

Aesthetic Replacement of Missing Anterior Teeth Using a Fixed Appliance- An Innovative Technique

Mrigank Dogra¹, Jasneet Kaur², Anirudh Pathak³, Abjeet Singh Brar⁴, Akhil Sharma⁵

1,2,3,5-MDS Pedodontics. 4-MDS Orthodontics.

Correspondence to:
Dr. Mrigank Dogra, MDS Pedodontics.
Contact Us: www.ijohmr.com

ABSTRACT

Missing anterior teeth due to any reasons like trauma, caries or congenitally missing teeth, act as a great blow to the confidence of the individual. This article presents a new technique for the replacement of missing teeth in the anterior aesthetic zone. The novel appliance consists of a banded type of appliance with acrylic teeth attached to it. This type of appliance not only improves aesthetics but lowers the cost of the treatment at the same time. It is easy to fabricate and does not require patient compliance. Thus, this appliance is an alternative treatment option which is functional, aesthetic and satisfactory for patient and parent for the treatment of missing maxillary anterior teeth.

KEYWORDS: Fixed appliance, Missing anterior teeth

INTRODUCTION

The goal of modern dentistry is aesthetics which works on the improvement of appearance. Aesthetics is not only of concerns in adults but also in growing children, who are under constant peer pressure. The loss of anterior teeth can be mentally and socially damaging to the patient. Dentists occasionally are faced with the difficult aesthetic situation of missing anterior teeth or to remove an anterior tooth because of advanced periodontal disease, root resorption, trauma or failed endodontic therapy.¹

Incisors are the most frequently affected teeth in primary dentition.² Proclination of incisors further increase the chances of injury to these teeth. The morphology and location of these teeth make them susceptible to traumatic injuries.³ Whenever an anterior tooth is lost, the clinician should provide an immediate replacement to avoid aesthetic, masticatory, and phonetic difficulties and to prevent the drift of adjacent teeth.^{4,5} While replacing the anterior teeth, the dentist should consider numerous factors, including natural tooth preservation, minimal intervention, aesthetics, and cost. Conventional solutions to this problem have included the fabrication of a provisional restoration using the adjacent teeth as abutments, resin-bonded bridges and removable temporary acrylic prostheses.⁶ All these treatment options had their own sets of advantages and disadvantages.

This case report describes the recent technique of fabrication of banded type of fixed aesthetic appliance for replacement of missing anterior teeth.

CASE REPORT

A nine year old girl reported to our clinic with the chief

complaint of missing maxillary anterior teeth. Dental history revealed an episode of trauma in the maxillary anterior region 4 months ago during which she luxated both her maxillary central incisors, which were later extracted. On clinical evaluation, both maxillary right and left central incisors were missing and patient wanted restoration of the missing anteriors. (Figure 1)



Fig 1: Missing maxillary central incisor

The option of placement of fixed appliance replacing the missing teeth was explained to the patients. With the consent of the parents, molar bands were fabricated on the right and left permanent maxillary first molars. A full mouth alginate impression with bands in place was made for maxillary arch and mandibular arch and wax bite registration was done.

Under laboratory procedures, stone models were cast from the impressions. A 19 gauge stainless steel wire was used to construct the frame work of the appliance, the

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distal end of which rested in contact with the palatal surface of the maxillary molar bands and was soldered and the other end extended to the anterior palatal region. The wire component was used to hold the acrylic teeth in place. The bite registration was done to maintain the vertical and antero-posterior relations of jaws and teeth. The metal framework was waxed up with teeth and routine laboratory procedures were carried out. The appliance was removed after heat curing the acrylic followed by finishing and polishing. (Figure 2)



Fig 2: Fabricated appliance to replace the missing teeth

On the next appointment, try-in of the appliance and occlusal adjustments were done. All the carious teeth were restored. Finally, the finished appliance was cemented using the Glass Ionomer Cement. (Figure 3, 4)



Figure 3: Occlusal view following delivery of the appliance



Figure 4: Intra-oral view of the appliance

Prior to discharge of the patient, instructions were given regarding oral hygiene maintenance and consumption of soft diet for first few hours. The patient was recalled after one week to check any impingement of the appliance and the parents were instructed to report to the clinic after six months. Both the patient and the parents were satisfied with the treatment and the aesthetics.

DISCUSSION

Management of the consequences of trauma can be as challenging as the treatment of the traumatic injury itself. Primary or permanent tooth loss requires a combination of treatment addressing both aesthetics and function. The methodology depends on the patient's age, and location and extent of traumatic injury. The dentist should try to meet these demands, while simultaneously considering the patient's socioeconomic status. Replacement of lost anterior teeth prevents psychological and social trauma to the patient.⁷

In the present case, space management procedure with the aesthetic concept was applied. Though the loss of space associated with the loss of anterior teeth is minimal but it is associated with its own problems. Anterior dental disharmonies especially interfere with the normal tongue placement which then can lead to the development of maladaptive articulatory habits. Tongue thrust commonly develops when missing anterior teeth are not replaced. Yet another consideration is the child's speech development following missing incisors. Many sounds are made with the tongue touching the lingual side of the maxillary incisors, and inappropriate speech compensations can develop if the teeth are missing.⁸

An anterior removable appliance incorporating artificial teeth satisfy aesthetic requirements of the young patients, but when considered the factors like cooperation in wear, comfort, appliance loss or damage, such removable appliance is problematic. Fixed appliances, on the other hand, if properly designed, are less damaging to the oral tissues and less of an annoyance to the pediatric patient thereby ensuring compliance and longevity of wear.⁹

CONCLUSION

The restoration of a smile is one of the most awarding and gratifying services a dentist can render. Replacement of lost anterior teeth prevents mental and social trauma to the patient. Removable appliances or prostheses seem to be one suitable treatment option, but patient compliance is generally a major problem. In this regard, a fixed appliance has several advantages over removable appliances including enhanced aesthetics, ease of use, comfort and avoidance of becoming accustomed to a removable prosthesis.^{10,11}

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