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Case Report

Prosthetic rehabilitation of a gunshot wound defect with combination of fixed and removable prosthesis

Wg Cdr M.P. Shashidhar [a,*], *Col E. Mahesh Gowda* [b]

[a] *Graded Specialist (Prosthodontics), 1 Air Force Dental Centre, New Delhi 110010, India*

[b] *Dy Commandant & Classified Specialist (Prosthodontics), Army Dental Centre (R&R), Delhi Cantt 110010, India*

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sustained with gunshot wound treated with maxillary cast partial denture and mandibular metal ceramic fixed dental prosthesis.

Introduction

Maxillofacial defects created by gunshot wound can result in significant esthetic deformities and functional disorders, which may in turn result in psychosocial consequences.[1,2] The complicated nature of the defect makes the rehabilitation of the maxilla and mandible challenging. The primary goal of rehabilitation is to restore the compromised function and esthetics caused due to maxillary and mandibular defects.[3,4] There are several treatment options available for rehabilitation in cases of maxillary anterior defect involving alveolus, like removable partial dentures, fixed partial dentures, and teeth-implant supported hybrid prostheses.[5] The prosthesis should replace all missing oral structures including both hard and soft tissues in the affected area.[6] This clinical report describes the prosthetic rehabilitation of a patient

Case report

Twenty seven year old male patient was referred to outpatient department for rehabilitation of the missing teeth caused due to gunshot wound (Fig. 1). History revealed that he had sustained a gunshot injury to face as well as to abdomen, while on duty. After initial life saving emergency treatment, followed with multiple abdominal surgeries, he was stabilized. Later on he was referred to our dental center for Prosthodontic rehabilitation. Clinical evaluation of the maxillary arch revealed that he had missing teeth 12, 11, 21, 22, 23 and 24 with substantial loss of height and width of the alveolar bone (Fig. 2). Mandibular arch showed missing 37, root stumps in relation to 32, 33 and 34, and fractured 31 involving the pulp (Fig. 3). The patient was diagnosed as, a case of Kennedy's class IV maxillary arch with Siebert's class III alveolar ridge defect and Kennedy's Class III Mod 1 mandibular arch. The treatment plan was formulated to rehabilitate him with maxillary removable cast partial denture with acrylic extension on to the defect and rehabilitate mandibular arch with metal ceramic fixed dental prosthesis.

In maxillary arch quadrilateral design cast partial denture with anterior–posterior palatal strap major connector, embrasure clasps in the molar region bilaterally, bar clasp with Cingulum rest in relation to 13, RPI clasp assembly for 25 and mesh retention for acrylic saddle were planned.

* *Corresponding author*. Tel.: +91 8826843435.
E-mail address: muttiga_001@yahoo.com (M.P. Shashidhar).

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Fig. 1 – Extraoral pretreatment view.

In mandibular arch, root stumps of 32, 33 and 34 were endodontically treated for preservation of associated alveolar bone. Fractured 31 was endodontically treated and restored with fiber post and direct composite resin core. Three unit metal ceramic fixed dental prosthesis for replacing 37 and six unit metal ceramic fixed dental prosthesis for replacing 32, 33 and 34 with 41, 31 and 35 as abutments was planned. The interdental area between the prosthesis was designed as a self cleansing area since patient had a high lip length and thus esthetics was not compromised.

Diagnostic impressions of maxillary and mandibular arches were made with irreversible hydrocolloid impression material and diagnostic casts fabricated. Occlusal rest seat preparation in relation to 16, 17, 26, 27 and 25 and cingulum

Fig. 2 – Maxillary partially edentulous arch- pretreatment view.

Fig. 3 – Mandibular partially edentulous arch- pretreatment view.

seat preparation in relation to 13 was carried out. Final impression was made with addition silicone impression material and master cast was fabricated. Surveying of master cast was done to mark height of contours and to locate undercuts. Unfavorable undercuts in the master cast were blocked using blockout wax and clay, and was duplicated with reversible hydrocolloid. Refractory cast was fabricated, hardened and wax pattern was fabricated. Patterns were sprued, invested in a phosphate bonded investment material and casting was carried out in an induction casting machine using chromium cobalt casting alloy. Casting was recovered from investment, trimmed, finished and tried on the master cast. After clinical try-in of the framework in patient's mouth (Fig. 4), it was polished in electrolytic polishing unit. Occlusal rim was fabricated on the framework and jaw relations were recorded with silicone interocclusal records. Casts were articulated and teeth arrangement was carried out. Waxed-up framework was tried in patient's mouth and minor adjustments were made to meet requirements of esthetics and phonetics of the patient. It was processed in heat cured acrylic resin, finished and polished (Fig. 5).

Mandibular metal ceramic restorations were fabricated according to standard Dental lab protocols technique and luted with Type-I glass ionomer luting cement (Fig. 6). Post-

Fig. 4 – Trial of cast partial denture framework.