

Case Report

Interdisciplinary Management of Supra Erupted Maxillary Second Molar- A Novel Case Report

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ABSTRACT:

Aim: The aim of this article is to present a case of management of severely supra erupted tooth by replacing the missing tooth in the compromised inter occlusal region by placement of an endosseous implant. **Background:** Premature loss of a tooth can lead to supra eruption of the opposing tooth into the edentulous space left behind by the missing tooth. The disruption in occlusal plane as a result of supra eruption can lead to improper distribution of occlusal force and cause complications such as trauma from occlusion, food lodgement leading to dental caries, masticatory inefficiency, TMJ disorders, chronic trauma, discomfort and loss of intermaxillary space due to impingement on the opposing arch. The restoration of lost interocclusal space is important to re-establish function in these cases. **Case Description:** This case report highlights the management of a severely supra erupted 17 impinging on the buccal and mandibular alveolar mucosa. This case was managed with the treatment modality of intentional RCT of 17 followed by crown lengthening procedure and crown placement following odontoplasty and placement of implant in the opposing arch in the 47 region. **Clinical Significance:** This article aims to highlight this modality of management as an effective management option for severely supra erupted tooth achieved through an interdisciplinary approach.

Key words: Supra erupted tooth, Implants, Intentional RCT, Odontoplasty, Crown Lengthening Procedure

Clinical Relevance to Interdisciplinary Dentistry

The management of a severely supra erupted tooth presents a clinical challenge to the treating Dental Surgeon. In most instances it requires the skills of different subspecialties to be able to successfully treat such cases. The various treatment options available need to be weighed against the treatment needs and expectations of the patient to arrive at an acceptable outcome. This case report brings out the benefits of interdisciplinary approach in clinical management of such cases.

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INTRODUCTION

A supra erupted tooth is a common clinical finding in subjects who have prematurely lost a tooth.¹ This is primarily due to extrusion of the opposing tooth into the edentulous space left behind by the missing tooth.² This positional change due to movement of the opposing tooth above the occlusal plane can lead to a variety of problems causing functional disruption.³ Significant functional problems are seen in 24% of supra erupted teeth where overeruption was greater than 2mm over the occlusal plane.⁴ These supra

erupted teeth can cause problems such as food lodgement leading to dental caries, masticatory inefficiency, TMJ disorders and trauma, discomfort and loss of intermaxillary space due to impingement on the opposing arch.⁵ The lost interocclusal space needs to be reclaimed in these cases to restore function by replacing the missing tooth.⁶ There are many techniques which have been used to re-establish the normal interocclusal space and restore function such as intentional endodontic treatment, crown lengthening procedure, orthodontic intrusion,

prosthodontic rehabilitation etc.⁷ The least invasive approach is orthodontic intrusion, however it has the disadvantage of long duration of treatment, root resorption and lesser degree of predictability hence not a preferred treatment option.⁸ The treatment modality of intentional RCT followed by crown lengthening procedure and crown placement after odontoplasty to gain interocclusal space and placement of implant in opposing arch is a viable option with predictable outcomes.⁹ This article aims to highlight this as an effective management option for severely supra erupted tooth with shorter treatment time and acceptable treatment outcomes achieved through interdisciplinary approach.

CASE REPORT

A 19-year-old female came to the dept of Dental surgery along with her parents. The patient gave a chief complaint of nagging pain and discomfort in relation to the lower right back tooth region. The patient gave a history of undergoing a surgical extraction procedure to extract an impacted lower third molar on the right side about 8 months ago. Her treatment history revealed that during the surgical extraction procedure the lower right second mandibular molar was also extracted prophylactically as it was grossly destructed. The patient had not undergone any treatment to replace the missing teeth. An OPG was done to rule out any other pathology and to confirm the clinical findings.

The intra oral examination & OPG revealed:

- Missing 47,48 (Fig 1)
- Supra erupted 17 clinically and radiographically (Fig 2,3)

These corroborations helped to arrive at a diagnosis of supra erupted maxillary second molar (17) causing traumatic cheek bite due to impingement of buccal and mandibular alveolar mucosa.

