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Case Report

Prosthodontic Restoration of a Congenital Premaxillary Maxillofacial Defect- A Modified Approach

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ABSTRACT

Aesthetic and functional rehabilitation of congenital maxillofacial cleft defects can be quite a prosthodontic challenge, especially in an adult patient. A case of an untreated maxillofacial cleft defect was rehabilitated by using a fixed-removable obturator prosthesis. After a minimal surgical correction, the prosthesis included telescopic crowns and a bar and clip assembly along with an obturator extension for restoring the cleft defect. A combination of different dental materials was used in the prosthesis for specific reasons. Functional and aesthetic rehabilitation was made possible by this modified approach.

Key Words: Fixed-removable prosthesis, maxillofacial defect, aesthetic rehabilitation

INTRODUCTION

Maxillofacial defects may be congenital or acquired following surgical resections, infections or trauma and can lead to severe impairment of functional efficiency, phonetics and aesthetic profile of the affected individuals. [1] Intraoral defects affect the continuity of the lips, alveolar processes, hard and or soft palate. [2] Many a times the compromise in aesthetics, mastication, deglutition and speech may not be adequately surpassed with a prosthesis as it may lack retention or lack of facial support. Prosthesis may be fabricated in acrylic resins or metal and additional dental, palatal, nasal components may be incorporated as the situation demands. [3] The present clinical report describes the restoration of an anterior maxillofacial defect- a premaxillary cleft with a modified fixed-removable prosthesis.

CASE REPORT

A 40-year-old male patient was referred to the Department of Prosthodontics, Pushpagiri College of Dental Sciences, Thiruvalla, Kerala, India who presented with a congenital maxillofacial cleft defect involving the premaxilla, hard palate and maxillary dentoalveolar region. The patient had a nasal tone in his voice and also gave a history of nasal regurgitation of food. Clinical examination revealed unaesthetic curved peg shaped maxillary central incisors suspended within a mobile premaxilla segment, missing maxillary lateral incisors, and rotated maxillary canines with an intact mandibular dentition (Figure 1).

Considering aesthetics, a minimal surgical intervention was planned. [4] The excessively proclined maxillary central incisors and a small portion of the premaxilla was removed, retaining the remaining portion. (Figure 2a and 2b) Following surgical correction, a modified

fixed-removable telescopic prosthodontic rehabilitation was planned. Canines and first premolars on both quadrants were prepared (Figure 3) to receive primary metal copings, which were connected by a bar (Hader bar) [5] (Figure 4). Further, a detachable assembly was fabricated which included secondary copings in porcelain fused to metal over the canines and premolars. The detachable assembly also included a clip for retention over the bar (Hader bar and clip) (Figure 5), acrylic resin teeth for replacement of missing central incisors and pink acrylic resin extension for restoration of the labial and palatal defects. The primary coping assembly in metal was cemented onto the abutment teeth (Viva glass CEM, Ivoclar). Over the cemented component, the detachable secondary coping assembly, which gained retention from the copings and the bar and clip, was tried in the oral cavity. (Figure 6) Thus, the telescopic prosthesis involved a combination of fixed and removable components and a combination of metal, porcelain fused to metal, acrylic resin teeth and pink acrylic for a successful aesthetic and hygienic rehabilitation of the maxillofacial defect. (Figure 7a, 7b and 7c)

The patient was made aware of the proper after care protocols which would determine the longevity of the restoration and the preservation of the remaining oro-dental structures. He was motivated for prompt follow ups periodically. He reported after 24 hours and then after one week for minor post insertion complaints. He was happy and contented with his new appearance and improved quality of voice. (Figure 8)

