Case Report

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Smile Revival: Hollywood Bridge Appliance for the Esthetic Rehabilitation in a Preschooler

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ABSTRACT

Dental caries affects people of all ages, often leading to early loss of teeth in children. Early childhood caries starts with the primary maxillary anterior teeth, then primary molars, with about 48% of preschoolers experiencing it worldwide. Rehabilitating a young child with multiple missing teeth due to caries or trauma is a challenging task for any pediatric dentist. Parents often seek aesthetic treatments to preserve their child's appearance and boost their self-confidence. In this case report, a 4½-year-old girl was given a fixed Hollywood bridge appliance, enhancing her appearance, speech, and function while preventing harmful oral habits and boosting her confidence.

Keywords: Early childhood caries; hollywood bridge appliance; preschooler.

INTRODUCTION

Dental caries affect individuals of all age groups and premature loss of maxillary incisors is very common sequelae in young children.

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Early childhood caries (ECC) is the presence of one or more missing, filled or decayed primary tooth under the age of six and severe ECC (S-ECC) involves one or more smooth surface of primary maxillary anterior teeth.[1] It has a global prevalence of 48% in preschool children.[2] By the time the child is taken to a dentist, level of caries in ECC is often so extensive and rehabilitating a preschooler who has lost multiple teeth, either from ECC or severe dental trauma is one of the most intricate tasks for any pediatric dentist.[3,4] Also, in such cases, parents look for aesthetic solutions to maintain their child's appearance.[4,5]

In the present case report, a 4½-year-old girl was treated with fixed Hollywood bridge appliance to restore esthetics, phonetics, function, and prevention from deleterious oral habits, apart from imparting the self confidence in the child.

CASE REPORT

A 4½-year-old girl was brought to the Department of Pedodontics and Preventive Dentistry with a chief complaint of decayed upper front teeth. On

clinical and radiographic examination, there were root stumps of 54, 51, 61, 62 and 64 (Figures 1, 2 and 3) with palatal surface caries on 52 (Figure 1). A diagnosis of severe early childhood caries (S-ECC) was made. The parents demanded esthetic rehabilitation in order to boost the self-confidence of the child. Based on the clinical examination and radiographic findings, the root stumps were planned for extraction followed by fabrication of Hollywood bridge appliance.

Before performing any procedure, the consent from the parents and assent from the child was taken. For fabrication of the appliance, band pinching was done on 55 and 65, alginate impressions were made for the upper and lower arches and extraction of 51, 61, 62 was done on the same visit (Figure 5, 6). Stainless steel wire of size 0.036 inches was used and adapted on the palatal rugae area, where the wire was bent into projections for proper grip of the acrylic. Wire was soldered to the bands on 55 and 65. Cold cure acrylic base was made such that it covered the anterior rugae area (like that of a Nance palatal button) and extended anteriorly to place the acrylic teeth in relation to 51, 61, 62 and further extended labially till the level of mucogingival junction for esthetic purpose.

In addition to the anterior esthetic function, the appliance was designed such that it also served the purpose of space maintainer for the missing 54 and 64 by getting anterior palatal anchorage. In the next appointment, extraction of 54 and 64 was done followed by cementation of the appliance (Figure 8, 9). The child as well as the parents was satisfied with the treatment.

Post-operative instructions were given and patient was asked to come for regular follow-ups. At six months follow-up, minimal space was noticed between the labial flange of the appliance and the alveolar ridge due to the complete soft tissue healing of the extraction site. Therefore, to prevent ingress of food particles, the appliance was removed; minimal acrylic relining was done and then re-cemented.

