

Immediate Implant Loading in Compromised Maxillary Partially Edentulous Arch- A Case Report

SACHHI RAMESH¹, VEENA PATIL², ANOOP JAIN³, REETIKA GADDALE⁴, SUNIL KUMAR MISHRA⁵

ABSTRACT

As the aesthetic demands are increasing day by day, demand of immediate restoration or replacement of teeth is also increasing. Because of this, immediate implant placement, along with immediate loading of implant, is a favourite treatment option for patients as well as dentists. This case report discusses the immediate implant loading in compromised maxillary anterior region, in which patient got immediate restoration of edentulous area. More importantly, from the patients' points of view, immediate loading can produce positive social and psychological effects.

Keywords: Dental implant, Implant, Immediate loading, Implant loading, Single tooth implant

CASE REPORT

A female patient who was aged 32-years of age, reported with missing maxillary left lateral incisor to Department of Prosthodontics, HKE'S SN Institute of Dental Sciences, Karnataka, India for the replacement of a missing tooth [Table/Fig-1]. Patient came in for the replacement, because of a carious lesion which was present. Clinical and radiographic evaluations were performed by taking intraoral periapical radiographs and orthopantomographs. Maxillary and mandibular diagnostic impressions were made and casts were obtained. Following a thorough medical history taking, a complete haemogram was done, to rule out systemic complications. We explained all the treatment options to her, but she chose dental implant treatment, because she wanted a fixed treatment without touching the adjacent teeth. Bone mapping revealed the labio-palatal cortical bone width to be 6 mm. Implant surgery was started under the left infraorbital nerve block, and a midcrestal incision, combined with crevicular incisions, were made on the implant site, to elevate a mucoperiosteal flap. The osteotomy preparation was started by using a pilot drill initially and gradually, it enlarged in width at a depth of 10 mm. Osteotomy preparation was done by giving intermittent pressure on the bone, under copious sterile saline irrigation. After preparing the osteotomy, an implant fixture of dimension 4.2x10 mm, was placed (Adin Implant Systems, Israel) in the osteotomy site [Table/Fig-2]. After placing the implant fixture, primary stability of implant was confirmed by using a torque wrench driver. Then, an open tray impression coping was placed on the implant fixture and an implant level impression was made. After loosening the impression coping screw, the impression was retrieved, so that impression coping could be removed along with impression. Implant analog was tightened to impression coping which was present in the impression. Dental stone was poured in

the impression and cast was retrieved. Tooth shade and size were selected. An implant abutment was placed on the implant analog in the dental cast. The implant abutment was milled at cast. A prefabricated polycarbonate crown of the selected shade was used as the provisional crown on the implant, which was relined with acrylic on the dental stone cast. After complete setting of acrylic,



[Table/Fig-2]: Evaluation of compromised bone in maxillary edentulous region



[Table/Fig-3]: Milled implant abutment tightened to intraoral implant



[Table/Fig-1]: Missing left lateral incisor

relined polycarbonate crown and implant abutment were removed from the cast. Milled implant abutment was replaced on implant intraorally [Table/Fig-3] and polycarbonate crown was cemented with non eugenol cement (Provicol, Voco). The non-functional occlusion was given till the delivery of final prosthesis, i.e. 3 months later. Excess cement was removed, platelet rich fibrin and allograft (artificial bone graft) were placed over labial aspect of bone and 4.0 non-resorbable silk sutures were used for flap closure [Table/Fig-4]. A chair-side post-operative intraoral periapical radiograph was taken to assess the complete seating of implant abutment on implant fixture [Table/Fig-5]. Post-operative instructions were given along with prescription of analgesics and antibiotics. Follow was done after every two weeks [Table/Fig-6].



