CASE REPORT

Maryland Bridge: An Interim Prosthesis for Tooth Replacement- A Case Report

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Abstract

Restoring a missing single central incisor is one of the most difficult esthetic procedures in dentistry. A space in the anterior region of the dental arch of youngster, either due to trauma or a congenital missing tooth can produce a huge amount of psychological impact on the patient. The various treatment option of implant, removable partial denture and fixed partial denture are available for adults these treatment options cannot be applicable for an adolescent due to various reasons like growth of the jaws, the amount of tooth reduction in such an early age, chair side time for the procedure. In such situation a resin- bonded fixed partial denture (RBFPD) such as Maryland bridge fulfils all the requirements of an ideal interim solution till growth completion is achieved.


Keywords- Missing single central incisor, Resin- bonded fixed partial denture, Maryland bridge, interim prosthesis.

Introduction

The dentition of adolescents is specific in terms of age related, unfinished development of alveoli, specific causes and types of tooth defects and treatment plans. In this age group, the loss of teeth occurs most often because of injuries and less frequently due to hereditary developmental defects.¹

A removable partial denture may replace the lost tooth for the initial esthetics, but long term use of the removable partial denture would definitely lead to resorption of the bone and flattening of the inter dental papillae. In young patients, pulp chambers are large and preparation of teeth for complete veneer retainers may cause injury to the pulp and lead to hypersensitivity or pulpal damage. To delay this line of treatment an immediate replacement with minimum preparation should be taken up as a treatment of choice for younger patients. This would not only replace the missing tooth but also help to preserve the ridge and soft tissue.²
It has been said that restoring a missing single central incisor is one of the most difficult esthetic procedures in dentistry. A variety of dental concerns need to be addressed when treating an anterior tooth such as shade (hue, chrome, and value), morphology, gingival contours, bone levels, and occlusion. Additionally, a choice between a fixed prosthesis, removable prosthesis, and an implant needs to be determined. Finally, patients are not only becoming more demanding with regard to esthetics, but also are often opting for more conservative and less invasive procedures (i.e., more tooth preservation).3

Case Report
A male patient, aged 15 years presented with a missing upper right maxillary central incisor (11). Patient gave a history of loss of tooth due to trauma 2 years back. On examination it was revealed that the entire tooth was missing with an edentulous area with no space loss. (Figure 1)

An intra oral periapical radiograph was taken and the radiography revealed complete root formation of the adjacent teeth (12 & 21). After considering the patients wish and the clinical situation, the option of removable partial denture, fixed partial denture and implant were eliminated and it was decided to replace it with a Maryland bridge as an interim solution.

Tooth preparation for both 12 and 21 was done following the standard technique.

Lingual preparation ended 1mm from the incisal edge and a light chamfer finish line was prepared 1 mm supragingivally (Fig. 2) an impression was made in polyether impression material and sent to the laboratory.

After the metal try-in was successful shade selection was done using a shade guide. The trial fitting of the prosthesis was done and then esthetics mastication and speech were evaluated. The laboratory technician was instructed to keep the metal wings of the prosthesis off the incisal third to prevent darkening of the tooth because of the inhibition of light transmission. In addition, care was taken to make sure metal would not be visible interproximally or at the embrasure areas (Figure 3).

After isolation with a rubber dam, the Maryland bridge was cemented using a resin cement (Figs 4, 5 and 6) using a conventional composite resin. A 12-month follow-up was advised until the patient is ready to replace the bridge with a more permanent solution.
Discussion

A missing tooth in the anterior region is not only a physical loss, but also may be an emotional experience for the patient as well. To remove healthy tooth structure of adjacent teeth to replace a congenitally missing tooth or a tooth lost to decay, trauma, root fracture, failed root canal treatment, or pathology is, for some patients and dentists, a very aggressive treatment option. Many treatment modalities are available for replacing a single missing tooth; removable partial denture, fixed partial denture or dental implant. Each modality is a possible treatment option and has its own advantages and disadvantages. Patient awareness of the advantages and disadvantages of different treatment modalities is very important for decision making, therefore there are many factors make single-tooth replacement one of the most challenging restorations in dentistry.

Satisfaction with RPDs has multifactorial dimensions involving technical and patient-related variables. Comfort, masticatory ability, esthetics, and retention seem to be the most important factors for prosthesis acceptance. Personality, attitude towards RPD and motivation are dependent on the patient and may influence general satisfaction and that seems to make it a difficult option for pediatric patients.

The traditional treatment for a single edentulous space is a conventional fixed partial denture. A major shortcoming of this alternative is the significant tooth reduction of the abutments. The use of fixed partial denture should be avoided in young actively growing patients this is because the rigid fixed partial denture could interfere with jaw growth.

Even after 10 years of service the periodontal response for resin bonded fixed partial dentures is minimal. The three most common complications associated with resin-bonded prosthesis are debonding (21%), tooth discoloration (18%) and caries (7%).

The implication of interim prosthesis for pediatric patients with proper treatment plan can serve as a shelter from ill effects related to edentulous space and invasive replacement procedure like fixed partial denture and implants in growing patients.

References