

Natural Tooth Pontic: An Immediate Aesthetic Correction for Periodontally Compromized Tooth- A Case Report

Abstract:

The management of teeth affected by periodontal disease can be particularly challenging in terms of both function and aesthetics, especially when tooth loss or extensive damage occurs. Using a natural tooth pontic presents a novel solution by offering an immediate and aesthetically pleasing restoration. Unlike traditional pontics made from materials like porcelain or acrylic, this method repurposes the patient's own extracted tooth to fill the gap. This approach provides several benefits, including superior esthetic outcomes, maintenance of the natural gingival contours, and a quicker treatment process. The technique involves reshaping the extracted tooth to fit the empty space and securely attaching it to the neighboring teeth for stability and integration.

Key-words: Natural tooth pontic, Esthetics, Splinting, Fibre reinforced composite, Periodontitis

Introduction:

The esthetics and function of the orofacial region are vital aspects of human life that can be significantly impacted by the loss of anterior teeth. This effect occurs regardless of personal factors such as age, gender, or education level, ultimately influencing an individual's overall quality of life.[1] As dentists, we sometimes encounter challenging situations that require the extraction of teeth from highly esthetic zones, whether due to trauma, periodontal disease, root resorption, or unsuccessful endodontic treatment.[2]

Extraction of teeth in the esthetic zone commonly leads to difficulties with appearance and speech, along with some functional impairment caused by pathological tooth movement. Many patients prefer to postpone tooth extraction or request immediate treatment to manage the esthetic concerns, as these issues can negatively affect their social interactions. Traditional treatment options include removable temporary acrylic prostheses, resin-bonded bridges, and conventional metal or ceramic fixed partial dentures.[3]

A variety of new materials are now available, including fiber-reinforced composites, ceramics with high glass particle content, and high-strength ceramics. Fiber-reinforced resin composites (FRC) are widely used in dentistry both as direct materials for fabricating periodontal, post-traumatic, or orthodontic splints to stabilize teeth, and for indirect restorative applications. These materials are made up of glass, carbon, or polyethylene fibers embedded within a resin matrix.[4-5] An anterior resin-bonded FRC prosthesis can be directly fabricated intraorally using prefabricated pontics, a denture tooth, or the patient's extracted natural tooth.[6]

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The use of a natural tooth pontic (NTP) provides excellent outcomes by combining fiber-reinforced materials with adhesive techniques. This method restores the original tooth's anatomy, offering superior function and esthetics in terms of size, shape, and color. Using the patient's own tooth as a pontic is a conservative, lab-free solution ideal for those who desire an immediate replacement of a hopeless tooth in the esthetic zone.[7-8]

The aim of this case study was to present a conservative rehabilitation approach for replacing a periodontally compromised mandibular incisor.

Case Presentation:

Patient Presentation and Chief Complaint:

A 32 years old male patient reported to the Department of Periodontology and Oral Implantology with chief complaint of mobile teeth in the lower front tooth region since 2 months. Oral and radiographic examination revealed generalized bone loss in the lower anterior region and grade III mobility w.r.t. 31 (Figure-1). Since the prognosis for same tooth was hopeless, various treatment options were explained to the patient. He opted to use his own clinical crown as a natural pontic and was later persuaded to consider dental implant treatment during subsequent visits.

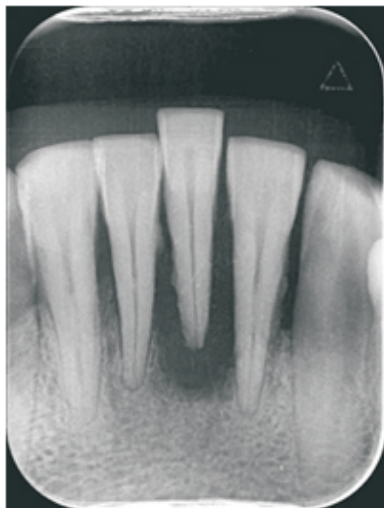


Figure-1. Pre-operative Radiograph

Tooth extraction:

Under local anesthesia, tooth 31 was atraumatically extracted using forceps (Figure-2). The alveolar socket was then carefully debrided and rinsed with saline solution. Initial soft tissue closure was performed to allow for more precise trimming of the extracted crown-root complex after the initial apical repositioning of the soft tissues.



