

Groper's appliance- A confidence booster for kids

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Abstract

Aesthetic rehabilitation for children who lost their teeth at an early age was the common problems seen in paediatric patients. A major effect on the psychology and behaviour of children is seen after the early loss of anterior teeth. The treatment options for this kind of cases can be a removable or fixed appliance according to the situation.

To minimise undesirable drifting of teeth in the dental arch space maintainers are used. The development of malocclusion due to space discrepancy is also avoided.

Groper's appliance is an anterior aesthetic space maintainer used for children who have lost their primary anterior due to various reasons. This article discussed about a fixed type of an anterior aesthetic appliance placement, their importance to the children and contraindication of the appliance. The most important and decisive factor for placing anterior aesthetic appliance is parental wish and their desire.

This article describes rehabilitation of a 4½-year-old child after avulsion of the maxillary central incisor, using fixed functional anterior aesthetic space maintainer.

Keywords: rehabilitation, aesthetic, spacemaintainer

Introduction

A great impact is noticed on the general oral health of a child after early tooth which leads to unwanted tooth movements. By the time the child is brought to the dentist most of the anterior crowns are lost.

All functions like speech, mastication including the aesthetics of the child needs to be restored and it should be such that it does not interfere with the eruption of the underlying successor.

The choice can be removable or fixed, functional or non-functional. Factors, like stage of dental development, dental arch involved and tooth missing decide the selection of the appliance.

Case report

Patient Information



Fig 1

A four-year-old boy reported to the Department of Pediatric and Preventive Dentistry, Guru Nanak Institute of Dental Sciences & Research, with a complaint of decayed upper front teeth for last 3 months. (fig1)

No histories of trauma, systemic diseases, drug allergies or any infections were reported.

The family history was non-significant.

The parents were more concerned about the aesthetics of the child, and they wanted anaesthetic replacement of the anterior teeth.

The past dental history revealed that the patient underwent extraction of maxillary left deciduous first molar due to caries.

Clinical Findings



Fig 2

- Root stump was present i.r.t 51, 52 and 61(fig 2).
- Class III caries was present i.r.t 62.
- 64 was previously extracted due to caries.
- Occlusal pit caries was present i.r.t 54 and 75(fig 3).
- Class II caries was present i.r.t 74, 84 and 85.

Diagnostic Assessment



Fig 3

IOPAR was suggested i.r.t 51,52,61 and 62 (fig 4).
 Diagnosis done was that of Severe-ECC

Therapeutic Intervention



Fig 4

Application of fluoride varnish
 Extraction i.r.t 51, 52 and 61 under LA
 GIC restoration i.r.t 62, and composite restoration i.r.t. 54, 74, 75, 84 and 85
 Groper’s Appliance was used for the replacement of primary anterior in the maxillary arch.
 A space maintainer was indicated in 64 region for preservation of space of premolar eruption.

Appliance fabrication



Fig 5

and Adaptation - Bands were adapted on 55 and 65 and alginate impressions were made for the upper and lower arches. SS Wire Framework - On the upper cast, a stainless-steel wire (0.9 mm) framework was made, spanning from one band to the other and the ends of the wire were then soldered to the corresponding molar bands.

Appliance Fabrication

After applying separating media, the cold cure acrylic material was flowed from the palatal area to the labial vestibule and extended to the posterior region over the arch wire. Then, trimmed acrylic teeth were placed over the alveolar crest with the acrylic material (fig 5).

Try in and Adjustment

After fabrication of the appliance, it was removed from the cast and ready for an intraoral try-in.

Finishing and Polishing

Required adjustment, trimming and polishing was done

Cementation



Fig 6

Finally, appliance was cemented with luting GIC through the molar band on 55 and 65 (fig 6).

Follow-up and Outcomes

- The patient was instructed to visit after 1 month for follow-up.
- In case of any breakage of appliance patient was asked to report immediately.

Discussion

- Often school-going and young children with the absence of anterior teeth are bullied or mocked by the other children and may get *affected socially*.
- Several aspects such as child's age and parental desire comprises the decision to replace anterior tooth.
- Evidence of oral *growth restriction* after using prosthetic appliances is not present.
- Riekman *et al.* and Badraway *et al.* (1993) reported in their study that the loss of deciduous anterior teeth before the age of 3 years results in speech
- Jabin *et al.* concluded in their case report that the restoration of anterior esthetics with this appliance gave an essential psychological boost to the child and his

Conclusion

Aesthetic loss due to early childhood caries of an anterior tooth can result in psychological distress to the child at a younger age. The restoration of anterior aesthetics gave the child and his parents an important psychological boost with this appliance. In addition to improving facial aesthetics, it acts as a functional space maintainer, helping to establish proper speech; preventing any untoward oral habits from emerging, thereby helping the child's sound development during the foundation years.

Reference

1. Riekman GA el. Badrawy HE. Effect of premature loss of primary maxillary incisors on speech. *PediatrDent*,1985;7:119-22.
2. Jabin Z, Dudeja P, Dudeja K. Management of bilateral dental agenesis with aesthetic rehabilitation by Groper's appliance–A six-year follow-up. *J Clin Diagn Res*,2021;14:01-3.

Patient



Fig 7

Perspective

The patient was happy with his aesthetics and so were the parents (fig 7).

Informed Consent

informed consent was taken from the parents as the child was not of appropriate age for the consent.