

Two-Piece Denture-Obturator Prosthesis for a Patient with Severe Trismus: A New Approach

Niraj Mishra · Pooran Chand · Raghuwar Dayal Singh

Received: 9 November 2010 / Accepted: 4 January 2011 / Published online: 5 February 2011
© Indian Prosthodontic Society 2011

Abstract Prosthetic intervention with maxillary obturator prosthesis is necessary to restore the contours of resected palate and to recreate the functional separation of the oral cavity and sinus and nasal cavity. Trismus occurs most frequently in maxillectomy patient following surgical procedure. Absence of graft placement and healing by secondary intention always results in healing contracture and trismus. Trismus could also be a result of post radiation sclerosis and scarring of muscles. Two-piece denture-obturator prosthesis is an alternative management to conventional acrylic resin obturator prosthesis for the patient with severe trismus as patient could not insert a large prosthesis in the mouth. The use of flexible or resilient material affords the opportunity to engage in undercut areas, needed to help in the retention of the prosthesis, without causing trauma to the soft, often sensitive, and easily irritable tissues.

Keywords Two-piece denture-obturator prosthesis · Key and key-way · Heatcure resilient liner

Introduction

With advent of new materials and techniques, vast improvement in esthetic and function in the patient of maxillofacial prosthesis have been realized. Often post surgical tissue contracture lead to trismus [1]. Flexible or resilient materials permit engagement of bony undercuts

more profoundly [3] and are excellent adjuncts in the fabrication of obturator prosthesis [2]. This paper describes a technique for fabricating two-piece denture-obturator prosthesis; denture with heat cured acrylic resin and obturator part with heat cured resilient liner restoring the functions of mastication, speech and esthetic for a patient with severe trismus.

Case Report

A 45 years old male patient reported to the department of Prosthodontics, Faculty of Dental Sciences, C.S.M. Medical University, Lucknow, UP, India, for the fabrication of obturator prosthesis. The patient underwent left maxillectomy procedure to treat transitional cell carcinoma. Personal history revealed the habit of tobacco chewing since last 15 years.

Intraoral examination revealed a large but well healed defect on the left side of the maxilla along with loss of dentition in the same side (Fig. 1). Patient had palpable fibrotic bands of submucous fibrosis in buccal mucosa and severe restricted mouth opening of 1.8 cm.

Method

Preliminary impression with impression compound and alginate was taken after blocking the undesirable undercuts. Impression was removed in two sections and reassembled outside the mouth before cast was poured. Corrective impression was made with putty and light body elastomeric impression material. Two sections of putty were inserted into the mouth, one section into the defect and other section was loaded into the custom tray. Care

N. Mishra (✉) · P. Chand · R. D. Singh
Department of Prosthodontics, Faculty of Dental Sciences,
C.S.M. Medical University, 104, New Teacher Apartment,
T.G. Campus, Khadra, Lucknow, UP, India
e-mail: dnmirajprosth@yahoo.in



Fig. 1 Defect in the left side of the maxilla

was taken with application of petroleum jelly to prevent binding of the two parts of the impressions, so as to help easy sectional removal from the mouth. Parts were reassembled outside the oral cavity and a master cast was made.

Maxillomandibular relation was recorded with a trial base which carried a continuous clasp engaging the rest of dentition. Trial base also carried a retentive key extended into the defect for fitting into the obturator part mechanically. Final trial was taken after verifying phonetics and esthetics. Impression of defect was again taken with putty with the retentive key and clasp of trial denture engaging their respective position in the mouth to produce a keyway into the impression of the defect (Fig. 2). Master cast of the defect part was made (Fig. 3) and flaked for final processing of obturator with heat cured acrylic resilient liner (extra soft resilient liner, G.C. India). Trial denture was sealed on to the cast and processed into heat cured acrylic resin separately. Both denture and obturator were finished and polished (Fig. 4).

Obdurate part carefully inserted into the defect and after checking its fit, denture was inserted into the mouth by placing key into the keyway of obturator part (Fig. 5). Occlusal equilibration was done and patient was recalled for postinsertion adjustment.

