

Rehabilitation of Patient with Missing Anterior Tooth with Maryland Bridge: A Case Report

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ABSTRACT

A missing anterior tooth poses an esthetic, functional and rehabilitative problem especially on patients belonging to younger age group. Resin bonded bridges are highly effective treatment option to restore the oral function and aesthetics and result in high levels of patient satisfaction. Maryland bridges are minimally invasive with certain advantages such as minimal removal of the tooth structure, minimal potential for pulpal trauma, supra gingival margin preparation and reduced time and cost. This case report describes the technique for fabrication of Maryland bridge in a patient with single missing upper anterior tooth with a conservative, economical and esthetic treatment result goals.

Keywords: Maryland bridge, minimally invasive, resin bonded.

INTRODUCTION

Restoration of missing maxillary lateral incisor is of utmost significance as the space in the maxillary anterior region causes psychological impact especially on the young patient. The various treatment options available for the replacement of the missing tooth is implant, removable partial denture and fixed partial denture. Removable partial denture can be used as interim prosthesis for initial esthetics as it may cause the bone resorption and flattening of the interdental papillae in long term use. Due to the presence of large pulp chambers and unavailability of sufficient enamel, a more conservative and less invasive resin bonded prosthesis may be an

alternative treatment for such conditions in order to replace the missing tooth as well as preserve the remaining alveolar ridge and soft tissue. [1]

Developed at the University of Maryland, the Maryland Bridge is a resin bonded or resin retained bridges (RBBs/RRBs) type of fixed dental prostheses that require a minimal amount of tooth preparation restricted to the enamel surface only and are bonded directly to the tooth structure with the help of the resin cement. These restorations primarily depend on the resin cement and provide micro mechanical retention. The principle aim of tooth preparation and framework extension is to reduce stresses at the bonding interface and thereby increase retention and resistance. [2]

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

CASE REPORT

A 16 year old female patient reported to the department who was already undergoing orthodontic treatment following surgical repair of cleft palate with the complaint of mobility in the maxillary right lateral incisor due to insufficient bone support as seen in Fig.1. In consultation with the orthodontist, extraction of the tooth (Fig.2) was planned with subsequent replacement with resin bonded fixed partial

prosthesis taking into consideration the age of the patient.



Fig.1: Insufficient bone growth wrt right maxillary lateral incisor.



Fig.2: Space present after tooth extraction.

Primary impression was taken with rubber based impression material and diagnostic casts were made with die stone. Maxillary right canine and maxillary right central incisor teeth reductions were done on the lingual surface only and vertical grooves were placed. Ledges were then created on three points on lingual surface with tapered fissure bur for better retention of the prosthesis. Then final impression was taken with rubber base impression material and cast was made with die stone. After wax pattern fabrication casting was done. The metal try in (Fig.3) was then done on the patient's mouth to check marginal fit of the prosthesis followed by shade selection after which the prosthesis was send to laboratory for porcelain fusion to metal. The prosthesis was then checked for proper fit (Fig.4).



Fig.3: Metal try in.



Fig.4: Proper fit of the prosthesis before bonding.

The teeth surface was then etched and dried. Bonding agent was then applied over teeth. Metal primer was then applied over prosthesis surface. Then light curable resin was applied between prosthesis and teeth surface and light curing was done for 20 seconds. Patient was then instructed to come for regular recall visit (Fig.5).



Fig.5: Prosthesis after completion of orthodontic treatment.

Patient was instructed to maintain proper oral hygiene, because this retainer design has the potential to accumulate excess plaque as a result of lingual over contouring and the gingival extent of the margins.

DISCUSSION

Large pulp chambers in the abutments, expected transition in the position of the gingiva and age of the patient were factors that precluded the use of conventional fixed prostheses in this case. Resin bonded prosthesis is a popular substitute for conventional fixed partial prosthesis used mainly for missing single anterior tooth. The proximal and lingual enamel of intact teeth is used to retain the restoration. The metal ceramic pontic attached to the two metal wings extending on the abutments came to be known as the Maryland Bridge. [3]

The three most common complications associated with resin-bonded prosthesis are debonding (21%), tooth discoloration (18%) and caries (7%). [4] Biological reasons for Maryland bridge failure include caries and periodontal disease but these occur relatively rarely. To prevent complications oral health education, encompassing oral hygiene instruction, advice regarding diet and the use of fluoride. [5]

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. 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. [6]

CONCLUSION

Resin bonded bridges can be highly effective in replacing missing teeth, restoring aesthetics and oral function along with high levels of patient satisfaction. Meticulous attention to detailing and proper case selection allows the Maryland Bridge to continue as a popular conservative restoration alternative.

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