

# Conventional Implant in Orthodontic Patients

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**Abstract:** *Interdisciplinary team work of various departments of dentistry enables the dentist to achieve treatment goals of function, esthetics, stability and health. This article describes a case reports of arestoration of a missing single posterior tooth by conventional implant prosthesis.*

**Keywords:** Conventional Implant, Orthodontics, Dental team work, prosthetic space management

## 1. Introduction

Implant has become a treatment modality accepted by dentist and other scientist in various fields of medical branches like Orthopedics. Dental implant restoration is used for fully and partially edentulous patients. One of the commonest procedures performed in conventional implant dentistry is single tooth replacement. However a proper treatment planning should be done before the implant placement. Implant design, materials and technique, implant prosthesis offer a more predictable treatment course than traditional restorations<sup>1</sup>. Occlusal overload can also cause implant biomechanical failures, marginal bone loss, or even complete loss of osseointegration<sup>2</sup>. This article describes a clinical situation where patients and dentist option for implant at the ending period of his orthodontic treatment.

## 2. Materials and Methods

A 28-year-old male reported to PD Dental Health Care Research Centre, Imphal West, Canchipur, Manipur, with missing 36 molar. Dental history revealed extraction of the said tooth 2 years back. Patient was partially edentulous and He is undergoing orthodontic treatment. His medical history was normal and soft tissues were sound. After reviewing the clinical situation and radiographic status and with patient's consent it was decided to place conventional implant prosthesis.

**Diagnostic phase:** Clinical evaluation was done and diagnostic cast were made. IOPA and OPG was taken and bone mapping and evaluated the implant size.

**Surgical phase:** With proper antibiotic coverage and local anesthesia were given. Incisions were placed and the surgical site were exposed. Initially drilling was done with round drill and subsequent graded drilling was done. A implant of size 3.75 x 11 mm was placed at the prepared site. Implant was screwed into the bone and tightened with a wrench. Sutures were placed to close the surgical site.



Figure 1: Implant surgery



Figure 2: Implant placed



Figure 3: Suture placed

The patient was recalled after 48 hours for post-operative checkup. Healing was uneventful and there were no complaints reported by the patient. After 7 days sutures were removed.

**Prosthetic phase:** After few days of implant placement, orthodontic wires were removed and retainers were placed. Implant site were opened after three months, and healing screw was removed and replaced by healing cap/gingival former, which was kept for two weeks. Impression was made using open tray technique and final prosthesis in the form of porcelain fused to metal crown was fabricated, tried and cemented.



Figure 4: Gingival former placed



Figure 5: Abutment placed

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Figure 6: Implant crown

**Post -Operative Phase:** At the one-year recall the implant and the crown were in good condition. The patient was very pleased with the result.

### 3. Discussion

Orthodontic treatment corrects the malocclusion of teeth and creates sufficient desired space for final prosthesis. This article discusses case report of a patient undergoing orthodontic treatment to restore a single-tooth edentulous area in the posterior mandible.

Before implant placement adjacent teeth at implant recipient sites should be evaluated like dilacerated roots and excessive tilting of the crown. Endodontic lesions may rise if a drill or implant fixture invades the periodontal ligament, hard tooth structure or vital pulp. Devitalization of an adjacent tooth next to an implant delays treatment. Thus a proper surgical guide and a careful radiograph analysis are necessary to avoid improper angulation and hidden dilacerated roots<sup>3</sup>.

30%-40% reduction in the occlusal table in a molar region has been suggested as any dimension larger than the implant diameter can cause cantilever effects and eventual bending moments in single-implant prostheses. A narrow occlusal table reduces the chance of offset loading and increases axial loading, which eventually can decrease the bending moment and also reduce the risk of porcelain fracture and it also improves oral hygiene<sup>4</sup>. Adjacent teeth should be at least 1.5 mm from the implant body and more than 3 to 4 mm between adjacent implants to prevent horizontal bone loss as well as to preserve esthetics. When plan for implants parafunctional habits should monitor and the occlusal table should be narrow, decrease the cuspal inclines, and using progressive loading in patients with poor bone quality<sup>2</sup>.

Clinician should avoid clinical condition which are likely to increase biomechanical stresses and should implement occlusal mechanisms to decrease the stresses and develop an occlusal scheme that minimizes risk factors and allows the restoration to function in harmony with the rest of the stomatognathic system. Preoperative measurements and planning should be done for an ideal implant placement to facilitate future implant prosthesis.

Failed implants are wastage of money and time for the patients. Thus dentist should be wise enough during the treatment plan and should take up precautionary action before the surgical and prosthetic phase to reduce cantilevers and occlusal overload and finally patients should be educated to promote oral hygiene.

### 4. Conclusion

The implant and the crown were in good condition. The patient was very pleased with the result.

### 5. Acknowledgement

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