ABSTRACT
Maxillofacial injuries can be complex and require interdisciplinary involvement in their management. This paper reports the management of a self-inflicted gunshot maxillofacial defect in a 29-year-old male with missing teeth and oral tissue deficit by prosthodontics rehabilitation.

Keywords: Self-inflicted gunshot; maxillofacial defect; prosthodontics restoration

Introduction
Maxillofacial injuries can be complex and require interdisciplinary involvement in their management. Acute and long-term psychological problems can result from maxillofacial trauma and disfigurement. Maxillofacial trauma includes injuries to any of the bony or fleshy structures of the face. Any part of the face can be affected including, teeth, eyes and their muscles, nerves, and blood vessels and the orbit.

A rewarding area of prosthodontics is the rehabilitation of patients with acquired maxillary hard and soft palatal defects. In most circumstances, the prosthetic prognosis is favorable and patients are pleased and grateful on completion of rehabilitation. This paper reports the management of a self-inflicted gunshot maxillofacial defect in a 29-year-old male with missing teeth and oral tissue deficit by prosthodontic rehabilitation.

Case Report
A 29-year-old male patient with some missing maxillary and mandibular teeth caused by a gunshot trauma was referred to the Department of Prosthodontics under the Faculty of Dentistry at Hacettepe University for prosthetic rehabilitation to regain function and aesthetics. Medical history reveals Diabetes mellitus. Clinical examination shows multiple missing teeth, trismus, poor masticatory function and phonetics. A craniotomy defect was seen in the left frontal region. De-epithelialized leg skin flap and fibula flap were used to reconstruct the facial defect (Figure 1,2). Cartilage graft was placed superiority on forehead. The orbit was bilaterally asymmetric. Bilateral infraorbital hypesthesia was present. The left lower eyelid had ectropion. The patient lost his nose and was restored by a thelized leg skin flap and fibula flap were used to reconstruct the facial defect (Figure 1,2). Cartilage graft was placed superiority on forehead. The orbit was bilaterally asymmetric. Bilateral infraorbital hypesthesia was present. The left lower eyelid had ectropion. The patient lost his nose and was restored by a

The orthopantomogram showed fracture of the mandible, the malar and maxillary bone fracture and nasal bone fracture, which was healed and was reconstructed with bone plates. The maxillary left and right central (11,21), lateral incisors (12,22), canines (13,23), first and second premolars (14,15,24,25), right first molar (16) were missing. The mandibular left and right central (31,41), lateral incisors (32,42), canines (33,43), first premolars (34,44), left second premolar (35) were missing (Figure 3). Radiographic analysis displayed no bone loss around the abutment teeth. The patient could not open his mouth because of scar tissue, which made it difficult to take an impression (Figure 5-7).

Preliminary impression with irreversible hydrocolloid impression material was used to make study casts. Customized acrylic resin impression trays were fabricated from casts (Figure 8-9). The trays were perforated for the impression material flow. The borders of trays were constructed with the modeling compound and after border moulding of the mandibular and maxillary impression trays the custom tray preparation for final impressions were finished (Figure 10-11). The impression material was mixed according to manufacturer’s instructions. Trays were loaded to a uniform thickness and impression trays were seated in the mouth. The impression material was allowed to flow over the areas till all pressure was released and set. The impression was removed from the mouth, washed with tap water, dried with a gentle application of air and inspected and cast was poured (Figure 12). The final impression records impression surface of the denture and the adjacent landmarks i.e., the soft tissues of the crest slopes of the ridges and palate with minimum tissue displacement.

The Cr-Co metal frameworks was made and adjusted for a functional and harmonious occlusal relationship between opposing dentition (Figure 13). The wax was used for recording of occlusal relationships for the partially edentulous arch (Figure 14,15). The teeth were arranged to interdigitate with the opposing teeth in a normal cuspal relationship. Intraorally, teeth positions and occlusion were evaluated. Before processing the dentures necessary corrections were made. The obturator prosthesis was fabricated using heat-polymerizing acrylic resin (Figure 16,17). Once the fine adjustments of the prosthesis were completed, it was inserted to the patient’s mouth to assess the extensions, speech, and occlusion. The speech and aesthetics showed significant improvement (Figure 18,19). The maintenance procedure was explained in detail to the patient and importance of adequate oral health and hygiene was emphasized. Regular follow-up visits were performed at monthly intervals for three months and then once every three
months. The retention was satisfactory and functional rehabilitation was achieved without any post insertion sequel and follow-up was maintained over a 2-year observation period.

Discussion

Gunshot injuries to the face can have serious aesthetic and functional consequences. Few articles have described comprehensive management, including surgical and prosthodontic phases of reconstruction of patients with such injuries. In general patients with surgical resections of mandible, maxilla, tongue, and adjacent soft tissues demonstrate lingering functional disabilities and cosmetic disfigurement. The oral functions of speech, mastication, deglutition and salivary control are not easily restored to presurgical levels.

Dental implants and magnets are a good treatment option for replacing missing teeth. In this case, patient did not have enough maxillary and mandibular bone and the width of the alveolar crest is too narrow to permit the surgeon to place the implant. The ridge thickness was inadequate and required augmentation. The osseous defect due to gun shot injury was the result of the collapse of the buccal plate due to tooth loss and its functional stimulus.

A removable partial denture is one option for the replacement of missing teeth. Most patients are not satisfied with this alternative due to the bulk of metal and acrylic and the unsightly clasps necessary to stabilize the prosthesis. In the present case, the remaining teeth were periodontally stable and were used to support removable prostheses. The patient was satisfied by the present treatment methods, i.e., removable partial denture to achieve improved aesthetics, function and phonetics. After receiving his prosthesis, his psychological status and its functional stimulus also improved.

Conclusion

In conclusion, this paper reports the treatment sequences necessary to restore tooth loss due to a gunshot injury by making removable prostheses supported by natural teeth.

Authors Affiliations

1. Filiz Keyf DDS, Ph.D., Professor, Department of Prosthodontics, Faculty of Dentistry, Hacettepe University, Ankara, Turkey.
2. Defne Burdugoğlu, DDS, Ph.D. Scholar, Department of Prosthodontics, Faculty of Dentistry, Hacettepe University, Ankara, Turkey.

References


How to cite this article

Address for correspondence
Dr. Filiz Keyf, DDS, Ph.D., Professor, Department of Prosthodontics, Faculty of Dentistry, Hacettepe University, Ankara, Turkey. Tel: 090031223054075 Email: fkeyf@hacettepe.edu.tr

Source of Support: Nil
Conflict of Interest: None Declared