

Case Report

Periodontally Compromised Teeth Used as PonticsAnamika Sharma¹, Shabnam Jahan², Vineeta Singal²¹Professor & Head, Department Of Periodontology, Subharti Dental College, Meerut, UP, India 250005²Post-graduate Student, Department Of Periodontology, Subharti Dental College, Meerut, UP, India 250005***Corresponding author**

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Abstract: Periodontitis is a multifactorial disease of the oral cavity, and periodontally affected anterior teeth with poor prognosis are of great concern to the general population. Increased aesthetic demand is very challenging and needs immediate attention. An immediate replacement following loss of anterior teeth is essential in order to avoid aesthetic, masticatory and phonetic difficulties. This case report describes a procedure of replacing periodontally compromised teeth as natural teeth pontic using fiber-reinforced composite following extraction of the involved teeth.

Keywords: Natural tooth pontic, fiber reinforced composite, aesthetics

INTRODUCTION

Severe periodontal disease leads to 61.8 % of teeth loss [1]. Anterior teeth with hopeless prognosis have compromised facial esthetics and lack mechanical functionality. The loss of anterior teeth can be psychologically & socially damaging to the patient [2].

Most of the patient demand immediate replacement of tooth because esthetic is the primary concern but a provisional removable appliance is seldom acceptable [3]. Fixed partial denture can be used but it requires crown preparation of adjacent teeth and is not a conservative type of treatment. Dental implant supported prosthesis may not be the best treatment option due to severe localized soft & hard tissue loss [4], high cost of the treatment and the fear of reconstructive surgery [1].

Natural tooth pontic (NTP) offers an innovative alternative to traditional treatment. It provides excellent colour, shape & size match and thus enhances the psychological and social acceptability of patient with a minimal cost involved [5]. They have been increasingly studied during recent years & provide restoration with a considerable increase in strength [6].

Various types of periodontal splint material are being used to splint the pontic with adjacent natural teeth, such as orthodontic wire, steel mesh, glass of fiber splints etc.

The introduction of bonded fiber reinforced material is excellent application for chair side tooth

replacement. Fiber reinforced composite (FRC) is made up of two components the fiber and the resin matrix. The resin matrix serves as carrier, protector and load-splicing medium around the fiber. To improve the mechanical properties and to optimize the mechanical behaviour of the material, glass & ultra high molecular weight polyethylene fibers (UHMWPE) have been used as filler materials, which provides multidirectional reinforcement when embedded on composite, creating a laminated structure that increase flexural strength and is resistant to fracture [7].

This current case report describes a case where recently extracted teeth are bonded to the existing teeth with FRC and used as pontics.

CASE REPORT

A male patient aged 38 years presented to the department of Periodontology, Subharti Dental College, Meerut, with the chief complain of mobile mandibular anterior central incisors. On examination the teeth were three degree mobile with Millers grade III recession.

Pre-operative photograph showed poor periodontal health (Fig-1) and pre-operative radiograph revealed mandibular central incisors with bone loss upto the apical third of the root (Fig-2).



Fig-1: Pre-operative clinical photograph



Fig-2: Pre-operative intraoral periapical radiograph

Teeth were scheduled for extraction and to be used as natural pontics by splinting to adjacent teeth. Mandibular central incisors were extracted under local anesthesia. Following extraction root resection was done and the cervical ends of the crowns were shaped. Pulp tissue was removed and canals were filled with light cure composite resin and cured within the canal. Patient was asked to report after one week, and the extraction site showed complete healing (Fig-3).



Fig-3: Post extraction healed site

A modified ridge lap design was given to the natural teeth. (Fig-4) The length of ribbon fiber needed was measured using stainless steel orthodontic wire as a template. Recess or depth grooves were made into the pontic teeth and the adjacent abutment teeth. The NTPs and adjacent teeth were etched with a phosphoric acid etchant for 15 seconds, rinsed with water and dried.



Fig-4: Prepared teeth

An adhesive bonding agent was applied to the etched enamel surface using disposable applicator and polymerised for 20 seconds from each direction using a light cure unit. Composite resin was applied onto the depth groove on the polymerised enamel surface of NTP and lateral incisors. The NTPs were placed in the area from where they were extracted with adjustment of incisal edge height at the same height as that of adjacent lateral incisors teeth.

The fibre ribbon was then adapted onto the lingual surface from right lateral incisor to the left lateral incisor covering the NTPs. Composite resin was applied on them and light cured for 20 seconds for each tooth surface. The composite resin was finished & polished to remove any excess material (Fig-5). Occlusion was adjusted and the patient was advised to maintain oral hygiene (Fig-6).



Fig-5: Lingual view post splinting



Fig-6: Labial view post splinting

The patient was recalled after one week for re-evaluation.

DISCUSSION

Replacement of missing anterior teeth is technically demanding for the dentist because of the esthetic concern. Using the NTP technique is an intermediary restoration and may not be used for long term. FRC is considered to be a practical and a conservative approach but not documented for long term success.

With NTP technique some important factors should be considered such as patient bite, parafunctional habits, inadequate occlusal clearance, number of remaining adjacent teeth support and high esthetic demand of patient, therefore this technique cannot be applied for every patient. The primary type of failure identified were either bulk fracture of the pontic area, debonding of the composite or fiber exposure [8].

But this technique also have some advantages like: good esthetic results, preservation of natural crown structure, no laboratory work required, reduced psychological impact on the patient, is reversible and allows other restorative options to be evaluated, micro-resiliency of pontic allows stimulation of underlying tissue and avoids excessive post extraction ridge resorption [9].

Few reports [10] have shown the successful use of FRC restorations. Quirynen *et al* [11]. assessed the longevity of composite bonded resin or natural teeth as replacements with a survival rate of 80% after 5 years of function. In a clinical study by Strassler *et al.*[12]. one out of eight natural tooth or resin composite pontic fractured during the study, although the pontic did not separate from the abutment tooth.

The main limiting factors with this technique are patient compliance with maintenance of meticulous oral hygiene, limited functional efficiency, chances of discolouration of the pontics over years and chances of the splint fracture. Periodic recall visits for evaluation are, therefore, essential [5].

CONCLUSION

The immediate natural teeth pontics serve as an excellent and viable treatment option for replacement of teeth in esthetic area. This procedure using natural teeth as pontic with FRC provide positive psychological, conservative cost effective and esthetic advantage following extraction. However, proper case selection, patient motivation, maintenance of meticulous oral hygiene, periodic recall visits are considered to achieve the desired goal.

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