

A Rare Presentation of Idiopathic Multiple Impacted Teeth and Its Management with Multiunit Abutment and Malo Bridge

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ABSTRACT

Aim and objective: This case report aims to bring into limelight the full mouth rehabilitation in the non-syndromic presentation of multiple carious teeth and impacted teeth, using multiunit abutments.

Background: Presentation of multiple impacted teeth is very rare among the Indian population unless it is associated with syndromes or eruption disturbances. However, there are very rare instances where such patients do present with non-syndromic associations. Functional and esthetic rehabilitation of the condition becomes very crucial especially in young patients. Implants by far are considered to provide the best definitive option.

Materials and methods: The surgical protocol was to extract existing partially erupted teeth and immediately place implants. Multiunit screw-retained abutments were loaded within 6 weeks. A passively seating full-arch prosthesis was designed with anterior Malo bridge. This was done to mask the labially facing unesthetic screw holes of the angulated abutments.

Conclusion: In the above-mentioned case, delivery of a functional prosthesis was possible because of the use of multiunit abutments. Furthermore, the Malo bridge masked the labially facing unesthetic screw holes of the angulated abutments, thereby providing good esthetic results. Additionally, there is also the option of prosthesis retrievability, wherein the practitioner can unscrew the prosthesis whenever a surgical removal of the impacted teeth is necessary.

Clinical significance: With the use of multiunit abutments, it is possible to deliver fast treatment without compromising on esthetics and functionality.

Keywords: Full mouth rehabilitation, Implants, Multiple impacted teeth, Multiunit abutments.

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INTRODUCTION

An impacted tooth is a common presentation among people; however, multiple impacted teeth usually are rare and often associated with syndromes such as cleidocranial dysplasia, Gardner's syndrome, Down's syndrome, and Noonan's syndrome.¹ Nevertheless, non-syndromic associated multiple impacted teeth can present due to various causes such as local biomechanical inhibitions, insufficient maxillofacial skeletal development, or eruption disturbances.² These patients usually present with no other systemic conditions.

Impaction of multiple permanent teeth is a rare condition especially with no syndromic associations, and the only handful of cases have been reported in the literature.^{1,3-6} Conventionally, the treatment plan for such cases includes the extraction of the teeth and provide a removable prosthesis. The authors Ghaeminia et al. revealed in Cochrane's study that asymptomatic disease-free teeth can be retained and checked frequently at follow-up visits.⁷ Thus in this case, asymptomatic impacted teeth were retained and only the grossly decayed erupted teeth were extracted. Presentations like these are often treated with removable prosthesis. This case report is unique as it discusses the treatment plan of a patient with multiple impacted teeth, rehabilitated with implants. The prosthetic phase commenced after 6 weeks post-implant placement and a fixed implant-supported screw-retained prosthesis was delivered in the final prosthetic phase. This enabled the patient to lead a socially confident life.

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CASE DESCRIPTION

A 24-year-old female patient visited the Department of Oral Implantology with a chief complaint of missing teeth and grossly decayed teeth for 10 years.

History of Presenting Illness

The patient noticed that the teeth stopped erupting at the age of 10 years.

Dental History

The patient visited the dental clinic for temporary restorations, her orthodontic history revealed that surgical extrusion and orthodontic movement would not provide a predictable result due to the unfavorable positions and possible ankylosis of the impacted teeth.

General Examination

Her medical history revealed ideal birth conditions (3.5 kg birth weight, 38 weeks). No trauma during childhood. The patient reported no medical and family history suggestive of this condition. No consanguineous marriage was reported. General physical examination was not suggestive of any syndromes either.

Clinical Examination

The patient was well built with 148 cm height and 48 kg. No other aberrations were observed. Routine blood investigations revealed normal INR, bleeding time, and clotting time. Glycated hemoglobin was 5.2 mg/dL. She had no history of any medications.

Extraoral examination of the face revealed a concave profile and collapsed smile due to loss of vertical dimension on the right side.

Intraoral examination revealed several isolated areas of edentulousness with grossly decayed dentition. Soft tissue was pink and healthy.

Radiological Evaluation

Orthopantomography (OPG) revealed multiple impacted teeth, i.e., in the maxillary arch (FDI): 18, 17, 14, 13, 23, 24, 26, 27, 28 and in the mandibular arch: 48, 47, 46, 33, 34, 36, 37, 38 (Fig. 1). Cone-beam CT was taken to evaluate the three-dimensional position of the teeth and also measure the width of the bone (Fig. 2).

