



Case Report

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Open-faced maxillary overdenture: A simplified approach for enhanced esthetics

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Abstract

In partially edentulous patients, preservation of remaining teeth is of paramount importance. So, usually the remaining periodontally compromised teeth are preserved as overdenture abutments by reducing their coronal height. However, if this approach is adopted for anterior maxillary teeth, a prominent premaxillary segment poses challenges in terms of esthetics. This case report describes a modified approach for the management of a patient with extremely mutilated dentition having partially edentulous maxillary and mandibular arches. The maxillary anterior teeth were preserved as overdenture abutments resulting in prominent premaxilla, which was successfully rehabilitated using open faced denture that provided enhanced esthetics. Flangeless or open-faced denture exhibits promising results for rehabilitation of patients with prominent premaxilla without jeopardising the peripheral seal along with superior esthetic outcome. It can serve as a valuable treatment modality as in cautiously selected cases.

Keywords: Emergence profile, flangeless denture, Open faced maxillary overdenture, cast partial denture.

INTRODUCTION

Retention of roots to serve as overdenture abutments is a logical method of preventive prosthodontics. It offers several advantages from biologic as well as functional perspectives such as proprioception as well as reduced rate of ridge resorption [1]. Teeth with short clinical crowns, extensively mutilated and attrited dentition can be effectively used as overdenture abutments for removable prosthesis as preservation of remaining teeth is of utmost importance especially in cases of partial edentulism [3].

Muller Devan's dictum (1952) has greatly stated that "The preservation of that, which remains is more important and not the meticulous replacement of what is lost". However, it also poses several challenges for a clinician such as preservation of teeth in premaxilla usually results in a prominent labial fullness, thereby compromising esthetics. The maxilla often presents with a protruding trajectory before tooth extraction, producing the appearance of a protruding upper lip. In such cases, if the denture base extends upto the sulcus depth in premaxilla, two-third of the upper lip is severely distorted to meet aesthetic requirements besides providing ideal support to the upper lip. Additional retention may be availed by maintaining the undercuts in the premaxilla [3]. In such cases open faced or flangeless or gum fit denture may serve as a valuable treatment option [4].

This case report describes a modified approach for the management of a patient with extremely mutilated dentition having partially edentulous maxillary and mandibular arches where maxillary anterior teeth were preserved resulting in prominent premaxilla, which was successfully rehabilitated using open faced maxillary overdenture that provided enhanced esthetics.

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Case Report

A 34 year old male reported to the department of Prosthodontics with the complaint of multiple missing teeth (Fig. 1). Clinical examination revealed a severely attrited and mutilated dentition with presence of only five teeth in the maxilla and all mandibular anterior teeth with left first premolar. The coronal height of the maxillary anterior teeth was reduced to about half the anatomic height. There was minimum interarch space due to absence of posterior vertical stop resulting in collapsed bite (Fig. 2). Treatment options were explained to the patient. However, due to financial constraints, patient did not give consent for fixed option but he agreed for cast partial removable dental prostheses. So it was planned to rehabilitate him with maxillary overdenture using the remaining anterior teeth as abutments and mandibular distal extension cast partial denture to restore the esthetics and masticatory function.

Treatment was initiated by performing intentional root canal treatment of the maxillary anteriors that were plugged with restorative glass ionomer cement (GC Fuji II, GC Corporation, Tokyo, Japan). For mandibular prosthesis, diagnostic models were analyzed and teeth surveyed. Mockup preparations for mandibular cast partial denture were done on the diagnostic models and then the desired preparations were executed intraorally. Following the required mouth preparations, final impression for both the arches were made using putty relin technique by using addition silicone

(AQUASIL, DENTSPLYIH LTD) and poured in dental stone type III. (Kalstone, Kalabhai Karson Private Limited, Mumbai (Maharashtra)).

Mandibular master cast was surveyed and unnecessary undercuts were blocked out followed by fabrication of refractory casts using phosphate bonded investment material (GC Fujivest II, GC Corporation, Tokyo, Japan). Wax pattern were made using preformed wax form (Kerr inlay casting wax, type I, Kerr dental laboratory, orange, CA). The refractory model with the contoured wax pattern was then invested and casting procedure carried out. The casted cast partial denture framework thus obtained was finished and polished in the conventional manner. The metal framework was tried in the patients mouth and checked for proper adaptation (Fig. 3).

