

Removable Partial Dentures in Children - A Case Report

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Abstract

Removable partial denture (RPD) is one of the oldest methods of replacement of missing teeth in adults. In children very commonly used when child lose their permanent teeth at very young age due to trauma, congenital absence, oligodontia, or anodontia associated with genetic conditions such as ectodermal dysplasia, papillon-Lefevre syndrome. Major considerations for RPD in children are esthetic, masticatory function, and impaired speech. When there is no choice for fixed replacement of teeth in growing children till adulthood; RPD acts as an interim treatment handling mastication, speech, esthetic, and improving quality of life.

Keywords: Esthetic, Pediatric patient, Removable partial denture, Trauma.

INTRODUCTION

Prosthetic replacement of teeth in children is not uncommon, the causes of missing teeth is often trauma and less often genetic diseases such as ectodermal dysplasia, papillon – LeFevre syndrome that leads to oligodontia or anodontia.

Trauma causes sudden loss of teeth with the following effects: (1) Loss of esthetic, (2) loss of masticatory function, (3) psychological stress, (4) emotional disturbances, and (5) difficulties in the social adaptation of the affected child.^[1]

Childhood and adolescence represent a period of intense growth and development of the orofacial system. In such period, replacement of missing teeth is of vital clinical importance to ensure that proper chewing, esthetics, and pronunciation are achieved.^[2]

This present case report describes the prosthetic treatment for the replacement of teeth in an adolescent patient after loss of teeth due to trauma.

CASE REPORT

An 8-year-old boy visited to the Department of Pediatric Dentistry, Karpaga Vinayaga Institute of Dental Sciences with the chief complaint of lost teeth and the requirement to replace the same.

On examination, the child was healthy and gave no relevant medical history but gave a history of trauma from a road traffic

accident 6 months back resulting in the traumatic loss of all anterior and few posterior teeth, lips. The patient was rushed to a nearby hospital for treatment where first aid was provided including suturing of lip laceration. Consequently, he lost all maxillary and mandibular permanent incisors due to avulsion and few primary teeth were fractured and later extracted.

Clinical examination revealed a partially edentulous maxilla and mandible. Oral examination confirms both maxillary and mandibular alveolar ridge were healed and healthy (Figure 1).

As patient came at a very late stage, reimplantation/root canal treatment followed by crown lengthening and crown, etc. were now out of question. Only prosthetic replacement of teeth was available as a treatment option to help improve esthetics and masticatory function.

The parents were informed about the treatment procedure of dental prosthesis and oral changes that occur due to growth and development. After taking consent from parent's, the treatment procedure was started.

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“Tell Show Do” a behavioral management was used throughout the treatment procedure for dental prosthesis. Since patient has wide opening of the mouth, normal stainless-steel tray was selected for maxillary and mandibular impression. Rubber base impression (compound silica putty) along with light body material (silicon soft) was used for taking upper and lower jaw impression. During hardening of material, the lips and cheeks were manipulated to shape the buccal and labial aspects of the impression. The upper and lower impression was quite satisfactory and final cast were made in dental stone (Figure 2).

Bite registration was done by placing occlusal rims in the oral cavity with a freeway space of 2 mm, then the working cast was mounted in a simple articulator to evaluate dentition and occlusal vertical dimension.

Suitable shade of acrylic teeth was selected and confirmed with the child as well as parents.

Once teeth have been set on the occlusal wax rim by the laboratory a wax trial evaluation was arranged for the patient (Figure 3).

The patient was asked to check color shade for esthetics, occlusal relationships, biting comfort, and retention. Necessary correction was made on chairside itself and the wax trial was sent for processing in heat cure acrylic resin.



Figure 1: Pre-OP Facial aspect of patient



Figure 2: Occlusal Rims prepared post impression

On the insertion of the denture, minor adjustments were corrected on chair side itself and final polishing was done and inserted into the oral cavity (Figure 4).

The child patient and parents were satisfied, and routine instructions were given about removable dentures, maintenance of oral hygiene, and recall checkups every 6 months has been advised for patient.

The patient was instructed that the denture might need adjustments until his development stops and the treatment plan may change accordingly. Guidelines recommend relining/rebasing intraoral prosthesis in a growing patient every 2–4 years and remaking a new prosthesis after 4–6 years.^[3]

DISCUSSION

Multiple tooth loss in children usually occurs due to trauma/multiple dental caries/any hereditary/systemic diseases and stands chance to cause psychological problem in children.

Although various treatment methodology has been reported for the management of patients suffering from anodontia or



Figure 3: Occlusal trial of RPD with acrylic tooth



Figure 4: Patient with final RPD

oligodontia; the choice of treatment depends on the age, dental status, state of growth of the patient.

When considering a child in mixed dentition, conventional removable partial dentures (RPD) are the usually the treatment of choice. Removable appliances have the advantage of being easily cleansable as opposed to case where treatment was done using fixed prosthesis leading to food accumulation.^[4] They also give easy access to modify and reshape the appliance according to the growth of the patient.

Rehabilitating the patient esthetically and functionally to compensate for the psychological and practical negative impact is especially challenging. Parental desire is one of the main decisive factors for treating these types of clinical situation.^[5]

In this case, the child lost his teeth due to the trauma and patient visited the dental OP 6 months after the incident, leaving very little choice other than RPD.

According to Khazaie *et al.*, the prosthetic treatment may be carried out as early as preschool years where young children usually adapt to their use.^[6]

Most authors agree that if the child is cooperative, prosthetic intervention in those children who are of school going age is necessary for proper social and physical growth of the child.^[7]

In our case, the child was 8 years old, co-operated during all the clinical procedure, and enabled the clinical team to deliver the RPD successfully.

Rodd and Atkin examined the clinical procedures and satisfaction with removable prosthesis in children. The results shown that 36.2% of the applied prosthesis were corrected at least once after insertion.^[8] This was owing to the modifications

such as rebasing to compensate for alveolar ridge changes, trimming/window creation to provide opening for erupting permanent tooth, change in vertical dimension or abnormal mandibular posture.

CONCLUSION

RPD/Complete Denture are commonly used in adults when there is no option for fixed prosthesis. They however provide an acceptable treatment outcome in children as well as adolescence with permanent teeth loss albeit needing constant monitoring and modification.

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