Case Report

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MANAGEMENT OF RESIDUAL CLEFT PALATE DEFECT WITH SOLID OBTURATOR SUPPORTED BY CAST PARTIAL FRAMEWORK

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ABSTRACT:

Rehabilitation of a patient with a cleft palate has a multidisciplinary approach. This article discusses the management of a residual defect after corrective surgery for cleft palate along with replacement of congenitally missing teeth.

Key words: Cleft palate, Obturator, Cast partial framework

INTRODUCTION:

The most common defects in the maxillary arch can be either congenital or acquired. [1)]An obturator (Latin: *obturare*, to stop up) is a disc or plate, which closes an opening or defect of the maxilla as a result of a partial or total removal of the maxilla.[2] Severe deficiencies in appearance, pronunciation and swallowing occur when maxillofacial defects cause oral–nasal transport. These severe malfunctions may ultimately result in psychological problems. This article discusses the fabrication of solid obturator with cast partial denture for managing a residual cleft palate defect after correction surgery.

CASE DETAIL:

A 24 year old lady reported to the department of Prosthodontics wishing to replace missing anterior teeth. Medical and dental history revealed that she has undergone correction of cleft palate 5 years back followed by orthodontic repositioning of teeth. She reported to department of Prosthodontics for replacement of congenitally lateral incisor and canine (22, 23).Intraoral examination revealed a residual cleft defect which had to be prosthetically obturated (Fig 1). The patient was not willing for surgical correction. The following procedures were executed for the fabrication of obturator with cast partial denture replacing missing teeth.

Step by step procedure

1. Diagnostic impressions were made for maxillary and mandibular arches with alginate. The defect was packed with cotton gauze. They were poured with Type III dental stone.

2.The models were analyzed and surveying was done. It was decided to construct a cast partial denture framework to provide adequate stability and support on a long term basis. For this purpose, guidelines and rest seat preparations were to be made on 14 16,

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26 and 27and retained residual 63 .Retained 63 had not undergone root resorption and so it may be used for rest. Rest should provide adequate vertical support and reciprocal arms and minor connectors should provide resistance against lateral displacing forces. A custom tray for final impression was made for maxillary arch.

3. The following were accomplished during mouth preparation:

Mesial rest seat on 14, 16, cingulam rest seat on 63 and mesial and distal rest seats on 26 and 27 for embrasure clasp. Guide planes on remaining teeth were made. Undercuts for retention on 63, 14, 16, 26 and 27 were utilized. Guide planes were prepared parallel to path of insertion of prosthesis on lingual aspect of remaining teeth.

4. Impression was made using medium body elastomeric material (Monophase Aquasil) .It was poured with Type IV dental stone

5. The framework is fabricated with mesh type minor connector in defect area. (Figure 2) Modeling wax was adapted over the same. Trial fit of framework was done intraorally (Figure 3)

6. Since defect was small, border molding and recording of defect was done with green stick compound along with teeth arrangement. (Figure 4)Defect was recorded with light body siloxane material. (Figure 5) The impression was poured with Type IV dental stone and flasking was carried out following by elimination of wax, packing and curing the obturator.

7. Finishing was done and the definitive prosthesis was inserted to patient. (Figure 6)The patient was satisfied with the prosthesis and post insertion instructions were given. Regular follow up was done 24hrs later followed by follow up after a week and month later. Yearly follow up revealed that she is satisfied and using the prosthesis regularly.

DISCUSSION

The teeth are the greatest asset for providing retention of the obturator prosthesis. If sound natural teeth remain, the bracing components of the prosthesis framework can be used to minimize movement in all three directions. The number, position, and periodontal status of the remaining teeth are the most critical factors in evaluating the amount of stress that the remaining teeth maybe able to absorb. The basic principles of the design of removable partial dentures should be reviewed when designing the framework for an obturator. Major connectors should be rigid, occlusal rests should direct occlusal forces along the long axis of the teeth, guide planes should be designed to facilitate stability and bracing, retention should be within the physiological limits of the periodontal ligament, and maximum support should be gained from the residual soft tissues. [3] It is the prosthodontist's responsibility to incorporate the prosthesis on to healthy abutments and healthy tissues. [4] Since the adjacent tooth was deciduous and the bone was deficient the option of fixed

partial denture was ruled out.A removable prosthesis was made encompassing the soft and hard tissue defect .Since the patient had open bite little or no load during centric and eccentric loads were anticipated. The advantage explained in the article is that the border and final impression of defect was done during trial denture verification thus minimizing chair side appointments. A solid obturator was made with cast partial denture framework since the defect was small.

CONCLUSION

The problem experienced by cleft palate patients are reduced if a team approach is adopted and specialists are careful to apply skill and experience at all stages and keep the patient under regular review.

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FIGURES:

Figure 1

Figure 2

Figure 3

figure 4

Figure 5

Figure 6