

PEDI PARTIAL APPLIANCE: A NOVEL APPROACH FOR FUNCTIONAL ESTHETIC REHABILITATION OF SEVERELY DECAYED PRIMARY INCISORS**^{1*}Reena Rani, ²Sanjay Chachra, ³Kumar Shrikant, ⁴Manu Sharma, ⁵Ankita Sundan, ⁶Khushboo Sinhmar**¹Post Graduate Student, Department of Pedodontics and Preventive Dentistry, Swami Devi Dyal Hospital and Dental College, Barwala, Haryana.²Professor and Head, Department of Pedodontics and Preventive Dentistry, Swami Devi Dyal Hospital and Dental College, Barwala, Haryana.³Private Practitioner, Kinder Denticles, New Delhi.⁴Senior Lecturer, Department of Pedodontics and Preventive Dentistry, Swami Devi Dyal Hospital and Dental College, Barwala, Haryana.⁵Private Practitioner, Fortis Hospital, Chandigarh.⁶Private Practitioner, Ambala.***Corresponding Author: Dr. Reena Rani**

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ABSTRACT

Restoration of primary maxillary incisors severely decayed by caries or trauma is a clinical challenge for pedodontists. An anterior esthetic fixed or removable appliance is generally the choice to replace the lost tooth/teeth. The aim of this article is to describe the rehabilitation of primary anterior teeth in a five year old child using fixed bilateral space maintainer ; pedi partial or Groper appliance. The appliance delivered to the patient was functional and aesthetically acceptable to the patient and the parents.

INTRODUCTION

Early childhood caries (ECC) and dental traumatic injuries are the main reasons for premature loss of both anterior as well as posterior teeth during the infancy and toddler period. Early loss of maxillary incisors due to caries is very common in young children.^[1]

The greatest challenge for pediatric dentist is to rehabilitate these patients functionally and esthetically to compensate the psychological impact of both the patients and parents. Parental desire is one of the main concerned factors for treating these types of clinical situations.^[2] Treatment of choice in such situations may be removable functional/fixed functional esthetic space maintainer. The selection of the appliance depends on a number of factors including the stage of tooth development, involved dental arch, tooth missing, and status of the abutment teeth. The best suitable space maintainer for a child patient is fixed ones as they are easily acceptable. Since compliance in wearing removable functional space maintainer with a young child is often questionable. Hence various designs of fixed functional esthetic space maintainers are being used in pediatric dental practice with variable limitations in success rates.^[3]

This article is an attempt to present a novel design of anterior aesthetic replacement in a 5 year old boy using pedi partial or Groper appliance.

CASE REPORT

A five year old male patient along with his parents reported to the department of pedodontics and preventive dentistry, Swami Devi Dyal Hospital and Dental College, Haryana, India, with a chief complaint of pain and unpleasant look. On intraoral clinical examination it was found that the upper anterior teeth 52, 51, 61, 62 and posteriors 54, 64 were grossly decayed (fig 1,2). Radiographic evaluation revealed resorbed root stumps of 61,62,64 and infected root stumps of 51,52 with Nolla's stage 6 of succedaneous teeth (fig 3). Child's parents gave the history of bottle feeding during night up to 3 years of age. History also revealed improper dietary habits and oral hygiene practices without supervision and with no previous dental visit. On thorough clinical and radiographic evaluation, we planned to extract the root stumps of 51,52,61,62,64 followed by placement of fixed functional space maintainer. After obtaining informed written consent from parents, preoperative alginate impression occlusal analysis was performed, following that the

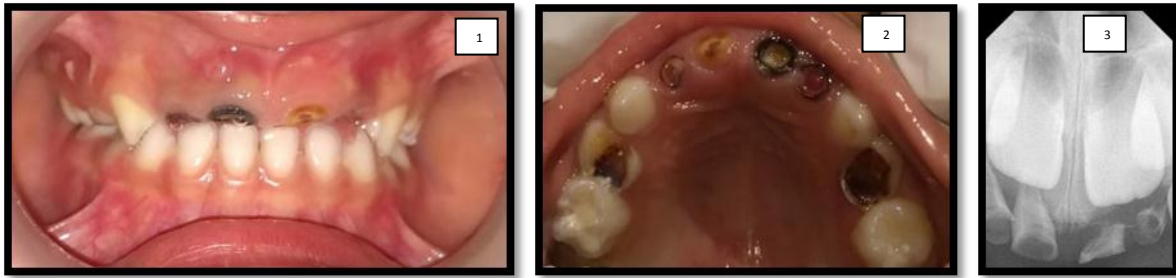


Figure 1 and 2: Pre-operative intraoral images.

