

Case Report

A Beneficial Method to Treat Patient with Severe Gag Reflex by Custom Bar Retained Maxillary Implant Over Denture -A Case Report

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ABSTRACT

Objectives: Gagging is the most common protective reflex thus prevents foreign bodies from entering trachea. However, some patients exhibit severe gag reflex that creates disaster during working on upper complete edentulous patient's mouth and prevent them from wearing the prosthesis. By fabricating bar supported implant retained palateless overdenture, that condition can be treated successfully. This article describes an innovative procedure for managing such cases by the use of three connect bar implant supported palateless overdenture on the completely edentulous maxillary arch thereby improving denture retention, stability, chewing efficiency and comfort of the patient and tolerance towards the intraoral prosthesis.

Keywords: Bar supported, Gagging, Overdenture, Palateless, Metal coping, Implant overdenture.

INTRODUCTION

The gag reflex is a normal defense mechanism thus prevents foreign bodies from entering the trachea, pharynx, or larynx. Any unwanted, toxic material, dental impression material or placement of dental impression trays in patient's mouth by dentist, even the sound of the dental hand piece may provoke some patients to gag. [1] Situation worsens while completely edentulous patient feels discomfort and is apprehensive during wearing dentures. Gagging due to somatogenic reason can be corrected with proper denture design. But gagging due to psychogenic causes can't be corrected totally even after counselling. So these situations give a complete challenge to the clinician to treat successfully.

Palateless complete denture for upper arch can be used for treating patients with extreme gagging reflex. But retention

may hamper due to lack of full palatal coverage and posterior palatal seal. To overcome the situation bar retained implant supported overdenture can be effectively used to improve function, diet, aesthetics and patients' satisfaction. [2]

Overdenture improved functional results allow proper access for hygiene and maintenance. [3] Bar type of overdenture provide a splinting mechanism between the overdenture supporting implants and increase the stability and retention of the prosthesis. [4] Quality and volume of remaining bone, and number and position of implants are factors which influence success of implants and prosthesis in the upper jaw.

This case report describes the fabrication of maxillary palateless implant supported over denture to rehabilitate the patient.

CASE REPORT

A 46 years old female patient reported to the department of prosthodontics of Dental Institute of Kolkata for prosthetic evaluation. She had received maxillary complete denture one year back but had a major complaint of difficulty in wearing the prosthesis due to severe gag reflex, difficulty in chewing and unsatisfactory esthetics due to poor designing of maxillary complete denture. Intraoral examination of patient revealed few remaining teeth in mandibular arch and completely edentulous maxillary arch (Fig 1 and Fig 2). Patient was much concern about wearing her maxillary denture due to lack of teeth during smiling and talking than preservation of lower teeth and edentulous area. There was no medical history of physical and mental illness.

So, due to severe gag reflex and presence of sufficient inter arch space for the placement of connect bar implant and custom made metal bar with copings, it was decided to fabricate a lower removable partial denture and a palateless bar retained implant supported maxillary overdenture to provide better retention, stability and support and comfort of the patient.

Patient had previous upper complete denture. So, it has been decided to use it as special tray and border molding and final impression (Fig 3 and Fig 4) were taken by elastomeric impression materials. Occlusal rim was prepared and jaw relation was established. Teeth setting and try in done. After lab procedure new upper complete denture and lower removable prosthesis had been prepared (Fig 5), reestablishing form, function and esthetics. A clear hard acrylic surgical maxillary template had also been fabricated from the new prosthesis (with appropriate presurgical implant analysis which has been decided after radio diagnosis of the maxillary arch by Panoramic and Denta- Scan radiograph view). It seemed to face difficulties to place 4 implants on the maxillary arch as for bone quality and anatomical consideration (maxillary sinus). So, it has been decided to

