International Journal of Enhanced Research in Medicines & Dental Care (IJERMDC),
ISSN: 2349-1590, Vol. 6 Issue 6, June-2019, Impact Factor: 3.015

Prosthetic Rehabilitation of Missing Anterior Tooth in Young Patient

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ABSTRACT

Avulsion is complex injuries that affect multiple tissues, accounting up to 16% of all traumatic injuries in the permanent dentition and 7.2% of injuries in the primary dentition. Avulsion besides causing loss of function, esthetic also leads to psychological effect especially in young patient. To manage it various prosthetic options are available. Among them Maryland bridge is most acceptable option, as it require minimum tooth preparation, less chair side time, esthetically acceptable by the patient and cost effective. This article describes the Maryland Bridge as a prosthetic rehabilitation of missing anterior tooth in young patient.

Keywords: Avulsion, Maryland bridge, esthetic.

INTRODUCTION

Avulsion is an emergency traumatic dental injury, accounting up to 16% of all traumatic injuries in the permanent dentition and 7.2% of injuries in the primary dentition[1]. It occurs most frequently between the ages of 7–14 years[2] . The management and prognosis of avulsion of a permanent tooth depends upon the measures taken immediately after avulsion. Replantation is the first line of management but if replantation cannot be done then replacement of the missing tooth is necessary using a space maintainer until complete growth of the maxillary jaw. A removable partial denture can replace the missing tooth in young patient and serve for aesthetics, but long term use of the removable partial denture would lead to resorption of the bone. As young patients have large pulp chambers and preparation of teeth in such patients for fixed partial denture will lead to the pulpal injury, hypersensitive teeth and iatrogenic pulp exposure[3].In such cases, Maryland Bridge is an ideal interim prosthesis till the time growth is completed. Hence, the following article describes a case with "Maryland Bridge" as a fixed space maintainer in a adult patient.

CASE REPORT

A 13 year old patient reported with the chief compliant of missing maxillary left central incisor. Patient's past dental history revealed avulsion of maxillary left central incisor due to fall from bicycle since 4 years. On clinical examination, maxillary left lateral incisor and right central incisor was shifted mesially resulting in partial space loss for maxillary left central incisor (Fig. 1).

Fig. 1: Clinical view showing missing maxillary left central incisor, mesially shifted maxillary right central and left lateral incisor.

Radiographic examination showed avulsed maxillary left central incisor (Fig. 2). It was planned to orthodontically regained the lost space for maxillary left central incisor(Fig. 3) and replace it with Maryland bridge as an interim prosthesis.

Fig. 2: Radiographic examination showing missing maxillary left central incisor.

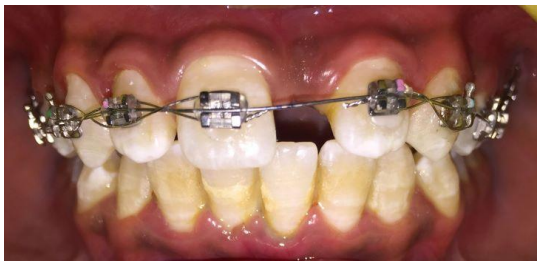

Fig. 3: Orthodontic treatment for regaining the space.

After completion of orthodontic treatment (Fig. 4), tooth preparation for both 11 and 22 was done following the standard technique[4]. Lingual preparation ended 1 mm from the incisal edge and a light chamfer finish line was prepared 1 mm supragingivally. 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. After isolation with a rubber dam, the Maryland bridge was cemented using a resin cement (Fig. 5) and also evaluated radiographically (Fig. 6). Patient is under the regular follow up of 6 months until the age of permanent prosthesis.

Fig. 4: After completion of orthodontic treatment.

Fig. 5: Frontal view of cemented Maryland Bridge.

Fig. 6: Radiographic view of Maryland Bridge

DISCUSSION

Replacement of a missing tooth in a young adult patient requires a judicious treatment plan.

Removable partial dentures are the most easily available and the cheapest option but they are often unacceptable to the patient because they are uncomfortable, bulky and not very esthetically pleasing[5].

Another option available is a fixed partial denture, but a major disadvantage of the procedure is that it may involve the preparation of healthy abutment teeth for crowns. When it involves a young child, the anatomic considerations of size of the pulp chamber cause increased pulpal response during tooth preparation, which may results in underprepared tooth with a oversized crown. Additionally, the longevity of the fixed partial denture is recorded to be 8.3 to 10.3 years, requiring replacement three or four times over the course of a young patient's life resulting in additional loss of tooth structure[6].

In the current case Maryland bridge is opted as an ideal option as it require minimum tooth preparation, less chair side time esthetically acceptable by the patient and cost effective. Furthermore, the clinical impact for resin bonded restorations functioning for over 10 years is minimal and is comparable to periodontal response to other types of restorations[7]. The overall survival rate has been recorded as 77% after 10 years of service[8] and excellent results are achieved in patients with small edentulous spans bounded by sound teeth, having an adequate crown height and width[4].

The most common complications observed in resin bonded Maryland bridges over a period of 5 years are debonding (19.2%), caries on abutments (1.5%), periodontitis (2.1%)[9].

Implant are the treatment of choice for replacement of the missing tooth but continued bone growth in an adolescent does not fit implant as a valid treatment option. So, in young adult patient Maryland Bridge is most acceptable and conservative option for temporary replacement of single missing tooth.

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