



Case Report

Modified Willet appliance: A case report

Himanshu Aeran¹, Shalu Majreti^{2,*}, Avantika Tuli², Nitin Khanduri²

¹Dept. of Prosthodontics & Crown and Bridge, Seema Dental College & Hospital, Rishikesh, Uttarakhand, India

²Dept. of Pediatric & Preventive Dentistry, Seema Dental College & Hospital, Rishikesh, Uttarakhand, India



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ABSTRACT

The preservation of deciduous teeth is essential until normal exfoliation. It plays an important role in preventive and interventional dentistry. Early loss of a deciduous tooth or teeth can have various consequences. Space maintainer of the intra-alveolar kind is advised when the deciduous second molar is lost before the eruption of the first permanent molar. This report discusses a modified Willet appliance in cases where loss of primary deciduous first and second molar occur prior to eruption of permanent mandibular first molar.

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1. Introduction

The willet appliance, that guides the young's permanent first molar into place, is one of the most beneficial techniques that pediatric dentists can employ when a primary second molar is prematurely lost. Gerber pioneered the distal shoe space maintainer, which Croll further improved. Its indications and contraindications were thoroughly explored by Hicks, who favored the production of a cast gold device, however the clinically acceptable appliances were the ones which were soldered to stainless steel crowns or bands. Brill described chairside manufacturing of a distal shoe space maintainer to be supplied immediately after extraction, which had a high success rate if the patient co-operated.¹

There are various conditions that make the willet appliance ineffective. Abutments to anchor a cemented device may be missing if numerous teeth are removed. Poor oral hygiene or an inadequate level of patient and parent's involvement significantly diminishes the likelihood of a satisfactory clinical outcome. Certain medical diseases, including blood disorders, immunodeficiency, congenital

heart defects, rheumatic fever, hyperglycemia, and systemic debilitation, may exclude its use.

In cases where distal shoe appliance usage is contraindicated, there are two treatment options

1. Permit the tooth to emerge and then reclaim space.
2. Use a removable or fixed appliance that does not penetrate the tissue to apply more pressure to the ridge that is mesial to the unerupted permanent molar.²

Carroll and Jones described three examples in which a removable or fixed pressure gadget was employed to guide the erupting permanent molar.³ The goal of this case report is to discuss the clinical care of severe caries on mandibular primary molars with a modified Willet appliance.

2. Case Report

A 5-year old male patient reported to department of Pediatric and Preventive dentistry with a chief complaint of pain in the left lower back tooth region. Clinical examination revealed deep occlusal caries w.r.t 75, 84 and deep proximal caries w.r.t 74 (Figure 1). Intraoral periapical radiograph showed furcal radiolucency and external root

* Corresponding author.

E-mail address: majretishalu22@gmail.com (S. Majreti).

resorption w.r.t 75 and complete root resorption and bone resorption is seen w.r.t 74 (Figure 2). The mandibular first molar on the right side in IOPA showed furcal radiolucency and root resorption. Coronal radiolucency approximating enamel, dentin and pulp was also evident. Cervical caries was seen in mandibular right primary canine on right side is filled with type 2 restorative glass ionomer cement. The young permanent tooth showed Stage 7 of development according to Nolla's classification. So, then it was decided to extract the 74,75 and 84 followed by modified willet appliance was indicated. Therefore, has planned for distal shoe appliance on left side and on right side Mayne's space maintainer was planned. It was planned to connect both sides with single wire from lingually.

The entire procedure was well explained to the patient and his parents, and consent was taken before starting treatment. On his next visit, banding was done on 85, 73 and alginate impression was taken. The band was stabilized with acrylic, and cast was poured with dental stone. In the same visit, extraction of 84 was done, and analgesic and antibiotic were prescribed.