Treatment Planning

The following teeth were planned to be extracted during the surgical phase (FDI). Maxillary arch: 16, 15, 12, 11, 21, 22, 62, 63, and 25 and in the mandibular arch: 45, 44, 83, 41, 42, 31, 32, 73, and 35 SLA implants (Ankylos) were selected as per the available bone width and height.

SURGICAL PROCEDURE

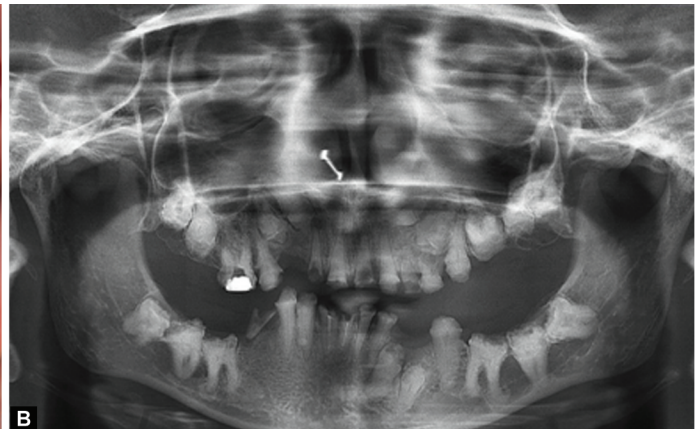
The patient was prescribed antibiotics (amoxicillin 500 mg) as per Misch's protocol.⁸ Long-acting local anesthetic (lidocaine) was administered at the site. Extractions were carried out as atraumatically as possible. The corrugated bony architecture was smoothed and the bone shavings collected during the procedure were mixed with a corticocancellous allograft (Rocky mountain 0.5 cc) and used for lateral augmentation. Four implants (A9.5 and A11) each were placed in the maxillary and mandibular ridge.^{9,10} An immediate postoperative OPG showed the parallel placement of the implants in the maxillary. In the mandibular ridge, the distal implant of the right side was angulated to get a larger anteroposterior spread (Fig. 3). Sutures were placed (Vicryl 3.0) and patient was recalled after 6 weeks for prosthetic phase. Patient was advised to use antibiotics and analgesics (NSAIDs) and oral antibacterial mouth rinses (chlorhexidine gluconate) for a week.

PROSTHETIC PHASE

Prosthetic procedures commenced after 6 weeks of soft and hard tissue healing. The patient was recalled and the closure caps were removed non-invasively. Impressions and maxilla mandibular relations were recorded with temporary abutments. Sulcus formers were placed for 2 weeks during the transition phase. During the definitive phase, multiunit abutments were torqued to 25 N cm (Fig. 4).^{10,11} The cast models and impressions were sent to the laboratory for designing and casting. A full mouth metal trial was done and clearance of 2 mm was ensured. A hybrid prosthesis called a "Malo Bridge" was designed for the patient considering that screw holes may pose esthetic challenges (Fig. 5).^{12,13} The final full-arch prosthesis was verified with a one-screw test for passive fitting. The prosthesis screws were tightened following the manufacturer's instructions to 15 N cm. Teflon tape was used to obliterate the screw channels. Occlusal components like interocclusal contacts, eccentric contacts were modified as per rules of implant biomechanics (Misch) phonetics and esthetics were verified (Fig. 6).

Postoperative Instructions

Oral hygiene instructions were given. A Waterpik plaque removal kit was prescribed, and oral mouth rinses were provided.



Figs 1A and B: (A) Preoperative smile view; (B) Preoperative OPG

Follow-up

Patient was recalled after 6 months and 1 year post-cementation. The OPGs revealed stable crestal levels. Clinically, the prosthesis maintained ideal soft tissue conditions (Fig. 7).

DISCUSSION

Raghoobar (1989) described impaction as the cessation of an eruption of the tooth due to a physical barrier. It could be syndromic,

familial, or even caused due to disturbances in eruption. Very rarely non-syndromic variants also arise which do not have any known metabolic and hormonal disorders.¹⁴⁻¹⁶ This case report presents a 24-year-old female patient with multiple impacted teeth. Orthodontic extrusions were contraindicated because of possible ankylosis of the teeth. Thus, extraction was indicated with respect to the erupted teeth that were mobile and carious.⁴