Figure-2. Atraumatic Extraction w.r.t 31

Treatment of the Extracted Tooth and Storage:

An access cavity was traditionally prepared, followed by the removal of coronal pulp tissue through mechanical and chemical means to prevent future discoloration from decomposing organic material. The root canal was shaped and cleaned using stainless steel manual K-files with intermittent saline irrigation. After drying the canal with standardized paper points, it was obturated and sealed with flowable composite (Figure-3). To maintain moisture, the tooth was kept immersed in saline solution until subsequent treatment steps

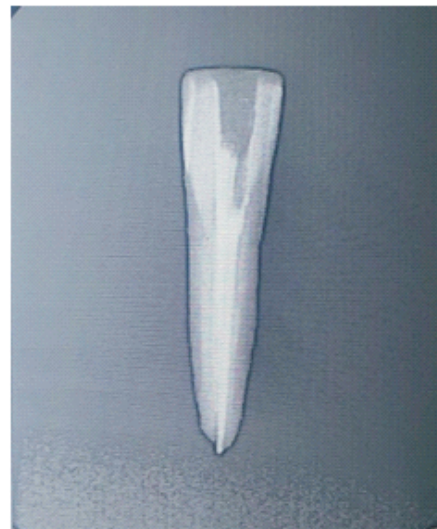


Figure-3. Endodontic treatment w.r.t 31

Splinting of the Natural Tooth Pontic:

One week later, the soft tissues showed uneventful healing. The root of the extracted tooth was reduced by 2 mm from the CEJ (Figure 4). The length of the polyethylene fiber (Ribbond™ Ultra, 2 mm wide and 0.12 mm thick) needed for splinting was measured and cut accordingly. The fiber was positioned coronally to allow for effective interdental cleaning with interproximal brushes, particularly important for teeth with periodontal compromise. Slot preparations were made on both the natural tooth pontic and the adjacent

teeth. The lingual and proximal surfaces were then etched with 35% phosphoric acid, rinsed, and thoroughly dried. A light-curing bonding agent was applied, followed by the placement and curing of direct composite resin to fully cover the fiber and restore the lingual contour of the incisors (Figure 5).

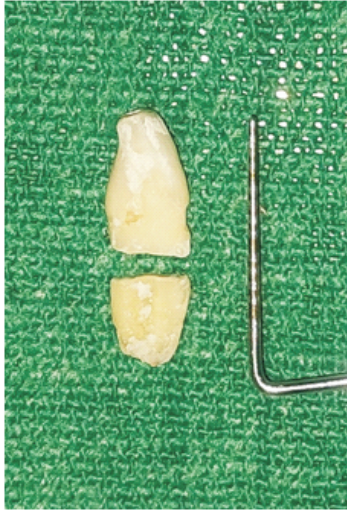


Figure-4. Sectioning of tooth 2mm below the CEJ

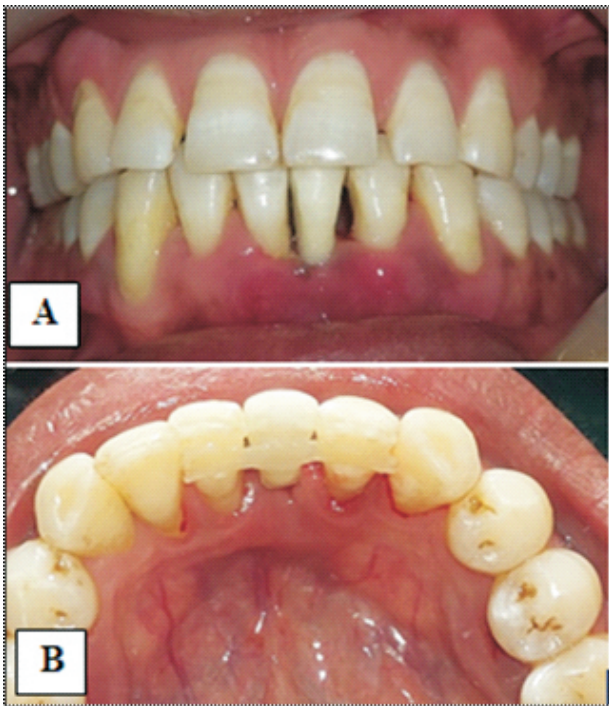


Figure-5. Post-operative Clinical view. A. Buccal B. Lingual

Follow up:

