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RESEARCH ARTICLE

RESTORING SMILE AND CONFIDENCE IN A 5 YEAR OLD CHILD: A CASE REPORT

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ABSTRACT

Early childhood caries (ECC) causes premature loss of primary maxillary anterior teeth that hampers the child's growth and adversely affects psychology. Aesthetic restoration of the lost primary tooth aids in speech, mastication and in overall well being of the child. Fixed functional space maintainers, Groper's appliance does not need the cooperation of the child patient and hence more successful in maintaining the aesthetics as well as preserving the arch length. Minimum amount of palatal coverage by the appliance also increases its acceptance. The main purpose of the article was to restore the speech and appearance of a 4 year old child due to aesthetic rehabilitation of maxillary anterior teeth thereby restoring the confidence

INTRODUCTION

The premature loss of primary anterior teeth not only affects a child's developing dentition but raises various physiological and psychological concerns as well. Early Childhood Caries (ECC) is one of the main reasons behind early loss of primary teeth, affecting the deciduous maxillary incisors before any other tooth, thus by the time parents seeks treatment for ECC, most of the maxillary incisors are grossly decayed and have to be prematurely extracted (William, 2001). The main clinical considerations with children who have premature loss of deciduous maxillary anterior teeth are that of impairment of aesthetics, speech, mastication and development of parafunctional habits, and loss of space (William, 2001) Missing anterior teeth often affect the psyche of a child as they tend to see themselves as different from their peers, and often end up restricting their jaw and lip movement while smiling or talking due to embarrassment and fear of being made fun off. (Bernard *et al.*, 1983). Most children begin to articulate words by the age of two years and in this stage when their speech is developing, missing anteriors pose a problem in pronouncing dentolingual sounds such as 's', 'z' and 'th' thus affecting their speech in the long-term (William, 2001). Also in small sized jaws with lack of physiologic spacing between deciduous teeth, loss of anteriors may result in drifting of other teeth in

their space, posing a problem of crowding in permanent dentition (Bernard *et al.*, 1983). We pedodontists, have a major responsibility to recognize problems of the developing dentition and provide preventive and interceptive care to avoid future problems. There are various removable and fixed appliances which can be given for rehabilitation of missing deciduous maxillary anteriors. Since removable appliances are dependent on child patient's compliance, pose a problem with oral hygiene maintenance among other disadvantages, fixed appliances are preferred. The appliance should be designed in such a way that it is aesthetically pleasing, resolves speech problems and does not pose a barrier in the eruption of the successor teeth (Bernard *et al.*, 1983). An Literatures report various fixed appliances can be used as fixed space maintainers including Band and loop appliance, crown and loop appliance, distal shoe appliance, Transpalatal arch, Nance palatal arch appliance, Lingual arch and Fixed wire composite space maintainers (Kirzioglu, 2004; Laing, 2009) for replacing anterior tooth. In this case report a Groper's appliance which is a fixed functional anterior space maintainer was used for the aesthetic rehabilitation of a five year old child with missing primary maxillary anterior teeth.

CASE REPORT

A Five year old girl child reported to the outpatient department of Pedodontics and Preventive Dentistry, with the chief

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Fig. 1. Pre-operative view of child with missing 51, 52, 61 and 62



Fig. 2. wax-up before acrylicization of the appliance



Fig. 3. Labial view of cemented appliance



Fig. 4. Palatal view of cemented appliance

complaint of missing deciduous maxillary anterior teeth. Past dental history revealed that the maxillary anteriors which were grossly decayed were extracted 3 months back by some other dentists. Since their child was constantly being ridiculed at school and was losing her self-confidence and morale they visited us to find an aesthetic solution for their daughter's dental problem. On clinical examination, we saw that the child has missing 51, 52, 61, and 62 (Fig 1) Radiograph revealed permanent maxillary incisors in nolla's stage 6 of tooth development. After discussion with her parents, we decided to go for a Groper's Appliance, which is a fixed functional appliance as our treatment option. Parental consent obtained, behaviour modifications done, fluoride varnish was applied in the first sitting.

55 and 65 were banded using a preformed stainless steel molar bands and an alginate impression was taken. The molar bands were stabilised using bobby pins. The cast was poured using dental stone. 20 gauge stainless wire was then used to form a u-shaped component similar to that of Nance palatal arch running from 55 to 65. It was then soldered onto the two molar bands. 4 MBT brackets were then taken, and soldered onto the regions of the missing anterior teeth with 1mm gaps between each bracket. Once the brackets were soldered, Acrylic teeth were trimmed to appear aesthetically pleasing and as close to deciduous maxillary anterior as possible. Small holes were made on palatal aspect of the teeth to allow better flow of heat cure acrylic resin and thus improved retention. The teeth were then attached to the brackets with modelling wax and wax-up was done. Care was taken to minimize the wax-up in the palatal and gingival region to make the appliance less bulky and more acceptable to the child (Fig 2). The appliance with wax-up was tried in the patient's mouth to check for occlusion and to confirm the aesthetics with the child and her parents.

