Modified Willet’s appliance for bilateral loss of multiple deciduous molars: A case report

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Abstract

No other factor plays a more significant role in preventive and interceptive dentistry than the preservation of deciduous dentition till its normal time of exfoliation. Premature loss of a deciduous tooth or a group of teeth might lead to wide range of implications. When the deciduous second molar is lost before the eruption of first permanent molar, intra-alveolar type of space maintainer is indicated. But in cases of bilateral loss of these teeth the conventional design generally poses a variety of problems. Thus, the conventional designs are required to be modified according to the needs of the patient.

Therefore, this paper describes an entirely new design of the Willet’s appliance in cases of bilateral loss of deciduous molars before the eruption of first permanent molar.

Keywords: Deciduous molars, space maintainer, Willet’s appliance

Case report

A female child aged 4 yrs 10 months reported to the Department of Pedodontics and Preventive Dentistry with the chief complaint of pain and recurrent swelling in deciduous mandibular molars on both the sides. Clinical examination revealed grossly carious mandibular molars with associated sinus formation on both the sides.

Radiographic examination revealed huge periapical radiolucency and root resorption in relation to lower left first and lower right second deciduous molar indicating pulp necrosis and bone resorption. The lower permanent first molar on right and left side showed E stage of development (Demirjian’s age assessment index).

In this patient Willet’s appliance, distal shoe or intra-alveolar eruption guidance appliance type of space maintainer was indicated on both the sides. In place of giving two separate space maintainers for each side some modifications were planned in Willet’s appliance. Bands were made on lower first deciduous molar and canine on right side and on lower left deciduous canine.

The distal extension was calculated radiographically, a cut was made in the cast and wire components were adapted using 21 gauze wire. Anteriorly the wire component was made like lingual holding arch and posteriorly short term modified Willet’s appliance was made but bilaterally. The wire components were soldered on bands on both the sides.

As bilateral appliance due to its possibility to create hindrance in the path of eruption of permanent mandibular incisors, is contraindicated in child of age 5 yrs 5 months to 6 yrs 5 months short term modified bilateral Willet’s appliance was planned whose duration of use was subjected to closely

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watched eruption of permanent mandibular incisors both radio graphically and clinically.

These modifications were done as the modified Willet’s appliance offered advantages over the conventional appliance such as less chairside time, less co-operation of the patient, fixed appliance and increased stability and strength.

The procedure was explained to the patient and informed consent was obtained after extraction under antibiotic coverage, distal arm of the short term intraalveolar modified appliance was placed in the socket so as to touch and guide the vertical eruption path of the unerupted permanent first molars on both the sides in the mandibular arch. IOPA radiographs were taken to check the passive contact between the mesial end of the permanent first molar and the appliance on either side before cementation. The recall visits were planned after every two months to check the condition of short term modified Willet’s appliance, supporting teeth and status of eruption of lower incisors. The recall after 7 months showed erupted permanent first molars, the space maintainer was well accepted by the child and we were satisfied and optimistic for the future of her dentition.

Discussion

Teeth may be lost due to trauma, ectopic eruption, congenital disorders, premature resorption due to arch length deficiency and further more; dental caries is the most common reason for the premature loss of deciduous teeth. Depending on the tooth lost, segment involved, different types of space maintainers must be indicated which help in restoring normal function and eruption of permanent teeth.

A good space maintainer should present many qualities namely:

- Maintain the desired mesiodistal dimension of the space
- Provide mesiodistal space opening when it is required
- Maintain individual function movement of teeth
- Should be hygienic
- Have good durability
- Have low cost

If we had given two separate distal shoe space maintainers in this case, there would have been problems associated with the stability of the appliance. That is why the design of distal shoe was modified so that it is able to maintain...
mesiodistal dimension of the space without reduction of teeth or cooperation of the patient. But this type of design has certain disadvantages such as non-functional, doesn’t help in mastication, fabrication is difficult and cannot be given in uncooperative patients.

**Conclusion**

In Pedodontic practice the main concern of the dentist is to provide maximum benefit to the patient with minimum discomfort, more co-operation and less chair side time. In this case a new innovative approach was required so that the appliance was more stable and better accepted by the child. Though the design of the distal shoe was modified keeping all the basic requirements in mind, still further clinical studies are needed to establish its feasibility and usefulness in pediatric dentistry.

**References**


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