODUCTION

Missing teeth and the various attempts to replace them have presented a treatment challenge throughout human history. Becker, reviewed (Impalnt materials, 2000) the simple and naïve ancient artificial anchoring of dental units in maxilla and mandible in which he indicated the constant need for restoring function and esthetics by means of implants. The scientific foundation for the modern implant dentistry was set by Dr.Branemark and colleagues in 1960, by using titanium chamber to give rise to osseointegration. Osseointegration is a direct structural and functional connection between ordered living bone and the surface of a load carrying implant. Osseointegrated dental implants have been used for past 50 years as a predictable treatment with respect to implant stability.¹ Replacement of a single tooth in anterior maxilla represents a complex and challenging dental procedure as it is related primarily to esthetics and to function as well. It is necessary to select the treatment modality that offers optimum means to achieve patient's expectations in terms of both esthetic and function. The patient's medical condition also should be under-control before doing the surgery. This article describes the restoration of missing teeth in diabetic patient and its long term follow up.

CASE REPORT

A 34 year old female patient reported to the department of oral and maxillofacial implantology with the chief complaint of

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missing upper front tooth since 2 years. She gave a history of trauma and avulsion of upper front tooth due to it. She was using a removable denture since two years and was feeling uncomfortable during speech and eating food. The patient was having problem of foul odor from the denture too. She wanted fixed prosthesis to overcome all these problems. On examination she did not reveal any abusive habits and oral hygiene was fair. Her medical history revealed that, she was diabetic since 12 years and was under medication with sugar levels under control. On general physical examination she was well built, well nourished and oriented to time and place. All vital signs were stable. On local examination 21 was missing and no pathology with the surrounding teeth was present. The adjacent teeth were vital. All the other treatment options along with the implant supported fixed prosthesis were advised to the patient.

Patient wanted a fixed prosthesis without any involvement of adjacent teeth and so opted for implant supported fixed prosthesis. Patient history, examination and radiographic evaluation revealed that there was no structural bone defect with missing maxillary left central incisor (Fig.1). Patient was given a complete oral prophylaxis and a complete haemogram was done. Basic radiographic analysis of bone was done using intraoral periapical radiographs, occlusal radiographs and bone mapping (Fig.2) was done, which showed thickness of bone was found to be 5mm after reducing the soft tissue mucosa thickness of both side with adequate height bellow the nasal floor. It was planned for 3.7 x 13mm implant (Uniti) .In radiographic analysis magnification was subtracted and bone width and height was calculated. A surgical stent was made for

the patient on diagnostic cast after bone mapping and was used as a guide to place implant (Fig. 3 and 4)

Bone mapping



Fig. 1.



Fig. 2. Surgical stent and surgical procedure



Fig. 3.



Fig. 4.



Fig. 5. Implant inserted with cover screw

Implant was placed after the osteotomy by using pilot drill 2mm, 3.3 and then 3.7 mm of diameter sequentially using Uniti surgical Implant system. Primary stability was achieved and healing cover screw (from -Uniti) was placed before suturing and implant was left under the gingival for osseointegration. After six months IOPA was done and showed good osseointegration (Fig6) and flap was reopened after for gingival former placement to re-contour the gingival Fig 7&8). It took 15 days for the contouring.

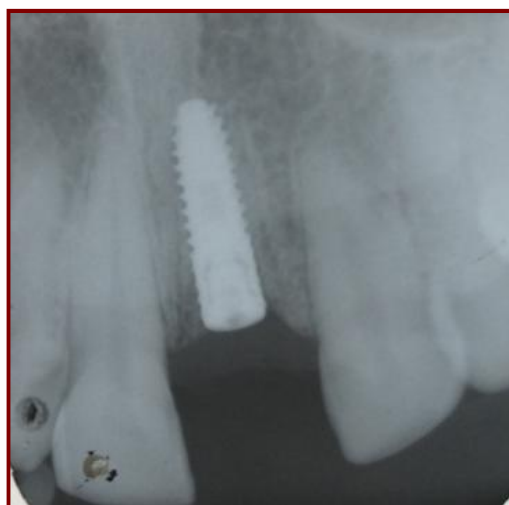


Fig. 6.



Fig. 7.



Fig. 8 (gingival former)



Fig. 9.



Fig. 10.



Fig. 11

Impression post was placed and a closed tray implant level impression technique was used to make impression (Impression material – aquasil putty and light body, dentsply). A gingival collar of size 2 mm was used with the angular abutment and was mounted on cast with implant analog. A coping was made in metal and coping trial was done. Conventional porcelain fused to metal esthetic restoration was given to the patient with replacement of 21 with implant supported prosthesis Fig 11).

DISCUSSION

Implant placement is not as easy as it appears. It needs a proper treatment planning and consideration of all the surrounding tissues to gain its success. An adequate bone base is usually a prerequisite for functionally and esthetically optimal reconstruction of the soft tissue architecture around a dental implant. The standard parameters for achieving esthetic implant prosthesis result in one that is in harmony with the peri-oral facial structures of the patient. The esthetic peri-implant, in the health, height, volume, color and contours, must be in harmony with the healthy surrounding dentition (Carl, ? Ten Bruggenkate *et al.*, 1990). Caries is a common cause of failure in fixed bridge prosthesis. Same way periimplantitis is a common cause of failure for implants and so all the implant supported structures are to be analyzed as connective tissue, junctional epithelium and biological width (Ten Bruggenkate *et al.*, 1990). Thus, keeping all these things in mind we need to plan a case and opt for the treatment options.

In the present case it was important to maintain the gingival integrity and prevent the bone loss as patient was diabetic. In this respect, it was originally planned that a minimum healing period of 6 months instead of 4 months would be observed. Diabetes mellitus is the most prevalent endocrine disease, comprising the third highest cause of disability and morbidity in the world. (Haire- Joshu, 1992) It is no longer considered to be a contraindication for implant-supported prostheses, provided that the patient's blood sugar is under control, and that there is motivation for oral hygiene maintenance procedures. (Abdulwassie, 2002) Publications in recent years have shown success rates for dental implants in diabetic patients resembling those of the general population. Other studies, in diabetic patients, as well as in animal models, have shown an increased risk for implant failure. (Michaeli, 2009) these results raise the question of whether diabetic patients are suitable for dental implant rehabilitation. Putative risk factors with diabetes are

smoking, history of periodontitis, genetic traits, and uncontrolled diabetes mellitus. Evidence on the association between diabetes and periodontitis supports the concept of increased severity but not extent of periodontitis in subjects with poorly controlled diabetes. Subjects with controlled diabetes do not show an increase in extent and severity of periodontitis. Periodontitis is associated with poor glycaemic control and diabetes-related complications. It is inconclusive that periodontal therapy with or without the use of antibiotics results in improvements of glycaemic control and of markers of systemic inflammation. Evidence is lacking to indicate that implant therapy in subjects with diabetes yields long-term outcomes comparable with those of non-diabetic subjects. Poorly controlled diabetes may be considered a risk factor for increased severity of periodontitis. The effects of periodontal therapy on glycaemic control and systemic inflammation is not proven beyond doubt and need to be confirmed in large-scale randomized-controlled clinical trials.

Conclusion

With the ever increasing popularity of dental implants and implant supported prosthesis and increasing patient demand for esthetics, the need for the greater use of these have overcome the conventional methods of replacement. Therefore it is necessary to distinguish areas where these implants may be successfully restored without any undesirable sequelae. It is important to prevent any eventual risk factors and precautions should be followed for success of dental implants.

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