TREATMENT OBJECTIVE

- Elimination of traumatic cheek bite due to supra erupted tooth
- Reestablishment of interocclusal space
- Fixed prosthodontic replacement to establish proper function

TREATMENT PLAN

Phase I – Etiotropic phase: Patient education and motivation.

The patient and her parents were explained the significance of the clinical and radiographic findings. The various treatment modalities available for management were discussed with the patient and her parents. The orthodontist was consulted and intrusion using fixed orthodontic mechanotherapy was discussed and the time frame required for successful completion of the same was explained to the patient. The patient and her parents were apprehensive about

long drawn treatment options such as orthodontic intrusion as the patient was to undertake exams and move out of town to join college. Hence after obtaining informed consent from the patient a multidisciplinary treatment option involving the Oral Maxillofacial Surgeon, Endodontist, Periodontist and Prosthodontist was formulated for the patient, keeping in mind the time constraints and need for long term success.

Phase II – Surgical Phase:

- Endodontic Therapy – Intentional Root canal treatment was advised in the supra erupted tooth number 17 followed by occlusal adjustment and odontoplasty. (fig 4,5)
- Implant placement- Two stage endosseous implant planning done in region of 47. Pre-operative diagnostic OPG and CBCT were advised to establish adequate clearance from anatomic structures and to estimate the size of implant to be placed.
- Implant of size was established as 3.5 * 11.5. (fig 6,7)

Implant procedure:

- Crestal incision was placed at region of missing 47. A full thickness flap was raised, and osteotomy site prepared by sequentially using the drill of the implant system. Implant was placed. Adequate torque achieved. Crestal flap sutured and confirmatory radiograph taken. (fig 8)
- Post-operative care explained to the patient and suture removal advised after 1 week.
- Healing period of 5 months was observed for enabling adequate osseointegration. Review of implant site and reinforcement of oral hygiene technique was performed every month.

Second stage surgery:

- The submerged implant is exposed, and a gingival former is placed to ensure good emergence profile of the gingiva with relation to implant in 47. (fig 9)
- Crown lengthening procedure: due to inadequate crown structure with relation to root canal treated 17 the crown lengthening procedure was performed to facilitate placement of prosthesis in order to establish occlusion and maintain function.

Phase III- Restorative phase:

- Cast metal crown with facing ceramic was placed with tooth number 17. (fig 10)
- Screw retained Cast metal crown with complete ceramic coating was placed with implant in 47 region. (fig 11)
- Occlusion was evaluated to determine any premature contacts and high points. Patient

was advised review and maintenance every 3 months.

- On 6 monthly follow up visit: Patient had adequate oral hygiene, the implant was stable and no peri-implantitis reported. Occlusion stable and no traumatic cheek bite reported. Post-operative OPG at the 6-month review also taken. (fig 12,13)



Fig 1. Missing 47,48



Fig 2. Supra erupted 17



Fig 3. Pre-Operative OPG



Fig 4: Intentional RCT



Fig 5: Odontoplasty and CLP

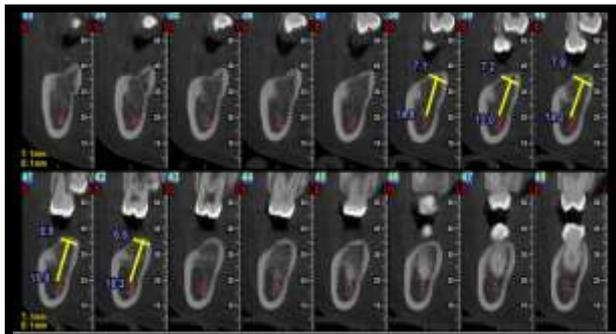
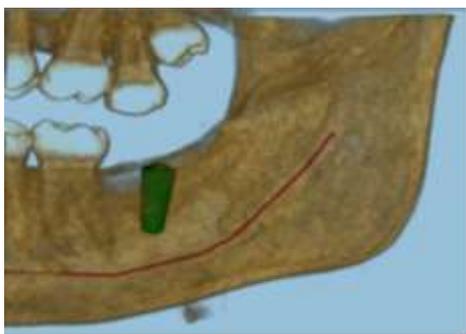


