CLEFT PALATE MANAGEMENT WITH BAR-RETAINTED REMOVABLE PARTIAL DENTURE

Filiz Keyf, Sencan Ozlu

ABSTRACT
Cleft lip and palate associated with many problems, including cosmetic deformities, dental abnormalities, and difficulties in speech and swallowing. This paper reports the prosthetic rehabilitation of a 20-year-old female with unilateral cleft lip and palate by a combination of metal-ceramic cement-retained fixed partial denture and a bar-retained removable partial prosthesis. Bar-retained obturator was planned to cover the oronasal communication in the hard palate and improve the patient’s functional and aesthetic requirements.

Keywords: Cleft lip and palate; Obturator; Retention

Introduction
Clefts of the lip and/or palate (CLP) are common birth defects of complex etiology. The prevalence of CL/P is range from 1:500 to 1:2500 live births. This deformity is associated with many problems, including cosmetic deformities, dental abnormalities, and difficulties in speech and swallowing. The treatment of CL/P patients is multidisciplinary and requires the involvement of a surgeon, orthodontist, speech therapist, paediatrician, periodontist, prosthodontist, laboratory technician and psychologist. It is a long-term process and should continue from birth until the child reaches around 18 years of age and stops growing. Congenitally missing anterior teeth are common in cleft palate patients. In unilateral or bilateral clefts, the lateral incisors are the most frequently missing teeth, although the canines and central incisors may also be affected. When present, these teeth may be malformed and malformed. The bone support of teeth adjacent to the cleft is generally compromised. As a result of intrinsic anatomical aberrations, such as the absence of alveolar and palatal hard and soft tissue or contraction resulting from previous surgical repair, a residual oronasal communication may occur on the palate, in the alveolar ridge or labial vestibule. This situation caused dysphagia, leakage of oral fluids, hypernasal speech, and aesthetic disturbances. Complete obturation is required during swallowing and production of all consonants except for nasal ones. Sometimes orthodontic and facial orthopedic treatment alone fail to resolve this problem, a palatal obturator is required. So prosthetic treatment still plays an important role in cleft treatment. This paper reports the prosthetic rehabilitation of a 20-year-old female with unilateral cleft lip and palate by a combination of metal-ceramic cement-retained fixed partial denture and a bar-retained removable partial prosthesis.

Case Report
A 20-year-old female with a surgically treated unilateral right-sided cleft lip and palate was referred to the Department of Prosthodontics at the Hacettepe University, Faculty of Dentistry. The intraoral examination revealed a residual palatal defect of 2mm x 3mm and missing maxillary right lateral incisor and maxillary left second premolar. During food intake she had nasal reflux and while speaking her articulation was distorted. Also she was complaining about her appearance. The occlusion was compromised although orthodontic treatment was completed. In general, poor periodontal health and oral hygiene was found in the patient. Radiographic analysis displayed bone loss around the maxillary right central incisor and canine (Figure 1-3). Initial periodontal treatment was performed; and the patient was trained in oral hygiene maintenance. A metal-ceramic fixed partial denture (FPD) with lingual rest seats was fabricated between the right first premolar and the left canine. A bar attachment was placed between the right central incisor and canine (Figure 4). A bar-retained removable partial denture (RPD) with palatal coverage was fabricated (Figure 5,6).

The importance of adequate oral health and hygiene was emphasized to the patient. The patient was also taught about the correct use of an inter-dental brush, dental floss, and single tufted brush. The check-ups were done at the first week, and first month following insertion of the prosthesis. She was followed up at six-month interval for two years, and it was observed that there was no loss of retention with FPD and RPD. Also her aesthetic and functional expectations have been satisfied (Figure 7).

Discussion
One of the postsurgical complications following the surgical closure of cleft lip and palate is the development oronasal fistula in the palate, alveolar process or the labial vestibule. It usually causes problems with chewing, phonation and breathing. In this patient a palatal obturator and RPD covers the opening and contributes to normal oral functions. The design of an obturator is related with remaining natural teeth and extension of the residual oronasal communication. Obturator fabricated with adequate extensions are often heavy, which can decreases stability and retention. Therefore, the prosthesis consists of clasps or stainless steel orthodontic wire in order to retention and stability. In addition, if any teeth are congenitally missing, they can be attached to the plate to improve articulation and appearance. In the present case, the maxillary right central incisor and canine were used as abutments for an extra coronal bar attachment retained removable partial denture. Chen et al reported similar prosthetic rehabilitation using an extra coronal resilient attachment (ERA) in a patient with right incomplete cleft lip and palate combined with midfacial dysplasia. Even though edentulous cleft space in which teeth are congenitally missing can be closed orthodontically or surgically during an orthognathic procedure, sometimes, ortho-
donic closure of the diastema may not be desirable because it would introduce a prominent midline shift or the short roots of the adjacent teeth allow only limited tooth movement. In such cases prosthetic rehabilitation is required. Prosthetic treatment options for tooth replacement include a fixed or removable partial denture, dental implant, resin bonded fixed partial denture, porcelain artificial tooth and fiber-reinforced composite resin-bonded fixed partial denture etc.

Conventional cement-retained fixed partial denture attaches to teeth on each side of the edentulous cleft space to provide a more natural tooth replacement. It has been recommended that two abutment teeth be used on each side of the cleft. The porcelain artificial tooth is connected to these crowns, which are made of porcelain or porcelain fused to a metal alloy. Function and aesthetics are excellent, additionally long-term success is more predictable. But the patient was followed up long-term period, because any movement of the cleft segments will lead to the disruption of the cement seal around the abutments of the FPD. This could lead to an increase in the propensity of recurrent caries under the FPD and the potential failure of the FPD.

Hickey and Salter evaluated psychological health of congenital and craniofacial defects. Patients embarrassed by their teeth and facial appearance are frequently less motivated to maintain good oral hygiene or seek regular dental care, resulting in increased tooth loss and destruction of oral tissues; this exacerbates an existing problem. In addition they have experience difficulties with internalizing (shyness, depression, and social isolation) and externalizing (disobedience, fighting, and impulsive behaviour) problems, learning disorders, and social competence. The authors have observed that patients with congenital craniofacial defects often feel more positive about themselves after prosthetic treatment; this can have profound effect on the individual’s happiness and productivity.

**Conclusion**

In conclusion, prosthetic reconstruction of cleft lip and palate patients with conventional prostheses or implant-retained prostheses help them to be more positive about themselves following prosthetic rehabilitation and this create profound effect on the individual’s overall wellbeing, happiness and productivity.

**Authors Affiliations**

1. Filiz Keyf, DDS, PhD. Professor, Department of Prosthodontics, Faculty of Dentistry, Hacettepe University, Ankara, Turkey. 2. Sencan Ozu, DDS, Department of Prosthodontics, Faculty of Dentistry, Hacettepe University, Ankara, Turkey.

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