



Case Report

Interim fixed prosthetic rehabilitation of anterior tooth loss in a growing child with a maryland bridge: A case report

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Abstract

Objective: Management of anterior space loss in an 11-year-old male patient using a minimally invasive approach followed by rehabilitation with a Maryland bridge.

Anterior tooth loss in growing children poses a clinical challenge due to functional, aesthetic, and psychological concerns, as well as limitations imposed by ongoing growth. Definitive treatment options such as dental implants are contraindicated during this phase, and conventional fixed prostheses often require extensive tooth preparation. The Maryland bridge, a resin-bonded fixed partial denture, offers a conservative interim solution for anterior tooth replacement. This case report describes the rehabilitation of anterior tooth loss in a growing child using a Maryland bridge, demonstrating satisfactory aesthetic and functional outcomes while preserving sound tooth structure.

Conclusion: The Maryland bridge is an effective and minimally invasive interim prosthetic option for the management of anterior tooth loss in growing children. With appropriate case selection and careful clinical execution, it provides acceptable aesthetics and function while maintaining tooth structure until definitive treatment can be undertaken.

Keywords: Aesthetics, Anterior space management, Interim prosthesis, Maryland bridge.

Received: 01-02-2026 **Accepted:** 03-04-2026 **Available Online:** 23-05-2026

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1. Introduction

Anterior tooth loss adversely affects mastication and speech and, more importantly, results in a pronounced aesthetic deficit that may have a significant psychological impact on patients. Rehabilitation of missing anterior teeth can be accomplished using various treatment modalities, including implant-supported prostheses, conventional fixed dental prostheses, and removable dental prostheses. However, implant-supported rehabilitation is contraindicated in a growing child.¹

In contrast to posterior teeth, anterior teeth are exposed to comparatively lower masticatory forces, thereby permitting the use of more conservative restorative approaches.² Although conventional fixed dental prostheses provide predictable functional and esthetic results, they are often considered invasive due to the extensive tooth preparation required. Previous studies have reported that tooth preparation for fixed prostheses may involve removal of approximately 63–72% of sound tooth structure, which can compromise long term tooth vitality and prognosis.¹ Consequently, resin-bonded fixed prostheses have emerged as a conservative alternative for the replacement of missing anterior teeth. These restorations require minimal preparation of adjacent abutment teeth, preserve healthy enamel, and offer a cost-effective solution while achieving satisfactory aesthetic and functional outcomes.²

2. Case Report

A 11-year-old male patient reported to the Department of Pediatric and Preventive Dentistry, the Oxford Dental College Bangalore with the chief complaint of missing teeth in the lower front region of the jaw, resulting in aesthetic concern. The medical history was non-contributory, and no systemic conditions and no history of trauma was reported. Dental history revealed loss of lower anterior teeth. Clinical examination showed a missing mandibular anterior tooth with adequate space for prosthetic rehabilitation. (Figure 1). The adjacent teeth were clinically sound, with sufficient enamel available for bonding. Radiographic evaluation revealed congenitally missing mandibular central incisors and healthy abutment teeth with no periapical pathology. (Figure 2). The patient was in the growth phase, making implant-supported rehabilitation contraindicated.

Various treatment options were discussed with the parent, including a removable partial denture, a conventional fixed partial denture, and a resin-bonded fixed partial denture. Implant-supported rehabilitation was ruled out due to the patient's age, as implant placement is contraindicated during the growth phase. Considering the conservative nature of treatment, preservation of sound tooth structure, aesthetic demands, and economic feasibility, a resin-bonded fixed partial denture (Maryland bridge) was selected as the treatment of choice.

Minimal preparation was carried out on the palatal

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<https://doi.org/10.18231/j.jaoh.15575.1778498079>

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surfaces of the adjacent abutment teeth, ensuring maximum enamel preservation. An impression was made, and a metal-ceramic Maryland bridge was fabricated. (Figure 3), the prosthesis was tried in to verify fit, aesthetics, and occlusion. (Figure 4). After isolation, the bridge was adhesively cemented using a resin luting cement following manufacturer's instructions. (Figure 5, 6)

The patient was reviewed after cementation and during subsequent follow-up visits. The prosthesis demonstrated satisfactory aesthetics, stability, and function. The patient and parent reported satisfaction with the outcome. No debonding or discomfort was observed during the follow-up period, and oral hygiene was maintained satisfactorily.



Figure 4: Try in wrt 31,41.



Figure 1: Pre-operative photograph, missing mandibular incisors wrt 31,41



Figure 5: Post - operative photograph.



Figure 2: OPG showing congenitally missing wrt 31,41.



Figure 6: Post- operative photograph.



Figure 3: Lingual tooth preparation wrt 32,42.