Implants were placed in the extraction sites along with lateral contour augmentation so that inevitable bundle bone loss can be compensated. Distal most implant in the mandibular ridge was angulated to create a larger anterior-posterior spread. The prosthetic phase included the use of a screw-retained multiunit prosthesis for a passive fit and correction of angulations. The added advantage of the screw-retained prosthesis is that, if the impacted teeth were to show signs of disease, the prosthesis could be retrieved easily and surgical removal can be done, as opposed to cement-retained prosthesis where the entire prosthesis has to be destroyed. The multiunit abutments also maintained a good hemidesmosome attachment, thus protecting the soft tissue

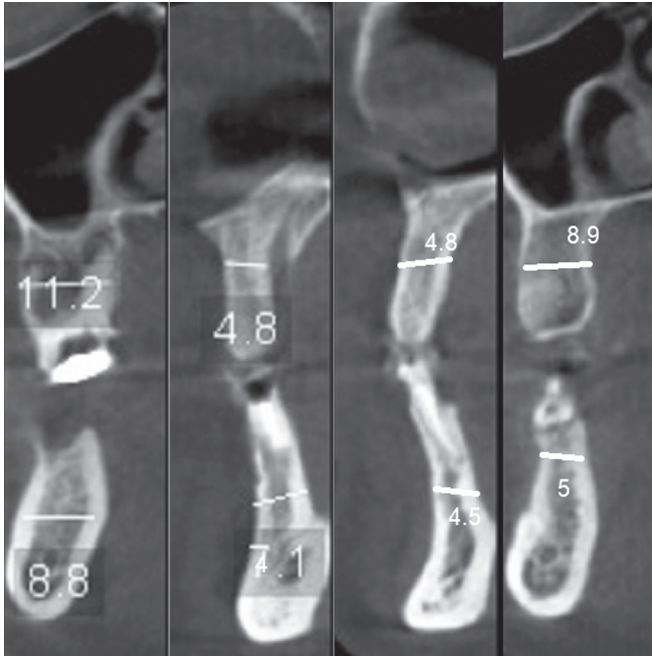


Fig. 2: CBCT sections of 16, 12, 22, 25 and 35, 43, 44, 45

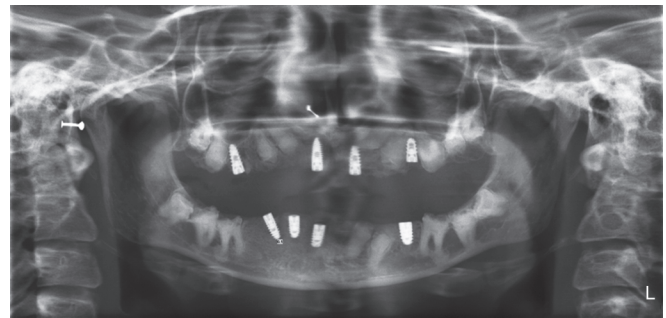


Fig. 3: Immediate postoperative X-ray



Figs 4A and B: Multiunit abutment placement in the maxilla and mandible



Figs 5A to C: Right lateral view (right), facial view (center), left lateral view (left)



Figs 6A and B: Comparison of pre- and post-treatment—smile view

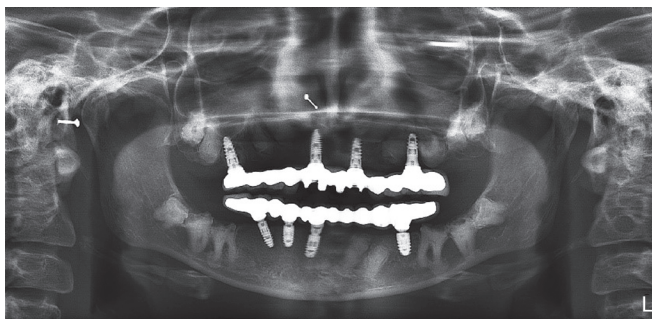


Fig. 7: One-year follow-up post-cementation

biotype during screwing and unscrewing of the suprastructure. This thereby would maintain the peri-implant health more efficiently.¹⁷ The patient had a constricted ridge and implants were placed to accommodate the native topography; thus, angulated abutments were chosen accordingly. A hybrid prosthesis called “Malo Bridge” was designed on screw-retained multiunit abutments to hide the unesthetic buccal screw access holes to compensate for the variations in the angulation.

CONCLUSION

A multidisciplinary (periodontics, orthodontics, and surgery) is mandated for a successful treatment outcome for cases like this. Also, conservative treatment decisions have to be made to deliver patient comfort, function, and esthetic without compromising the native biology. Therefore, in young patients like these we can hope to provide them with a prosthesis with a more predictable outcome, with multiunit abutments and a hybrid prosthesis.

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