Maxillary and mandibular record bases were made with autopolymerising polymethyl methacrylate (PMMA) resin, initially with an extension into the labial undercut. However, this resulted in bulging upper lip. So, the extension of denture base into labial undercut was trimmed. The fullness of the upper lip was evaluated again. Appropriate support for the upper lip was determined in the sagittal view before assessing the vertical height of the occlusal wax rim. The lip position was evaluated at rest and in function. At an established vertical, centric relation was recorded followed by mounting and teeth arrangement. Try in was done (Fig. 4) and the dentures were processed conventionally. The processed and finished maxillary open faced maxillary overdenture and mandibular cast partial denture were delivered to the patient after necessary adjustments for anterior and lateral guidances (Fig. 5). The open faced maxillary denture (Fig. 6 & 7) significantly improved the esthetics of the patient (Fig. 8). Patient was followed up for 2 years. The denture were found to be comfortable, retentive, functional and esthetic. The patient was happy with the appearance and was successfully using them.



Figure 1: Frontal photograph of the patient



Figure 2: Intra oral photograph showing short anterior clinical crowns and bilateral mandibular distal extension arch

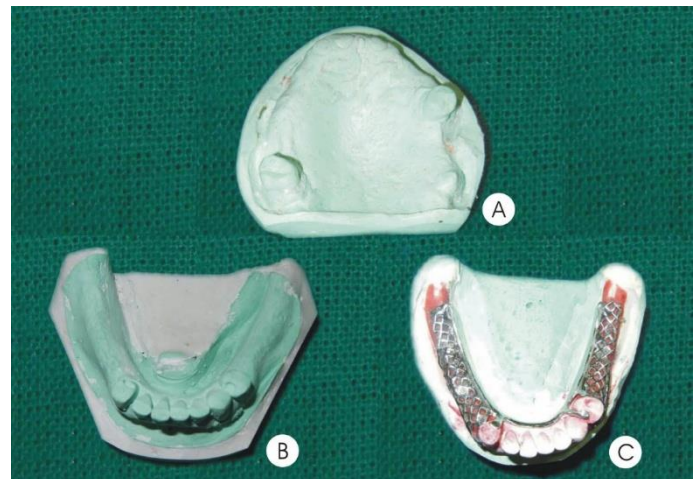


Figure 3: Diagnostic models



Figure 4: Jaw relation record



Figure 5: Try in



Figure 7: Open faced maxillary overdenture



Figure 8: Frontal photograph of the patient after the prosthodontic rehabilitation

DISCUSSION

Rehabilitation of mutilated dentition is a challenging task for the clinician. There can be multiple treatment options at disposal for rehabilitation of such cases. However, the clinician must be prudent to choose the simplest and the most cost effective approach while maintaining esthetics and function.

Usually prior to the fabrication of dental prosthesis the remaining roots are extracted and alveoplasty procedures are carried out. However this causes additional trauma and prolongs the treatment time [4]. Tooth-supported overdentures have improved retention and stability and also reduce the alveolar bone resorption, maintain a high degree of tactile sensation and strongly provide the psychologic benefit to the patient. They may also be more cost-effective and provide more proprioception than implant supported overdentures [5].

Flangeless or open-faced denture is an effective way of enhancing esthetics in cases of prominent premaxilla, where the maxillary anterior teeth have been utilized as overdenture abutments. The elimination of labial flange does not jeopardise the labial seal as the lip forms the soft tissue drape to complete the peripheral seal [6]. Sometimes, flangeless dentures with turkheim retainers are made for border seal in cases of compromised retention. However in the present case, overdenture abutments provided additional retention, thereby compensating for the border seal. In the present case, fabrication of conventional overdenture with labial flange would have resulted in excessive fullness leading to unesthetic appearance [7].



Figure 6: Fabrication of Open faced maxillary overdenture and mandibular cast partial denture

CONCLUSION

Flangeless or open-faced denture exhibits promising results for rehabilitation of patients with prominent premaxilla without jeopardising the peripheral seal along with superior esthetic outcome. It can serve as a valuable treatment modality as in cautiously selected cases.

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REFERENCES

1. Brewer AA, Morrow RM. Overdentures (2nd edition). St Louis: CV Mosby; 1973.
2. Grasso JE, Miller EL. Removable partial Prosthodontics: 3rd edition. St. Louis (MO): Mosby, 1991.
3. Olvera N, Jones JD. Alternatives to traditional complete dentures. Dent Clin N Am 2014; 58:91-102.
4. Terry BC, Zarb GH: report on 4th international congress on preprosthetic surgery. Int J Oral Maxillofac Surg 1991; 20:314-316.
5. Tokuhsa M, Matsushita Y, Koyan K. *In vitro* study of a mandibular implant overdenture retained with ball, magnet, or bar attachment: comparison of load transfer and denture stability. Int J Prosthodont 2003; 16:128-34.
6. Jagadeesh KN, Ravikumar N, Kashinath KR. Flangeless cast partial denture- A simplified approach for a better emergence profile with improved masticatory efficiency. J Den Sci Res 2009; 1:50-54.
7. Freeman SP. Technique: a flangeless immediate denture technique. J Conn State Dent Assoc 1965; 39:11-3.