

A prosthodontic intervention in smile correction of a palatal cleft- A case report.

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Abstract

Cleft lip and palate defects are frequently encountered in our dental practices. The etiology of the defect is multifactorial and it is important to educate and create awareness of the treatment. Though many cases are treated surgically in infancy, many require a multidisciplinary approach for correction of the maligned teeth later in life. As the esthetic demands of the patient increases, they seek out for better treatment options. Surgical intervention with bone grafting is often done, to correct the defects along with orthodontic correction of malposed teeth. Nevertheless, prosthodontic intervention with conservative approach is widely accepted by the patients to correct the defect and replace the missing teeth along the site of defect. This article describes a treatment plan, with a prosthodontic correction of smile and replacement of maligned teeth with the help of a fixed denture prosthesis. It was accepted by the patient and the fixed dental prosthesis (FDP) improved the functional and esthetic demands of the patient.

Keywords- Cleft palate, Cast partial denture, Fixed dental prosthesis, Fixed partial denture.

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Introduction

Cleft lip and palate are one of the most frequent anomalies occurring in the face causing facial asymmetry and esthetic concerns. Though the etiology of this defect is multifactorial heredity and environmental factors are chiefly responsible for this occurrence in India.^[1] Generally they are classified into four major types, cleft lip, cleft palate, unilateral cleft lip and palate and finally bilateral cleft lip and palate. A combination of cleft lip and palate unilaterally is the most common type of occurrence.

As we know it requires a multidisciplinary approach and the treatment plan starts as early as its detection in the 8th week of intra-uterine-life, with education and awareness to the parents and surgical closure in infancy to facilitate feeding and normal growth of the

palate. The treatment continues to adulthood with multidisciplinary approach for proper growth of the individual.

The treatment of a case of cleft lip and palate may involve extensive surgical interventions and also bone grafting procedures along with orthodontic correction of maligned teeth. Many cases it is preferred to orthodontically correct the malposed teeth and also for space closures due to absence of teeth in the line of defect as it maintains the periodontal health and is more satisfactory to the patient than a prosthetic replacement.^[2]

However, there are cases which do require prosthodontic intervention to replace the missing teeth and also support the esthetic demands of the patient. The treatment modality chosen to restore the edentulous site in cleft lip palate patients is dictated by patency and extent of the defect, presence of

unrepaired cleft lip and/or palate, maxillomandibular relationship, and status of the remaining teeth. Edentulous space with bone grafted cleft site may be predictably restored with dental implants. [3]

The prostheses may vary from a simple treatment denture, to a cast partial denture (CPD), or Maryland bridge to a fixed partial denture (FPD).

Case report

Twenty-six-year male patient reported to the clinic with a chief complaint of malposed anterior teeth along the line of cleft palate and was not happy with it. Patient had undergone surgery for closure three years ago.

On Clinical examination, the patient presented with a cleft lip and palate wherein a surgical closure was done, though the closure of lip was satisfactory, a fistula was present at the closed palatal cleft area leading to a residual defect. There were mal aligned teeth in the upper anterior region suggestive of deciduous teeth retained or presence of supernumerary teeth appearing as a cluster 21,62 leading to the fistula (Figure 1).

The patient was unhappy with his smile and aesthetics and had visited numerous dentists, and a surgical approach was suggested with bone grafting for the defect. Patient was unwilling for a surgery and showed concern for conservative treatment plan.

On radiographic examination, the patient presented with rotated 21,62 and probably a supernumerary tooth along the line of cleft palate (Figure 2). There were also impacted third molars with respect to first, second and fourth quadrants. The teeth present were all permanent teeth with respect to first quadrant 11 to 17, second quadrant deciduous lateral was retained with permanent lateral 22 missing, 21, 23-28, present and 31-37. 41-47. present.

Suggestive of congenitally missing 22 and the presence of deciduous retained or supernumerary tooth present in the area of 22. The radiographic examination also revealed absence of interradicular bone between the maligned teeth.

Since the patient was unwilling for a surgical grafting to improve the defect site and considering the aesthetic requirements of this adult patient a prosthodontic conservative approach was suggested, which involved extraction of the deciduous tooth or supernumerary tooth and the rotated central incisor in the second quadrant (Figure 3). Followed by tooth preparation for a fixed denture prostheses from 12 to 23 replacing 21,22 to meet the patient's aesthetic demand.

Treatment plan

Advised extraction of maligned 21, 62, 22/supernumerary tooth. Advised fixed dental prosthesis (FDP) from 12 to 23 for smile correction. Advised intentional root canal treatment with respect to 11,23 as per the tooth preparation required on labial aspect for the alignment of anterior FPD. Advised extraction of impacted 18,28,48.

Fixed dental prosthesis helps to restore the space and meet the aesthetic demands of the patient. In this case a zirconia fixed denture prosthesis was designed to the patient, it was well accepted by the patient and the digital mock up helped to restore the cant in the smile line of the patient as there was uneven occlusal plane, the affected site there was facial deformity and muscles were taut leading to a cant in the smile line. A provisional restoration fabricated on the cast though appeared perfect after cementing in the patient's mouth enhanced the cant and facial asymmetry

(Figure 4). This was corrected in the CAD design and the final prosthesis was CAD milled using 3M lava zirconia. The final prosthesis was cemented and it not only improved the aesthetic outcome but also restored the functionality of the anterior overjet and overbite of the patient (Figure 5 and 6).

Discussion

A case report of an adult patient with unilateral cleft lip and palate is presented here. A conservative approach of extraction of maligned teeth and restoring with a fixed denture prosthesis was done to meet the aesthetic requirements and was well accepted by the patient who was not willing for a surgical intervention. Most of these cases would have undergone multiple surgeries for the correction of the cleft in their early stages of life.^[4] When a non-surgical option with conservative treatment plan is proposed the patient's trust in dental care and acceptance of treatment is enhanced. It not only improves the patient's aesthetic demand but meets the psychological demands as well. In this particular case a prosthodontic intervention to give an accepted treatment plan has greatly served the functionality of the patient. He is confident to meet the society by large.

Conclusion

Though there are well documented cases of bone grafting and surgery performed in the cases of cleft lip and palate, conservative prosthodontic intervention still remains an important aspect of treatment plan.^[5,6] The present case has been followed up by four years and there has been no bone loss around the abutment teeth and the prosthesis has improved the masticatory efficiency and

speech of the patient along with restoration of smile. Long term follow up of the prosthodontic treatment of such patents with no complications will mark the future of success.

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FIGURES



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5



Figure 6