Functional and esthetic rehabilitation of an adolescent cleft lip and palate patient

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Many patients with clefts that also affect the alveolar ridge present with congenital absence of the permanent maxillary lateral incisors. This paper describes the treatment of an adolescent cleft lip and palate patient whose missing and unesthetic maxillary incisors were replaced by a combination of fixed and removable partial dentures. (Quintessence Int 1991;22:401-404.)

Introduction

The treatment of patients with cleft lip and palate calls for a complex multidisciplinary approach with long-term involvement. Plastic surgeons, orthodontists, and prosthodontists are only part of the "cleft palate team" that provides the medical care that, in many patients, starts shortly after birth,* and continues in various stages until maturity.

Many patients with clefts that also affect the alveolar ridge present with either congenital absence of the permanent maxillary lateral incisors, or teeth that are in a rudimentary form, eg, peg-shaped or small crowns and short roots. The maxillary central incisors are often hypoplastic with short roots and are severely malposed. This malpositioning, in addition to the tooth-lip relationship and the extent of hard and soft tissue deficiency, influences the esthetic appearance and phonetics. Thus, prosthodontists, when rehabilitating these patients, face the difficult decision of whether to use fixed or removable partial dentures. In patients with minimal tissue deficiency, fixed or even resin-bonded prostheses can be used. In patients with severe deficiency, more extensive, advanced restorative care is required to resolve functional, esthetic, and phonetic problems. Removable partial dentures are especially indicated in patients with several fistulae, soft palate dysfunction, or uncoordinated nasopharyngeal sphincter action, which can lead to hypernasal speech.

This paper describes a treatment mode that combines fixed and removable partial dentures in an adolescent patient. Various factors affecting this treatment approach will be evaluated.

Case report

A 17-year-old girl who was born with a bilateral cleft lip and palate was referred to the restorative clinic. Immediately after her birth, presurgical orthodontic treatment with a feeding plate had been initiated to facilitate feeding and plastic surgery interventions. The early phase of orthodontic treatment was started with treatment to correct the rotation and alignment of the permanent maxillary central incisors when she was 7 years of age. At a later stage, when the patient was 12 years of age, the maxillary arch was expanded and the palatally impacted maxillary canines were surgically exposed and orthodontically aligned. On completion of the orthodontic phase when she was 14 years, a removable retainer with artificial lateral in-
Clinical examination of the patient revealed a repaired bilateral cleft palate, an unsteady premaxilla, and moderate tissue deficiency with several fistulae in the palate (Fig 1). The teeth were well aligned and the intercuspal position coincided with the centric relation. The two maxillary lateral incisors were missing, and both maxillary central incisors were unesthetic (Fig 2). The roentgenograms showed reduced periodontal support of the central incisors because of their rounded, short roots (Fig 3). In addition, the left central incisor was endodontically treated.

A regimen for good oral hygiene, which is a prerequisite for this form of treatment, was initiated. A conservative, economically feasible approach based on a combination of fixed and removable partial dentures was designed. Treatment consisted of two combined fixed partial dentures on the central incisors with milled preparations on the palatal side for the milled
Fig 4  Palatal view of the fixed partial dentures on the central incisors and milled preparations for the removable partial denture arms.

Fig 5  Palatal view showing the fixed partial dentures and the removable partial denture in place.

Fig 6  Anterior view of the restorations in place.

Fig 7  Esthetics of the completed restorations.

arms, and a removable partial denture joining the two fixed partial dentures via a semiprecision attachment (Fig 4). The partial dentures were generously relieved from the free marginal area of the posterior teeth (Fig 5). The fixed partial dentures on the central incisors served an aesthetic role, while the removable partial denture fulfilled both phonetic and aesthetic needs (Figs 6 and 7).

Discussion

Adolescent cleft lip and palate patients present special prosthodontic problems and demand particular attention to aesthetic considerations because of soft tissue deficiency and fistulae in the palate. In addition, incomplete tooth eruption often restricts the available retention of fixed partial dentures. Thus, unless the palatal cingulum is fully exposed, adequate retention is unlikely. Adequate tooth reduction is generally not possible because of large pulp size. These patients may exhibit high caries rates, and sometimes have short roots as a result of congenital malformation of these teeth or following extensive orthodontic treatment. These considerations call the use of fixed prosthodontics into question.

The patient presented exhibited all the problems mentioned above. The presence of fistulae interfered with her speech, making it hypernasal, so that it was almost impossible to understand the patient when the provisional removable partial denture was taken out. The use of fixed partial dentures alone, even with extensions, was discounted on these grounds. According
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...to Kantorowitz, to ensure stability, fixed partial dentures should be extended as far as the second premolar or the first molar. Such extensive treatment was contraindicated in this case because of pulp size, because adequate retention was available, and because of the patient's phonetic difficulty in the absence of an appliance. A combination of fixed and removable partial dentures was therefore the treatment of choice. Fixed partial dentures on the central incisors combined with removable partial dentures attached on the crown also stabilized the premaxilla, thereby preventing relapse of the palatal expansion.

The premolar region tends to relapse following orthodontic expansion. This treatment mode also addresses this problem. Although removable partial dentures are generally believed to enhance plaque accumulation, in our view, the possibility of removing the appliance for cleaning purposes and tissue rest and the use of mouthwashes and special cleaning devices minimize this problem.

The described approach, based on a combination of fixed and partial removable dentures, gave good esthetic and functional results and facilitated oral hygiene maintenance in the adolescent patient. This method is also inexpensive and leaves room for other options.

References


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