[Table/Fig-4]: Sutures done after provisional crown cementation



[Table/Fig-5]: IOPA view after placement of provisional restoration

[Table/Fig-6]: Intraoral view of immediately loaded implant after 2 weeks

DISCUSSION

In this case report, immediate loading of implant in compromised maxillary anterior region was done, because patient wanted immediate restoration of edentulous area after implant placement. Implant was chosen as a treatment option, because patient was not ready to get a fixed partial denture placed. Immediate loading of oral implants has been defined as a situation where the superstructure is attached to the implants, no later than 72 hours after surgery [1,2]. Many experimental and clinical studies have demonstrated that implants may integrate under controlled conditions, even when they are loaded on the same day on which they are placed [3]. Successful immediate loading of screw-type dental implants has been reported as early as 1979. Several experimental studies have shown that immediate loading of threaded implants did not necessarily lead to fibrous tissue healing. Instead, a bone-to-implant contact may develop over time, which is comparable to that which is associated with implants that are loaded conventionally [4]. The benefits of "Immediate Function" are a shortened treatment time, a better clinical efficiency and fewer traumas caused to the patient – it is now possible to move from suffering from tooth loss, to having functional and aesthetic teeth in one treatment session. Most of the clinical studies done on immediate function are short-term, but it is believed that after the first year of function and bone healing, the prognosis is the same as that seen with the two-stage approach made for single tooth, partial and completely edentulous cases. Nonetheless, these findings do not imply that a submerged and/or delayed approach may not be necessary in certain situations.

CONCLUSION

It is the responsibility of each clinician to weigh up the benefits and risks of immediate function for each patient and implant site and there are often situations that call for a delayed loading or a return to the original 2-stage protocol. Future studies which are based on looking at host, implant, surgical and occlusal factors may find the ultimate indication for immediate function.

REFERENCES

- [1] Aparicio C, Rangert B, Sennerby L. Immediate/early loading of dental implants: areport from the Sociedad Espanola de Implantes World Congress consensus meeting in Barcelona, Spain, 2002. *Clin Implant Dent Relat Res.* 2003;5(1):57-60.
- [2] Cochran DL, Morton D, Weber HP. Consensus statements and recommended clinical procedures regarding loading protocols for endosseous dental implants. *Int J Oral Maxillofac Implants.* 2004;19 Suppl:109-13.
- [3] Gotfredson K, Hjorting-Hansen E. Histologic and histomorphometric evaluation of submerged and non submerged titanium implants. In : Laney WR, Tolman DE (eds): *Tissue integration. Oral, Orthopedic and Maxillofacial Reconstruction.* Chicago, Quintessence. 1990; 31-40.
- [4] Nkenke E, Fenner M. Indications for immediate loading of implants and implant success. *Clin Oral Imp Res.* 2006;17:19-34.

PARTICULARS OF CONTRIBUTORS:

1. Assistant Professor, Department of Prosthodontics, VP Dental College, Sangli, Maharashtra-416414, India.
2. HOD & Professor, Department of Periodontics, HKE'SS N Institute of Dental Sciences & Research, Karnataka-585105, India.
3. Director, Senior Prosthodontist, Dental XPERTS,A3/221, First Floor, Sector 17, Rohini, Delhi-110089, India.
4. Senior Lecturer, Department of Periodontics, AI-Badar Rural Dental College & Hospital, MSK Mill Road, Gulbarga, Karnataka- 585102, India.
5. Reader, Department of Maxillofacial Prosthodontics and Implantology, Rishiraj College of Dental Sciences & Research Centre, Bhopal, Madhya Pradesh- 462030, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Sunil Kumar Mishra,
Reader, Department of Maxillofacial Prosthodontics and Implantology,
Rishiraj College of Dental Sciences & Research Centre, Bhopal,
Madhya Pradesh-462030, India.
Phone: 7697738478, E-mail: prosthopal@gmail.com

FINANCIAL OR OTHER COMPETING INTERESTS: None.

Date of Submission: **Aug 30, 2013**
Date of Peer Review: **Jan 17, 2014**
Date of Acceptance: **Mar 13, 2014**
Date of Publishing: **Apr 15, 2014**