To make the appliance a cut was made on the cast on left side for distal shoe and calculated radiographically. The wire component was adapted with a 19-gauge wire followed by soldering, finishing and polishing of appliance with a stone bur (Figure 3). On 2nd visit after extraction of 74,75 the intra-alveolar projection of the appliance was placed in the socket to touch and guide the vertical eruption path of the unerupted permanent first molar on left side of the mandibular arch and appliance was adjusted. Intraoral periapical radiographs were taken to check the projection of appliance and cementation of appliance was done with type -1GIC (Figures 4 and 5).



Fig. 1: Preoperative intraoral photograph

3. Discussion

Premature exfoliation of primary second molars has always been difficult for paediatric dentist and premature

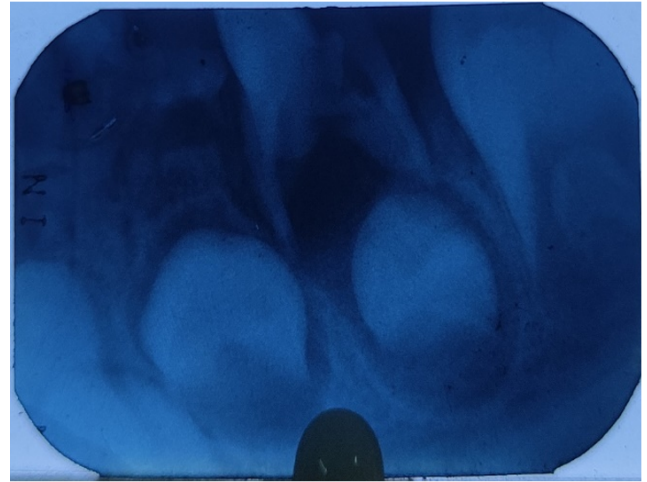


Fig. 2: IOPA w.r.t 74,75



Fig. 3: Wire banding on cast



Fig. 4: Intraoral photograph of modified Willet appliance

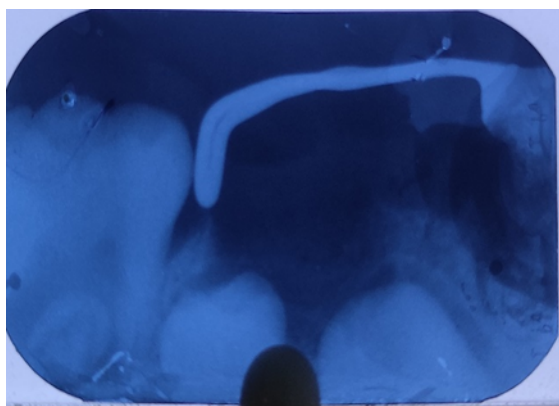


Fig. 5: IOPA shows extension of Willet appliance w.r.t. 36

exfoliation of many primary molars becomes significantly more challenging. If Malocclusion can result if no suitable preventive precautions are taken. Following clinical and radiographic examination, space maintainers are advised to prevent such occlusal discrepancies.⁴

In some clinical situations, like as this one with primary molar loss, the standard space maintainer must be changed to match the patient's demands. Some adaptations, such as Croll's use of prefabricated lingual arch wire embedded in acrylic and Gegenheimer's use of an acrylic pressure ridge, but the principal downsides of these alterations were poor retention and patient compliance.⁵

Long-term clinical trials are needed to determine the efficacy of this device. The current report demonstrated that this personalised distal shoe appliance was stable and acceptable to the patient.

4. Conclusion

It may be inferred that by providing broad contact and limiting lingual or buccal deviation during eruption, this design can endure the force of eruption. This design may

be an alternate treatment with advantages over the standard design for mandibular second molar early loss.

5. Source of Funding

None.


6. Conflict of Interest

None.

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Author biography

Himanshu Aeran, Director Principal, Professor & Head
 <https://orcid.org/0000-0002-7723-7108>

Shalu Majreti, PG Student

Avantika Tuli, Professor & Head

Nitin Khanduri, Reader

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