Root stumps were extracted. In following appointment band adaptation was done on both maxillary permanent first molars and then transferred onto the working cast. A stainless steel wire (0.09) framework was fabricated on the upper cast (fig 4), which extended from one band to the other. The fabricated stainless steel wire component was then soldered to the corresponding molar bands. The adult sized acrylic teeth were trimmed to the size of primary teeth 51, 52, and 61, 62. Teeth were then attached to the wire component with the help of self

acrylic resin leaving the palatal surface free. The appliance was then trimmed, finished and polished (fig 5,6) and finally the appliance was cemented on 16 and 26 using glass ionomer cement type 1 (fig 7,8). The patient was instructed to maintain proper oral hygiene and to visit for check-up after 24 hours followed by after every 3 months. Parents as well as the child (fig 9) both were satisfied and were advised to come back to the department in case of any discomfort, distortion or breakage of the space maintainer.



Figure: (4) stainless steel wire (0.09) framework fabrication on the upper cast, (5)(6) Trimmed, finished and polished appliance.

DISCUSSION

Space management in the anterior region of primary dentition, from canine to canine, appears to be stable, even with the early loss of several incisors, with no net loss of space from canine to canine.^[4] Child's speech development following extraction of deciduous incisors remains somewhat controversial issue. The linguo-dental consonants pronunciations ("t," "d," "s," "sh," and "ch") and labiodental sounds ("f" and "v") are affected.^[5,6]

Hence placement of anterior aesthetic space maintainer is strongly needed by both patients as well parents.^[7] Fixed space maintainers are always acceptable in children as they have less desire to wear removable ones. The removable space maintainers cover maximum tissue in the oral cavity causing irritation and discomfort. Banding of molars is done for improved strength of the appliance. A similar appliance was mentioned by

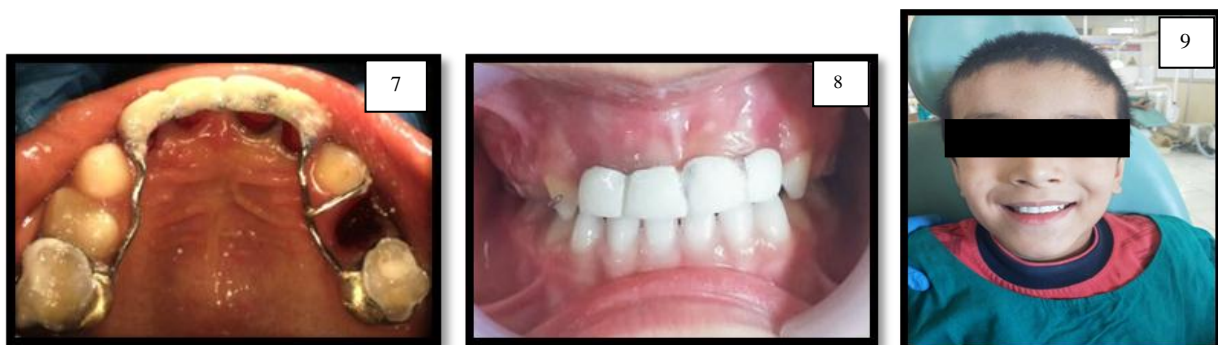


Figure: (7)(8) Post operative intraoral images, (9) Happy and satisfied patient.

Jasmine and Groper,^[8] in which plastic teeth were directly attached to metal cleats that were soldered on to the palatal wire bar instead of attaching to the acrylic part, as it was in our design. The most commonly used pontic design; the contact of the acrylic flange pontic with the underlying ridge has been used by various authors **Aswanth KP** et al., **Chakraborty S**.^[9,10] However lack of hygiene under the inaccessible acrylic flange may result in mucosal inflammatory disease leading to removal of the fixed appliance until the gingival heals. In the present case, minimum amount of palatal coverage is done in order to prevent irritation and also to allow the passive eruption of the successors.

CONCLUSION

Aesthetic space maintainer has been found to have a much wider acceptability and compliance among pediatric dental patients. It is the ultimate solution to deciduous anterior edentulous arches with compromised speech and aesthetics. In the present case, a successful placement of fixed functional esthetic space maintainer was performed. Limitations like long-term follow-up, improper oral hygiene, and frequent breakage of the appliance can be decreased by properly educating and motivating the child as well as the parents.

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