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Case report

A SINGLE VISIT IMMEDIATE TEMPORIZATION WITH NATURAL TOOTH PONTIC FOR PERIODONTALLY INVOLVED ANTERIOR TEETH: AN ESTHETIC AND INNOVATIVE APPROACH

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ABSTRACT

Aim and Objectives: Sudden loss of anterior tooth is a dreadful situation. It can be as a result of trauma, endodontic failure or periodontal disease which is a true aesthetic emergency for a patient. Along with the patient, the dentist also emphasizes on saving an anterior tooth for the primary reason of aesthetics. If the tooth crown is intact, is not grossly decayed, broken down or discoloured, it can be used as a natural tooth pontic in designing an interim prosthesis. **Case:** A chair side technique for replacing the missing tooth using the patient's own natural tooth as a pontic in the three dimensional original position using a fibre reinforced composite resin splint thus restoring the aesthetics and relieving the apprehension of the patient, as described in this case report.
Conclusion: The concept of Natural tooth pontic placement is a simple, economical, minimal intervention, viable and an easy to handle treatment option and promises an excellent transient aesthetic solution for a lost tooth as well as require minimal or no tooth preparation, thus is a reversible technique and avoids the laboratory cost.

Keywords: Tooth loss, Natural tooth pontic, Immediate replacement, Splinting, Interim prosthesis, Interlig.

INTRODUCTION

For people with healthy, attractive smiles, a sudden loss of an anterior tooth or teeth as a result of trauma, periodontal disease or endodontic failure, is a true aesthetic emergency and can be traumatizing to the patient [1]. The missing anterior tooth has implications in how one presents themselves to others and the psychological effects of how we feel about ourselves. The most important concerns involve aesthetics, phonetics and functional disability to some extent.[2] Despite a varied range of treatment modalities that can be applied in order to conserve the tooth after a traumatic episode, there are situations where the concerned traumatized tooth cannot be saved. The treatment options involve the fabrication of an immediate removable partial denture, placement of an immediate implant etc. Another viable treatment option is the placement of a periodontal splint utilising the crown of the extracted tooth as a natural pontic. The materials that are available for this purpose include multiflex orthodontic wires, steel meshes, glass or fibre splints etc [3].

Using the natural tooth as a pontic offers the benefits of it being the right size, shape and colour. It also adds up to the psychological status of the patient by using his or her own natural tooth as a pontic [4,5].

CASE REPORT

A 34 year old male patient with a chief complaint of pain in upper front region of jaw was referred to the department of Periodontology, YCMM and RDF's Dental College and Hospital, Ahmednagar. After periodontal examination, there was grade III mobility with 21**,** [Fig 1] periodontal pocket of 9mm on the mid-facial aspect. [Fig 2]

Fig 1: Preoperative view

Fig 2: Preoperative probing depth measurement

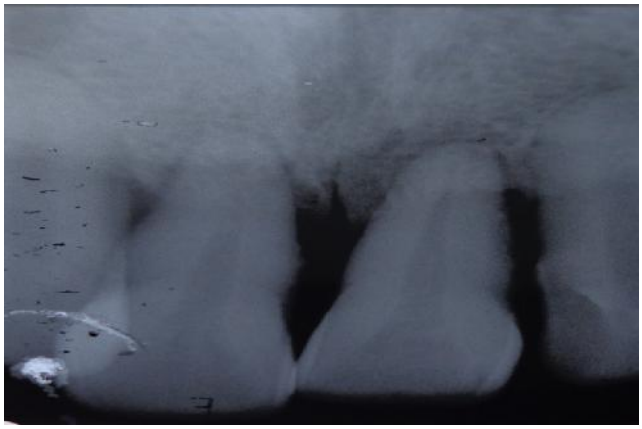

Fig 3: Radiographic interpretation showing extruded 21 with poor bone support.

Intra oral Periapical radiograph of 21, 22, 11, 12 region showed approximately 50% bone present with 21 and nearly 60% bone present with 22, 11, 12 **[Fig 3].** Thus, a written informed consent was taken from the patient and the study approved by ethics committee of YCMM & RDF's dental college Ahmednagar. The duration of follow up of the case was 1 year. The decision to extract the upper left maxillary central incisor was undertaken. The tooth which was to be extracted was used for the restoration of its own extracted region. The patient was appointed on the next day for splinting.

Preoperative analysis: - A study model was prepared and the length of the natural tooth pontic was determined on a study cast by measuring from incisal edge of adjacent central incisor to the location of gingival margin as a reference point. This length was measured**. [Fig 4]**

Fig 4 : Preoperative study model

Treatment plan: It was decided to extract the central incisor and replace it immediately as a natural tooth pontic using an Interlig fibre splint as a retainer. The patient was informed about the procedure and the patient readily agreed for the same. Inter occlusal space was assessed and the occlusion was determined. Pre – extraction impression was made and the study model was prepared. Measurement of length of the crown was done with a periodontal probe clinically and markings were transferred on the study model. Atraumatic extraction of 21 was done under local anaesthesia [1:100 epinephrine] lidocaine and haemostasis was achieved. **[Fig 5a & 5b]**

Pontic preparation phase: - The extracted tooth was sectioned at a predetermined length measured from the study model and edges were rounded, allowing for post extraction resorption and tissue shrinkage. Try in of the newly prepared pontic was done to ensure that the patient was satisfied with the appearance. Access opening was done palatally.