Fig 6,7. Pre op CBCT for Implant Placement



Fig 8,9: Implant Placement



Fig 10: Cast Metal Crown with facing ceramic



Fig 11: Implant Exposure, Crown Placement



Fig 12: Final Occlusion

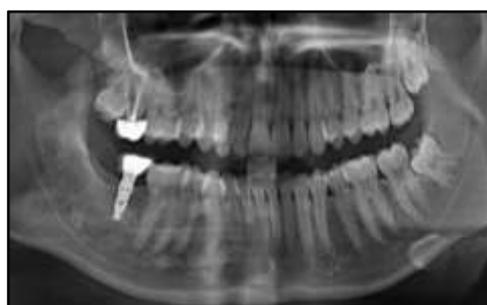


Fig 13: Follow up OPG

PATIENT PERSPECTIVE

The patient was satisfied with the treatment outcome and had no fresh complaints at the time of the first six monthly follow – up as was also corroborated in the radiographic findings. The patient was placed on six monthly follow-up routine for monitoring the long-term outcome of the treatment protocol.

DISCUSSION

Often the delay in replacement of lost tooth or teeth leads to the extrusion of the opposing teeth into the edentulous space this leads to undesirable sequelae

such as food lodgement leading to dental caries, masticatory inefficiency , TMJ disorders and trauma , discomfort and loss of intermaxillary space due to impingement on the opposing arch.¹⁰ Various treatment options are available which include odontoplasty to effectively reduce occlusal discrepancy in a moderately extruded tooth where 1-2 mm of enamel can be removed in many situations.¹¹ Molar intrusion orthodontic TADS (Temporary Anchorage Devices) for re-establishing a functional posterior occlusion & reducing the need for prosthetic crown reduction is a successful treatment modality but requires more time for completion .¹² On an average the duration of treatment for intrusion of maxillary molar tooth by 2 to 3 mm is 7.6 months with a range of 5 to 12 months.¹³ However, intentional Root Canal treatment of a tooth with perfectly vital pulp may be a more viable option in cases of hyper erupted tooth or drifted teeth that must be reduced so drastically that the pulp exposure is certain.¹⁴ The crown lengthening procedure helps to increase available sound tooth surface for placement of crown after coronoplasty of the supra erupted tooth by apically displacing gingival tissue. ¹⁵ The replacement of a missing molar tooth with a two-step implant in which immediate loading is not done has shown to have a high success rate more than 95% .¹⁶ The crown height space which is the distance from the crest of the alveolar ridge to the occlusal plane , this is ideally around 8-12 mm measuring from the soft tissue of the edentulous ridge to the occlusal plane .¹⁷ In cases where the crown height space available is reduced the use of metal occlusal surface is an option for functional stability even though it may be the least aesthetic option.¹⁸ The use of Conventional panoramic radiographs to help provide information on the approximate bone height, the position of the inferior alveolar canal, the size and the position of the maxillary antrum, and any pathological condition which may be present prior to and after placement of implant are an important diagnostic adjunct.¹⁹ They are however also prone to distortion hence 3 dimensional imaging techniques may be more accurate, however they also increase cost of treatment.²⁰ Finally effective communication between the clinician and the patient is the key along with an interdisciplinary approach to successful management of supra erupted tooth which compromise inter – arch space to achieve realistic treatment objectives catering to the intricacies of the case.²¹

CONCLUSION

This case report helps to reinforce the importance of preservation of the remaining tooth structure while providing for replacement of missing opposing tooth in order to restore function. When supra eruption is present, it is possible to recapture space by performing coronoplasty or intentional endodontic treatment of the supra-erupted teeth. The replacement of missing opposing tooth can be done with an

endosseous implant system and proper functional occlusion can be achieved with proper occlusal analysis. An interdisciplinary approach involving the Oral and Maxillofacial Surgeon, Endodontist, Periodontist and Prosthodontist is the best way to achieve desired results in such cases.

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