place 3 implants on the anterior region of maxilla. After administration of local anesthetic, three (3) 4.1 × 9.5 mm myriad connect bar implants (Equinox, connect bar screw retained implants.) were placed in the anterior maxillary arch in relation to 13, 21 and 23 region (Fig7) according to the surgical template (Fig 6) that had been created before the time of implant surgery. Soft tissue closure was accomplished with 3-0 Ethicon sutures. No healing caps were placed over implants because that might displace soft tissue and interfere during placing customized bar and bar retained abutments. So using cotton we placed temporary luting cements over it to close the areas. The patient was dismissed and asked to come for follow up after 1, 4 and 6 weeks of implant surgery. On the next appointment 6 weeks after surgical phase (Fig 8), when implant to tissue surface interface was intact (verified by percussion and radiographic evaluation), prosthetic phase was decided to start. Temporary cements (Fig 9) were removed and transfer coping was placed over implant surface. A close tray upper impression (Fig 10) was obtained using putty and medium body elastomeric impression material (single step single impression technique). Implant analogs were placed over transfer coping in the impression, Gingimask (Fig 11) was placed surrounding implant analogs and the impression was being poured by Die stone (Type v). In the lab procedure, the Ceka plastic bar pattern (Fig 12) was used to fabricate metal bar for implant supported overdenture. Plastic bar pattern with screw (provided by equinox along with bar implant) were fit by cover screw with the implant analog obtained in the master cast. Then plastic bar pattern (Ceka Preci-line) was cut according to desired length between three implants and attached to the plastic bar by inlay wax (Fig 13). The whole pattern was removed by untightening the implant screw from the cast carefully and casting procedure was done (Fig 14). On the next appointment, the customized bar and bar abutments were tried in and checked for

passive fit in the patient's mouth (Fig 15). The new maxillary complete denture was related to the customized bar intraorally by making judicious adjustments. The (Ceka Preci-line) yellow rider and metal housing were fit over metal bar in the patient's mouth. All the undercuts of bar and bar abutments were blocked by pattern wax (Fig 16) and the anterior relieved area of the complete denture was relined with cold cure

acrylic resin (Fig 17). Vertical dimension of occlusion and occlusion (Fig 18) were checked and implant supported maxillary overdenture (Fig 19) was delivered to the patient. Palatal portion of upper denture was removed as U shaped to decrease gagging tendency of the patient. Patient was asked to come for routine follow up. It was found that there was satisfactory result in treatment outcome.



Fig 1: Partial edentulous lower arch



Fig 2: Complete edentulous upper arch



Fig 3: Final impression of upper arch



Fig 4: Final impression of lower arch



Fig 5: Polished Upper CD and lower RPD



Fig 6: Surgical stent prepared to use as surgical guide for implant placement



Fig 7: Surgical phase: Implant placement on 13, 21, 23 region
Fig 8: OPG showing 3 connect bar implant placement in relation to 33,21,23



Fig 9: Healing phase 6 weeks after surgical phase
Fig 10: Impression taken by double mix single impression technique



Fig 11: Gingimask placement
Fig 12: Plastic bar pattern with screw (Ceka Preci-line) was used



Fig 13: Plastic bar pattern attached to the plastic bar abutment by inlay wax (Ceka Preci-Line attachment)
Fig 14: Fabrication of Metal bar and abutment



Fig 15 : Metal bar and abutment checked in the patient's mouth

Fig 16 : Yellow rider and SS housing placed on the metal bar and Undercut block by wax



Fig 17: Intaglio and cameo surface with clip and metal housing of over denture



Fig 18: Front view in occlusion

Fig 19: lateral view of patient with established vertical dimension after wearing denture

DISCUSSION

Edentulism cause progressive loss of proprioception, esthetic impairments, progressive irreversible alveolar bone loss. [5] So, implant retaining custom bar over denture is planned for the patient which provides simplicity of fabrication, ease of maintenance, stability, retention and good patient response. More importantly it helps in the preservation of the remaining oral structures (as a result of distribution of forces). [6]

Van Kampen FM, van der Bilt A et al found that the masticatory function

significantly improved after implant treatment. They also observed small differences in masticatory function among 3 different attachment types with implant treatment: slightly better masticatory performance with ball and bar-clip than with magnet attachments. [7] Therefore we planned for bar clip attachment after implant placement for better masticatory efficiency and function. But Goodacre et al [8] have reported a high frequency of complications with this style of bar over denture prosthesis. So, a scalloped milled bar with a lingual wall (the longer the better)

positioned perpendicular to the occlusal plane and with no more than 5° labial convergence in combination with perfectly fitting complete denture metal substructure, provides excellent resistance form and long-term retention. Moreover, treatment is efficient and economical. [4]

CONCLUSION

Modification of conventional treatment strategies by Palateless connect bar implants supported overdenture is definitely beneficial for patients having severe gag reflex with a history of unsuccessful denture wearing. It provides better retention, stability and chewing efficiency thus provides overall success in treatment outcome.

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