Fig 5a: Atraumatic extraction with 21
5b: Extracted 21

The pulpal remnants were extirpated and the pulp chamber was thoroughly cleaned and dried. The pulp chamber was then acid etched and dentin bonding agent was applied, the resulting cavity was filled with composite resin. **[Fig6 a &b]**

Fig 6a: Pontic prepared 7b: Access opening done palatally

Cementing the pontic: The abutment teeth were isolated with a rubber dam, cleaned with pumice, washed and dried. The pontic was also cleaned with pumice, washed and dried and then placed in the mouth to the required position. Acid etching was done on facial aspect from 13 to 23 with 40% phosphoric acid for 30 seconds washed and dried. Predetermined length of Interlig [fibre reinforced with composite] was carefully placed. [Fig7,8,9].

After initial stabilization facially with Interlig fibre, palatally composite resin with orthodontic wire was used for placing pontic in proper position, and Interlig fibre was then removed [Fig 9,10]. While placing a layer of composite care was taken to avoid rough surface, excess composite was removed completely to give a smooth feel and cured. After smoothening of surfaces, occlusion was checked in protrusion and lateral excursions. The patient was happy and satisfied with end result [Fig 11].

Fig 7: Photograph showing acid ecthing done with pontic and adjacent teeth

Fig 8: Interlig fibre placed facially for stabilization

Fig 9: Photograph showing placement of interlig fibre facially.

Fig 10: Photograph showing postoperative view.

A 1- year evaluation showed good aesthetic results with no problems and bridge was intact, [Fig 11]. The patient will be kept under yearly evaluation.

Fig 11: After 12 months of follow up.

DISCUSSION

This case report describes a simple, minimal intervention, economical and rapid method to replace a single tooth. It requires minimal or no tooth preparation thus, it is a reversible technique and avoids laboratory costs [6]. Replacement of a lost anterior tooth, immediately definitely lessens the trauma and psychological impact of tooth loss on the patient [7]. One or two anterior teeth can be replaced using the natural teeth as a pontic [8]. Conventional methods employ the use of the fabrication of bridges, removable appliances and implants for the replacement of a lost tooth. However, the above described method may prove to be more advantageous in terms of the cost and time[9].Besides, it helps avoid the inconvenience associated with the use of a removable prosthesis, as well as, the irritation of the palate and ill-fitting problems that are consistent with it. At times, the natural tooth can act as a temporary splint while the final prosthesis is being fabricated, in order to save time. It also helps to maintain the gingival architecture as well as present the drifting of the adjacent tooth into the vacant space [10].

Placement of a fixed prosthesis on periodontal compromised teeth is highly contraindicated. In such circumstances, where the replacement of a missing tooth is inevitable, this method may prove to be a viable option [11]. Besides being an economical method, long term results have well demonstrated great success while employing this technique [12]. The use of a fibre reinforced splint is also aesthetically pleasing, considering the lighter shade which is closely associated with the colour of the tooth and can be easily employed to splint teeth, even with minimal diastema or interproximal spaces anteriorly, since it can be easily covered with flow able composite [13].

'Quirynen et al' assessed the longevity of composite bonded resin or natural teeth as replacements for periodontally lost lower incisors and reported a survival rate of 80% after 5 years of function[14]. This design allows for exact repositioning of the coronal part of the extracted tooth in its original intraoral three dimensional position. Fibre reinforced splints have also demonstrated long term durability and higher bonding strength as compared to stainless steel wire splints, which causes a fracture at the composite interface in wire splints[15].Additionally, fibre splints do not produce corrosiveness unlike their stainless steel counterparts and are also translucent, which bestow an aesthetic and pleasing smile.

CONCLUSION

Natural teeth serve as an excellent transient treatment option for immediate replacement of a missing tooth following extraction in the anterior aesthetic zone. The patient satisfaction of continuing to have their natural tooth in the post-extraction period, taking care of his aesthetic needs and simultaneously providing him with time to choose from the various final treatment options available is immense. However, appropriate patient selection, their motivation levels, plaque control and precision during placement should be kept in mind to achieve the desired objective.

Limitations of the study: As Natural tooth pontic is a temporary treatment option, further studies are needed with a larger sample size in order to confirm the efficacy. It cannot be suggested for patients with traumatic bite.

It is advised for an anterior tooth region where less masticatory force is applied.

Conflict of Interest: Nil

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