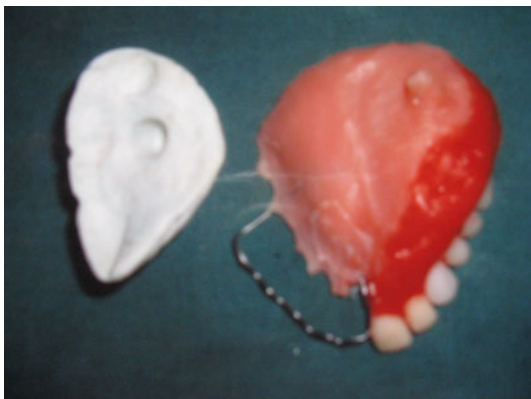


Fig. 2 Trial denture with key and impression of the defect with key-way

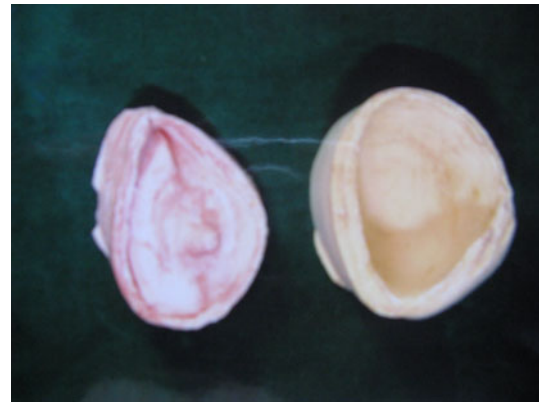


Fig. 3 Master cast of the obturator part

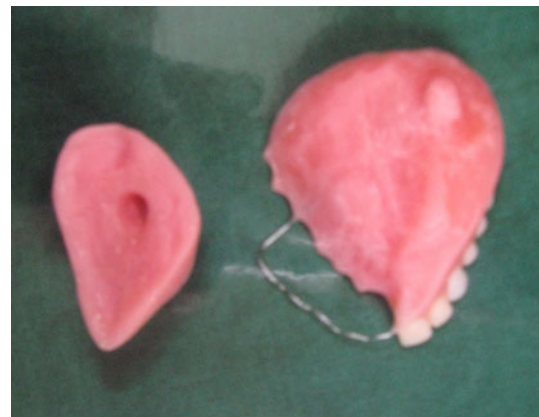


Fig. 4 Processed denture with key and obturator prosthesis with key way



Fig. 5 Obturator prosthesis inside the mouth

Discussion

Two piece denture-obturator prosthesis was planned with heatcured acrylic resin with retentive key meant for improved retention [1] and obturator part designed with heat cured acrylic resilient liners as it can provide more comfort and stability without compromising retention [4] (Fig. 6).



Fig. 6 Two piece denture-obturator prosthesis inside the mouth

Heat cured acrylic resilient liners are nontoxic, noncarcinogenic, resilient and well tolerated by intraoral tissues and can be finished and polished by conventional means. However, it becomes flexible on placement in moist oral cavity thus can engage desirable undercut areas. A common problem of resilient liners is the leaching out of the plasticizer that renders them hard after a period of wear. Heat cured acrylic resilient liner has plasticized ethyl methacrylate polymers that bind, the plasticizers to the

methacrylate hence eliminated the problem of the leaching out of the plasticizers [5].

Conclusion

Flexible two-piece denture-obturator prosthesis is an alternative management to conventional acrylic resin obturator for patient with severe trismus as patient can not insert one piece large prosthesis inside the mouth. Heat cured acrylic resilient liners can provide the necessary comfort and stability without compromising retention of the obturator prosthesis. With the use of flexible two-piece denture-prosthesis, we could optimally restore the functions of mastication, speech and esthetics for the reported case.

References

1. Beaumer J, Curtis TA, Marunick MT (1996) Maxillofacial rehabilitation: prosthodontic and surgical considerations, 1st edn. Ishiyaku EuroAmerica, St Louis, pp 252–256
2. Lauciello G, Casey D, Crowther D (1983) Flexible temporary obturators for patients with severely limited jaw opening. *J Prosthet Dent* 49:523
3. Parr GR (1979) A combination obturator. *J Prosthet Dent* 50:65
4. Srinivasan M, Padmanabhan TV (2005) Rehabilitation of an acquired maxillary defect. *J Indian Prosthodont Soc* 5(3):155–157
5. Winkler S (2000) Essentials of complete denture prosthodontics, 2nd edn. Ishiyaku EuroAmerica, St Louis, pp 427–428