Once the child and her parents were satisfied with the trial appliance, it was then flaked, dewaxed to allow heat cure acrylic resin to flow and then heat cured. After the required trimming, finishing and polishing, the appliance was again tried in the child's mouth; occlusion and aesthetics confirmed and then luted onto 55 and 65 with type 1 GIC (Fig 3) (Fig 4). The child and her parents were pleased and satisfied with the new appliance. They were discharged after giving thorough instructions of keeping the appliance clean. The patient was recalled after 1 week for follow-up, where they reported with no complains and the child was pleased that she was no longer ridiculed by her friends. The parents were asked to come for follow-up after 1 month to assess the status of the erupting 11 and 21 and in case if the appliance required any modifications or corrections on later appointments.

DISCUSSION

The aesthetic rehabilitation of primary anterior teeth has a vital psychological impact on recovery of patient's self-esteem (Slack and Jones) (Slack, 1955) premature loss of deciduous anterior teeth causes proclination of permanent successors and thus reduction in arch perimeter. Northway (1984) stated that more space was lost in the first year of extraction than in successive years (Northway *et al.*, 1984) Kumari (2006) found that the greatest space closure occurs during the first 4 months of the extraction (Padma Kumari, 2006). Removable space maintainers require patient's cooperation to be successful while fixed space maintainer's do not need so. Groper's appliance is an excellent way to aesthetically rehabilitate a case of missing deciduous maxillary anterior teeth along with promoting development of speech and preventing loss of space, thus was the treatment choice in the above case. In this case minimum amount of palatal coverage was done to cause less irritation.

Banding of molars was done to improve the strength of bonding. The appliance design we have used has acrylic flange design (modified ridge lap). This allows the pontic to be attached to the ridge only on the anterior part of the buccal aspect thereby improving sanitation (Garber, 1981) along with better aesthetics. The palatal extension of the acrylic has been kept minimum for better acceptance of the appliance by the patient. Unlike the posterior segment, the anterior segment from canine to canine appears to be stable, even after early loss of incisors, with no net loss of space between the canines (Scures, 1967). Moreover, the intercanine growth between ages of two and four years is minimal (less than 0.5mm) and it is clinically insignificant (Scures, 1967). Changes in arch length with tooth migration generally occur after the eruption of the first permanent molar. At this time, the appliance can be removed, as it coincides with the eruption of the central incisors (Waggoner, 2001). The main disadvantage of the Groper's appliance is that there may be failure of the appliance in the long run due to cemental loss or fracture of the band material. Frequent recementation may be needed for these types of fixed appliances

Conclusion

This appliance not only helped the child to maintain the anterior esthetic appearance but also acted as a psychological boost to the child. Proper oral hygiene instructions were given to the parents. Periodic recall was done to check for the proper retention of the space maintainer, hygiene issues and refabrication of the space maintainer during the eruption of permanent molars and central incisors so that it does not interfere with growth and development of jaws.

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REFERENCES

- Bernard J. Klapper, Rhona Strizak-Sherwin. 1983. Esthetic anterior space maintenance. *Pediatric Dentistry*, 5(2):121-123
- CC Scures. Report of the increase in bicanine diameter in 2 to 4-year-old children. *J Dent Child*. 1967;34:332-35.
- Christensen, JR., Fields. FW. 1994. 2nd edition. Philadelphia: W.B. Saunders Company. Space maintenance in the primary dentition. In: Pinkham JR, editor. *Pediatric Dentistry: Infancy through adolescence*; pp. 358-63.
- Garber DA., Rosenberg ES. 1981. The edentulous ridge in fixed Prosthodontics. *Compend Contin Educ Dent*, 2, 212-23.
- Kirzioglu Z., Erturk MS. 2004. Success of Reinforced Fiber Material Space Maintainers. *J Dent Child.*, 71:158-62.
- Laing E, Ashley P, Naini FB, Gill DS. Space maintenance. *International Journal of Paediatric Dentistry*. 19, 155-62
- Northway WM., Wainright RL., Demirjian A. 1984. Effects of premature loss of deciduous molars. *Angle Orthod.*, 54:295-329.
- Padma Kumari B, Retna Kumari N. Loss of space and changes in the dental arch after premature loss of the lower primary molar: A longitudinal study. *JISPPD* 2006; 24(2):90-96
- Padma Kumari B., Retnakumari N. 2006. Loss of space and changes in the dental arch after premature loss of the lower primary molar: A longitudinal study. *J Indian Soc Pedod Prev Dent* ., 24:90-6
- Slack GL., Jones JM. 1955. Psychological effect of fractured incisors. *Br Dent J.*, 99:386-8.
- Waggoner, WF., Kupietzky. A 2001. Anterior esthetic fixed appliances for the preschooler: considerations and a technique for placement. *Pediatr Dent.*, 23:147-50
- William F. Waggoner, Ari Kupietzky. 2001. Anterior esthetic fixed appliances for the preschooler: considerations and a technique for placement. *Pediatric dentistry*, 23(2):147-150