3. Discussion

Preservation of sound tooth structure remains a core principle in restorative dental practice; therefore, resin-bonded prostheses have emerged as a conservative alternative to conventional fixed partial dentures, particularly for the replacement of a single missing anterior tooth. This concept was first described by Livaditis and Thompson, who introduced electrolytic etching of the intaglio (inner) surface of a non-precious alloy framework to produce a microscopically roughened surface, thereby enhancing micromechanical retention when used with adhesive luting cements.^{3,4}

The introduction of the adhesive-retained fixed partial denture by Livaditis in 1980 marked a significant milestone in conservative tooth replacement. Retention of these restorations is primarily achieved through bonding to the

proximal and lingual enamel surfaces of intact abutment teeth.⁵ The prosthesis, consisting of a metal-ceramic pontic supported by thin metal retainers or “wings” extending onto adjacent abutment teeth, became commonly known as the Maryland bridge. Adhesive cementation of these retainers to the palatal or lingual enamel surfaces significantly reduced the need for extensive tooth preparation, thereby facilitating a minimally invasive restorative approach.³

Despite careful bonding protocols, early designs were frequently associated with bond failure at the tooth–metal interface.⁶ Efforts to enhance retention through flange design modifications aimed at increasing the bonding surface showed limited success, and loss of adhesion remained a common complication in early versions of the prosthesis.^{7,8} However, advancements in alloy selection, framework design, and surface treatment methods—including electrolytic, chemical, and air-abrasion techniques—along with improvements in adhesive composite materials, have substantially enhanced the clinical performance of resin-bonded bridges. Consequently, the Maryland bridge has demonstrated long-term clinical viability and continues to be widely used.⁶

Maryland bridges rely primarily on micromechanical retention and are typically fabricated using base metal alloys, as noble metal alloys are resistant to etching due to their passive surface characteristics.⁹

Resin-bonded fixed prostheses offer several advantages, including minimal tooth preparation without dentinal or pulpal involvement and relative ease of fabrication, making them a cost-effective restorative option. Additionally, favorable esthetic outcomes are achieved because the retainers do not extend onto the facial surfaces, thereby preserving the labial enamel of the abutment teeth. However, the preparation and bonding procedures are technique-sensitive, and improper design or tooth reduction may result in metal show-through, particularly in teeth with thin enamel in the anterior region.⁹

4. Conclusion

The Maryland bridge is a reliable and minimally invasive interim prosthetic option for the management of anterior tooth loss in growing children. With appropriate case selection and meticulous clinical execution, it offers satisfactory aesthetic

and functional outcomes while preserving sound tooth structure and allowing for future definitive rehabilitation.

5. Conflicts of Interest

No conflict of interest related to this case report.

6. Acknowledgements

There was no funding associated with this paper.

References

1. Rathee M, Dixit P, Bogra M, Singh P, Tomar SS, Diwan K. et al. Prosthetic rehabilitation of a missing anterior tooth using a minimally invasive fixed dental prosthesis: a case report. *Asia Pac Dent J*. 2024;11(2):8-10. [https://doi.org/10.30228/APDJ.202405_11\(2\).0003](https://doi.org/10.30228/APDJ.202405_11(2).0003)
2. Jaiswal PR, Godbole S. Replacement of missing anterior tooth with a Maryland bridge. *Sch J Dent Sci*. 2017; 4(1):38-42. <https://doi.org/10.21276/sjds.2017.4.1.8>
3. Khatavkar RA, Hegde VS. A conservative treatment option for a single missing premolar using a partial veneered restoration with the SR Adoro system. *J Conserv Dent*. 2010;13(2):102–5. <https://doi.org/10.4103/0972-0707.66722>
4. Burgess JO, McCartney JG. Anterior retainer design for resin-bonded acid-etched fixed partial dentures. *J Prosthet Dent*. 1989;61(4):433-6. [https://doi.org/10.1016/0022-3913\(89\)90009-7](https://doi.org/10.1016/0022-3913(89)90009-7)
5. LaBarre EE, Ward HE. An alternative resin-bonded restoration.1984. *J Prosthetic Dent*.;52(2):247-9. [https://doi.org/10.1016/0022-3913\(84\)90105-7](https://doi.org/10.1016/0022-3913(84)90105-7)
6. Miller TE. Reverse Maryland bridges: clinical applications. *J Esthet Dent*. 1989;1(5):155-63. <https://doi.org/10.1111/j.1708-8240.1989.tb00549.x>
7. Holt LR, Drake B. CDT The Procera Maryland Bridge: A Case Report. *J Esthet Restor Dent*. 2008;20(3):165–73. <https://doi.org/10.1111/j.1708-8240.2008.00172>
8. Plainfield S, Wood V, Podesta R. A stress relieved resin-bonded fixed partial denture. *J Prosthet Dent*. 1989;61:291-3. [https://doi.org/10.1016/0022-3913\(89\)90130-3](https://doi.org/10.1016/0022-3913(89)90130-3)
9. Livaditis GJ, Thompson VP. Etched castings: an improved retentive mechanism for resin-bonded retainers. *J Prosthet Dent*. 1982;47: 52-8. [https://doi.org/10.1016/0022-3913\(82\)90242-6](https://doi.org/10.1016/0022-3913(82)90242-6)

Cite this article: Ilyas F, S BV, Kaverikana K, Subramaniam P. Interim fixed prosthetic rehabilitation of anterior tooth loss in a growing child with a maryland bridge: A case report. *JAOH*. 2026;3(1):36-38.