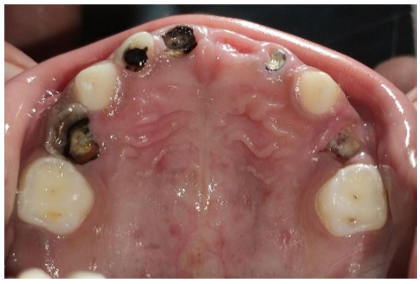

Figure 1: Pre-operative occlusal view

Figure 2: Pre-operative anterior view

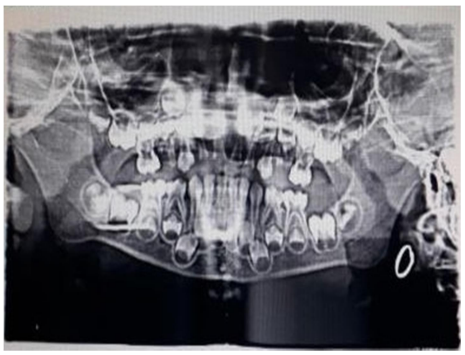

Figure 3: Orthopantomogram

Figure 4: Pre-operative facial photograph

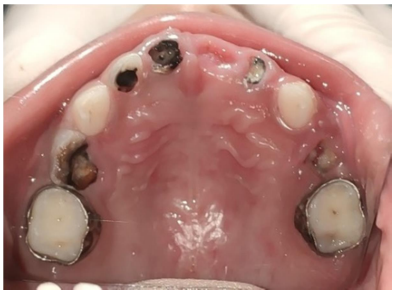

Figure 5: Band fabrication on 55 and 65

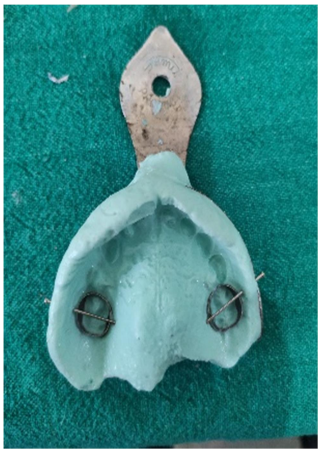

Figure 6: Alginate impression with the bands stabilized

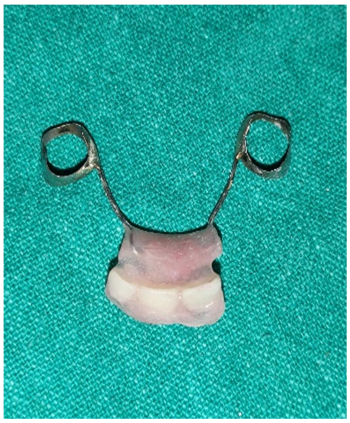

Figure 7: Fabricated Hollywood bridge appliance

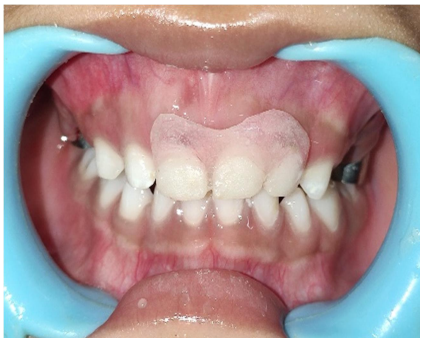

Figure 8: Post-operative anterior

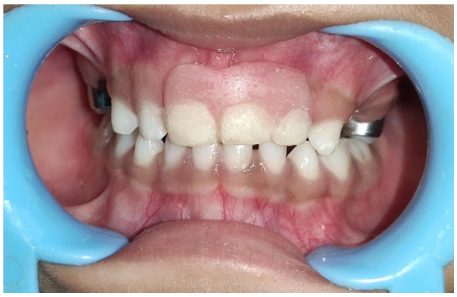

Figure 9: Six months follow-up, Anterior.

Figure 10: Post-operative occlusal view

Figure 11: Six months follow-up,

Figure 12: Six months follow-up, facial photograph

DISCUSSION

The aesthetic and functional rehabilitation of patients to address the psychological effects experienced by both the patient and their parents is one of the most significant challenges in the field of pediatric dentistry. A primary factor guiding the treatment decision in such case is often dependent upon the parents' choice.[6,7] In this case, parents were very much concerned about the child's appearance and were keen in replacement of the grossly decayed anterior teeth.

Various appliances have been designed to prevent space loss following the early loss of primary maxillary anterior teeth. The options can either be removable or fixed or functional or non-functional. This appliance choice relies on several considerations, like the child's dental development stage, the dental arch involved, tooth absent, and also the conditions of the neighboring teeth. Fixed space maintainers are generally preferable for young patients due to their better acceptance.[8]

The absence of the inner sides of front teeth can lead to speech issues and pronunciations of tongue-tip consonants (like "t," "d," "s," "sh," and "ch") and labial sounds ("f" and "v"). There is also a risk of developing deleterious tongue habit, which could lead to the subsequent dental malalignment. Thus, it holds an utmost importance for maintaining the space both aesthetically and functionally, using an appropriate space maintainer in accordance with the age of the patient.[5,9] The appliance in the present case consisted of minimal anterior palatal coverage with acrylic, like that of a nance palatal button that would help to prevent mesial migration of second primary molars and consequent space loss.

Additionally, the acrylic teeth were placed maintaining the arch shape on the acrylic base that ended as a labial flange. Such appliance design provides stability in all the three planes. A similar appliance was mentioned by Jasmine and

Groper, in which plastic teeth were attached to metal cleats that were soldered to the palatal wire bar instead of being attached to the acrylic, as done in this case.[9] While such appliance might offer better hygiene, there's a potential risk of visible unesthetic gap between the teeth and the alveolus due to issues like an inadequate anterior fit or a decrease in the ridge height.

In contrast, the acrylic flange design in the present case does not pose such risk. However, the challenge may be the inability to maintain oral hygiene leading to mucosal inflammation due to food accumulation underneath the flange. If this occurs, the appliance can be temporarily removed, acrylic readjustment (if required) followed by re-cementation can be done.[5] Therefore, it becomes essential for the parents to ensure that their child maintains good oral hygiene. In the present case as well, minimal space was observed between the flange and mucosa in the six months follow-up. Although the patient had maintained good oral hygiene, the gap was managed by debanding the appliance, relining, followed by re-cementation of the appliance.

Regular follow-up is necessary as the long-term use of the appliance might risk the development of caries on the abutment teeth. Hence, primary molars are preferred for band pinching whenever feasible.[10] The appliance can be removed once the permanent first molars erupt in the oral cavity as this timing typically aligns with the eruption of maxillary permanent central incisors. Even if the incisors do not emerge right away at this point, the patient generally can be made to understand that this is the early mixed dentition phase, where their peers would likely be facing similar condition. Thus, the Hollywood bridge appliance served not only as a functional space maintainer but also restored the aesthetic appeal of the anterior teeth. This in turn provided significant emotional relief to both the child and parents alike.

SUMMARY

Early childhood caries can cause emotional and psychological distress in the preschoolers. Hollywood bridge appliance served both as a functional space maintainer and restored the aesthetic appeal of the anterior teeth. This in turn provided significant emotional relief to both the child and parents alike. It aided in the proper articulation of speech and prevented the onset of untoward oral habits, thus supporting the child's healthy growth during the crucial early years of mixed dentition.

Conflict of Interest: None

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