The patient was recalled after six months, during which no fractures of the splint or failures of the pontic were observed. The restoration demonstrated satisfactory esthetic integration with the adjacent lower incisors (Figure 6).

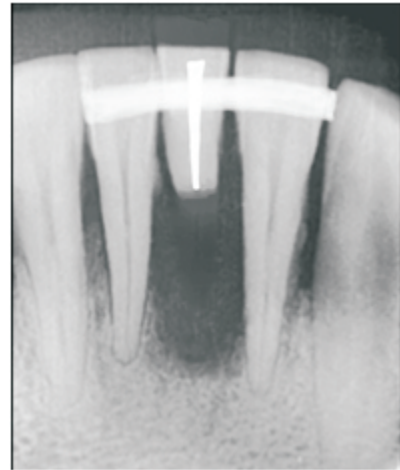


Figure-6. Post-operative Radiograph after 6 months

Discussion:

The loss of a mandibular anterior tooth often comes with alveolar defects in the edentulous site and/or periodontal disease in neighboring teeth, which can complicate implant placement or traditional fixed partial denture (FPD) treatments. This case report highlights a minimally invasive, chairside technique using a fiber-reinforced composite (FRC) prosthesis with a natural tooth pontic for replacing the missing tooth. Moreover, splinting mobile, periodontally compromised incisors is a viable option in cases of significant horizontal bone loss to improve patient comfort and provide better occlusal stability.[9-10]

In this case, the natural tooth pontic was shaped as a modified ridge-lap pontic, featuring a well-polished, smooth, and convex surface designed to make minimal or pressure-free contact with the alveolar ridge. This approach helps preserve soft tissue health by limiting contact to a small area. Additionally, this pontic design creates the illusion of the replaced tooth naturally emerging from the gingiva, enhancing the overall esthetic outcome.[11]

Limited data is available regarding the long-term survival and success of natural tooth pontic prostheses. Kukreja and Kukreja[12] utilized a patient's avulsed tooth as a natural tooth pontic in a 35-year-old woman with a history of traumatic tooth loss. At the 6-month follow-up, the patient reported no issues and was pleased with the results. According to Sconnenschein et al[13], the probing depth of splinted mandibular teeth decreased from 3.39 mm to 2.12 mm and remained stable throughout a 3-year observation period with strict supportive periodontal therapy. Additionally, no splinted teeth were lost during the first three years after splinting.

In a clinical study by Strassler et al¹⁴, one of eight natural tooth or resin composite pontics experienced a fracture, but the pontic remained securely attached to the abutment tooth throughout the study. Graetz et al¹⁵ concluded that 75.3% of splinted teeth in patients with periodontitis required repairs, highlighting the likelihood of frequent maintenance interventions over the long term.

A chairside direct prosthesis fabricated from the patient's own natural tooth can provide a cost-effective option by lowering clinical and laboratory expenses and reducing the number of visits. Nonetheless, resin-bonded prostheses—including those using a natural tooth pontic as in this case—are limited by risks such as splint fractures, fiber exposure, partial or complete debonding, and long-term wear of the pontic. Further research is necessary to investigate the long-term success of natural tooth pontic prostheses and to monitor changes in the soft and hard tissues beneath the pontic site.

Conclusion:

Despite the limitations of our study, the natural tooth pontic technique achieved excellent functional and esthetic results in the mid-term. It can serve as an effective interim restoration, which can later be replaced by a conventional bridge or dental implants. However, proper patient selection, patient motivation, effective plaque control, and careful precision during the placement of the natural tooth pontic are essential for its success.

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