Figure 1. Pre-treatment-intra oral

Figure 2a Post-surgical -premaxillary tissue retained

Figure 2b Post surgical- palatal cleft

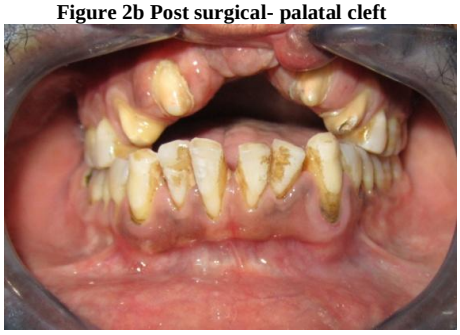

Figure 3 Teeth preparation canines and first premolars

Figure 4. Primary coping assembly with connecting bar

Figure 5. Inside view of secondary copings with clip for retention

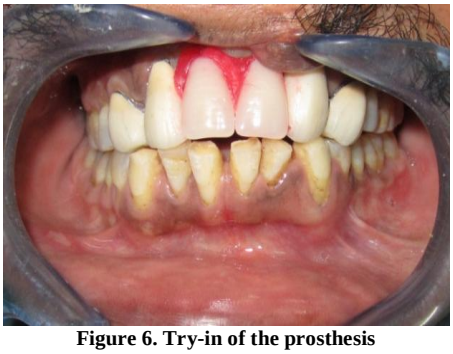

Figure 6. Try-in of the prosthesis

Figure 7a. Final prosthesis- frontal view

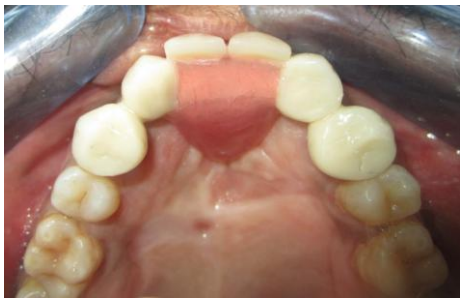

Figure 7b. Final prosthesis -occlusal view, covering the palatal defect

Figure 7c. Final prosthesis- side view

Figure 8. Post treatment- extraoral view

RESULTS

The prosthetic rehabilitation performed was evaluated 1-year post treatment and 2-year post treatment and no pathologic changes or prosthetic deterioration was identified, which reflects the relative success which we were able to accomplish with a combination prosthesis addressing the patients functional and aesthetic requirements.

DISCUSSION

Rehabilitation of maxillofacial defects especially in cases of untreated congenital clefts of the lips and palate is always challenging from a prosthodontist's point of view. Such situations demand careful planning, execution and vigilant follow up evaluating the need for any modifications. Moreover, they require constant patient and family counselling, long term follow-up schedules and repeated maintenance and repair of the prostheses. The current protocol in managing such conditions is the application of a multi-disciplinary team approach involving Prosthodontist, Oral Surgeon, Orthodontist, Speech Therapist and other medical specialists with shared responsibilities. [6] Prosthodontic modification for the surgical correction was suggested to the maxillofacial team considering the fact that excessive surgical correction would result in a flattened nose, thereby further worsening aesthetics. [4,7] Therefore, a minimal surgical tissue repair was performed for the premaxilla which reduced the prosthetic challenge in restoring aesthetics. Post surgically, an obturator prosthesis which replaced the extracted central incisors was required. The lateral incisors were congenitally missing and there was sufficient space only for two incisors between the canines. A conventional obturator design of a removable clasp retained prosthesis was not opted for in this situation as this would not satisfy the patients aesthetic concern. Therefore, a fixed removable telescopic obturator prosthesis was planned involving four

abutment teeth. The retainer in the fixed part of the prosthesis altered the appearance of the canines and the premolars thereby restoring the aesthetic component. The telescopic design of the prosthesis ensured an added frictional retention between the primary and secondary copings [8-10] along with the retention between the bar and clip assembly. [11] The removable part of the prosthesis was a combination of different artificial dental materials. The choice of acrylic teeth at the pontic site made the removable prosthesis lighter and the acrylic extensions on to the labial and palatal defect ensures an access for future relining if necessary.

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