

Case Report

Replacement of Missing Anterior Tooth with Maryland Bridge

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Abstract: This case report describes a step by step technique for fabrication of a resin bonded fixed partial prosthesis in a patient with single missing lower anterior tooth with a conservative, economical and esthetic treatment result goals.

Keywords: Single anterior missing tooth, Resin bonded prosthesis, Maryland bridge

INTRODUCTION

A missing anterior tooth poses an esthetic, functional and rehabilitative problems however the functional masticatory load on anterior teeth is low as compared to posterior teeth hence resin bonded fixed prosthesis can be a viable alternative in such cases as the amount of reduction required on adjacent teeth is minimal and is a cost effective procedure too.

This clinical report describes a conservative method for replacement of missing lower anterior teeth using Maryland bridge i.e resin bonded fixed partial prosthesis

CASE REPORT

A 26yrs old female patient reported to the department of prosthodontics Sharad Pawar dental college with the chief complain of single missing tooth in the lower front region of the jaw since 2 months. Patient had undergone extraction with the tooth 2 months back due to mobility.

The treatment options presented to the patient included implant supported fixed prosthesis, conventional fixed partial denture or resin bonded fixed partial prosthesis. As patient was not willing for implant supported prosthesis due to cost factors hence resin bonded fixed prosthesis as being conservative and economically acceptable to the patient, it was chosen as the treatment option.



Fig- 1 Intraoral photographs

PROCEDURE

Diagnostic impressions were made after complete analysis, intra oral examination and selection of the abutment tooth (Fig-2).

Tooth preparations were done as per the guidelines for fabrication of wings of the resin bonded bridge on abutment tooth (Fig-3).

Final impression was made with polyvinyl siloxane impression material(Fig-4).

Fabrication of wax pattern followed by casting was done and Metal try in was done (Fig-5-7).

Final prosthesis cemented in place (Fig-8-9).



Fig- 2 Preliminary impression



Fig-3 Tooth preparation



Fig- 4 Final impression



Fig- 5 Metal try in



Fig- 6 Metal try in



Fig- 7 Metal try in



Fig- 8 Final prosthesis



Fig- 9 Cementation

DISCUSSION

Conservation of sound tooth structure has always been a major concern in dental practice, and hence resin bonded prosthesis is a popular substitute for conventional fixed partial prosthesis used mainly for missing single anterior tooth. Lividitis and Thompson first proposed this technique where in electrolytically the intaglio surface (inner side) of a non-precious-alloy bridge framework was etched to produce a microscopically roughened surface for providing mechanical retention to the tooth structure through an adhesive luting cement relying mainly on mechanical retention [1, 5]. With the introduction by Livaditis in 1980 of the adhesive-retained fixed partial denture, a new era of conservative tooth replacement dawned.

The proximal and lingual enamel of intact teeth is used to retain the restoration [6]. The metal ceramic pontic attached to the two metal wings extending on the abutments came to be known as the Maryland Bridge. Cementing the wings to the palatal/lingual surface of the abutment teeth greatly reduced the need for the excessive preparation of those teeth in other words made possible a more conservative approach [1]. Despite meticulous care in the bonding procedure, failure of the bond between tooth structure and metal prosthesis has been reported.3.7 Improvement in bonding techniques, materials and

modifications in the design of the flanges to increase the bonding surface have failed [4] but a loss of adhesion plagued early versions of the design [2]. Through the evolutionary stages of different metals and framework design preparation for composite bonding by electrolytic, chemical and air-abrasive procedures and the improvements in bonding composites, the bridge has been in clinical use for more than 9 to 10 years [3].

However Currently, second-generation designs are based on the same concept of tooth preparation through improvements in bonding systems available have led to a truly adhesive restoration as opposed to original one relying on the micro-etched surface for retention [1]. Adhesive cementation of the alloy to the tooth structure along with preparation design aiding in mechanical retention allows the casting to be supported by abutment teeth. The design for the Maryland bridge usually allows for a single path of insertion of the prosthesis thus avoiding displacement of the prosthesis along any other path except the path of insertion of the prosthesis. Adhesive bonding systems further improves the bond between the framework and the tooth structure, thus increasing the overall success rate of the restoration.

CONCLUSION

The Maryland Bridge has undergone many alterations, however the basic advantage of having a more conservative approach has remained as it was since it was introduced in around 1980. Retention has been improved with a more retentive alterations in framework designs, addition of grooves in preparations, labial wrap and maximum coverage of the enamel. Improvements in material will continue with addition of better materials in terms of properties. If the dentist maintains meticulous attention to detailing and proper case selection, the Maryland Bridge will continue for a long time not only a popular conservative restoration alternative, but also a primary choice [1].

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