



Compressive Implants: A Boon for Immediate Loading Protocol (Case Report)

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Abstract

The replacement of missing teeth with implant-borne restorations has become a treatment modality for rehabilitation of completely and partially edentulous cases. Nowadays, immediate loading protocols are being widely followed to reduce the treatment time which is a major disadvantage with conventional implants. The present case report highlights the placement of two compressive implants with flapless technique with immediate loading within 3 days.

Keywords: Dental Implant; Flapless Technique; Immediate Loading

Introduction

In recent times, for the restoration of partially and completely edentulous arches, implants have become the treatment of choice [1,2]. The original Branemark protocol is based upon delayed loading i.e. 3 - 4 months in mandible and 4 - 6 months in maxilla before final prosthesis. This long treatment period that involves temporary prosthetic phase which may be of great inconvenience in terms of patient compliance [3,4].

There are two different approaches for immediate loading of dental implants that are currently followed. [5,6] The first approach relies on the compression screw principle which involves the "lateral corticalization" of the spongy bone and gives perfect primary stability for immediate loading. The second approach involves the use of bicortical screws or axial basal implants that mechanically engages the basal bone for primary stability and immediate loading [7,8].

This case report highlights the placement of two compressive implants with flapless technique with immediate loading within 3 days.

Case Report

A 50-year-old male patient reported to the Department of Prosthodontics and Oral Implantology with the chief complaint of missing teeth in right lower back jaw region. Patient wanted an immediate replacement of the missing teeth. On intraoral examination, the right mandibular canine and 1st premolar were missing (Figure 1 and 2).

There was no significant medical history, and the patient was advised to undergo oral prophylaxis. Treatment plan involved the flapless placement of two compressive implants (C4010) to replace the missing teeth.

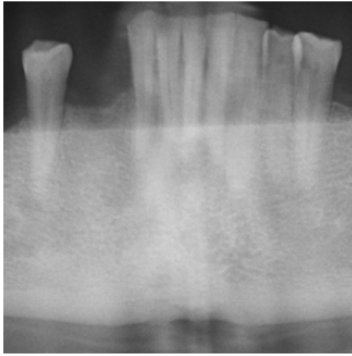


Figure 1: Preoperative OPG showing edentulous region w.r.t. 43 and 44 region



Figure 2: Preoperative view showing edentulous region w.r.t. 43 and 44 region.

Pilot drill was used initially in the canine and the premolar region till the desired depth of 10mm followed by use of 2.2mm drill. 2 compressive implants were placed using a torque ratchet in the osteotomy site and a torque 60Ncm was recorded for both the implants. Care was taken that both the implants were 3mm away from each other and at least 1.5mm away from the natural adjacent teeth. The single piece compressive implant abutments were trimmed to achieve the desired occlusal clearance for all-ceramic prosthesis. Impressions were made using polyvinyl siloxane (PVS) impression material using single step putty wash technique. Opposing arch impression was made using irreversible hydrocolloid (alginate) impression material. The patient's centric interocclusal record was taken for mounting the casts on the

articulator. CAD-CAM all ceramic prosthesis were fabricated and cemented within 72 hours using conventional GIC cement. Care was taken to remove the deflective occlusal contacts in non-working side. Patient was advised to take soft food for at least 3 months and was kept on regular follow-up. OPG after the placement of implants i.e. after 2 years showed excellent healing at implant-bone interface without any bone resorption.



Figure 3: Compressive implants placed in 43 and 44 region.

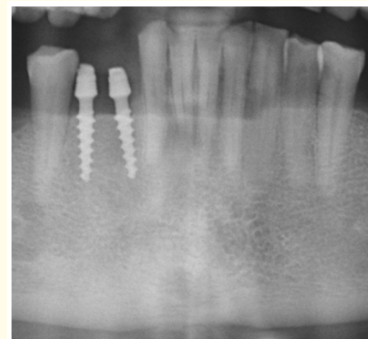


Figure 4: Immediate postoperative OPG.



Figure 5: Implants loaded within 3 days.

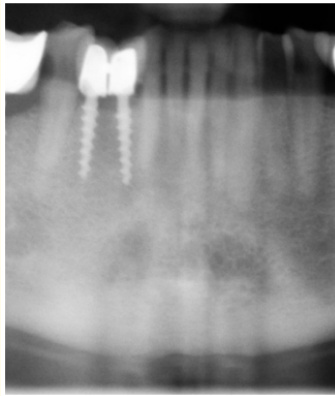


Figure 6: OPG after 6 months showing both the implants with good osseointegration.

Discussion

The immediate-loading dental implants have become more predictable than before [9,10], due to changes in the implant design over the years. Sequential drilling for conventional implants leads to more bone trauma and eventual bone loss around the implant. In this case report, minimal osteotomy was done which is the main factor determining the success of immediate implants. Single-piece implants work well in D1 and D2 bone. In the present case, 2 compressive implants were placed with minimal osteotomy and with excellent primary stability and splinting within 3 days.

Single piece compressive implants offers various advantages – they can be placed by flapless procedure and compression screw design facilitates immediate prosthetic loading (within 3 days or less). Moreover, being a single-piece implant, the strength provided by the implant is excellent as there is no fear of screw loosening and periimplantitis.

In the present case, 2 compressive implants were placed and loaded immediately, which showed promising results at a follow-up of 6 months.

Conclusion

Over the years, single piece implants have brought a great revolution in the field of implantology which offers various advantages over conventional implants by being a flapless procedure and providing function within a short span of time. Modifications in single piece design have to be done to improve the aesthetic and the prosthetic options.

Source of Support

Nil.

Conflict of Interest

None declared.

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