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Immediate Esthetic Rehabilitation of an Extracted Maxillary Anterior Tooth Using Natural Tooth Pontic: A Case Series.

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ABSTRACT
Tooth loss in the anterior maxilla can create an immediate esthetic and psychological crisis for patients. While definitive treatments such as implants and fixed partial dentures remain the gold standard, they may not always be feasible due to financial constraints, surgical considerations, or the need for healing periods. In such situations, the natural tooth pontic technique provides an immediate, conservative, and cost-effective alternative that uses the patient's own extracted crown as a pontic bonded to adjacent teeth. This case report describes the management of a 52-year-old female who presented with a hopeless maxillary central incisor affected by grade III mobility and periapical pathology. The tooth was extracted atraumatically, reshaped, disinfected extraorally, and bonded using fiber-reinforced composite to adjacent teeth, restoring esthetics and function in a single visit. The technique proved to be efficient, economical, and well accepted by the patient. A review of the literature highlights the benefits, limitations, and clinical implications of this conservative approach.

I. INTRODUCTION

Anterior tooth loss is one of the most distressing conditions faced by patients, since it directly affects smile esthetics, speech, and social interactions. The maxillary central incisors, in particular, play a critical role in facial esthetics and self-image, and their loss may have a profound psychological impact. Common causes of anterior tooth loss include trauma, advanced periodontal disease, and endodontic failure [1]. Regardless of the etiology, patients usually present with high esthetic demands and expect immediate replacement of the missing tooth [2]. Conventional treatment options range from removable partial dentures and resin-bonded bridges to conventional fixed partial dentures and implant-supported crowns [3]. Each of these has its advantages and limitations, with implants being the preferred long-term option due to their longevity and predictable outcomes [4]. However, implants require adequate bone support, involve surgical intervention, and are relatively expensive, making them unsuitable for many patients. Similarly, fixed partial dentures often necessitate significant preparation of sound adjacent teeth, while removable prostheses are frequently rejected for being bulky, uncomfortable, and unaesthetic [5].

The natural tooth pontic technique provides a practical alternative in such situations. It involves the immediate reuse of the patient's extracted crown as a pontic, bonded to adjacent teeth with adhesive materials. This method is highly conservative, requires minimal chairside time, and is cost-effective, while also providing superior esthetics as the patient's own tooth is used [6, 7]. Furthermore, the psychological benefit of retaining one's own tooth, even as a pontic, should not be underestimated, as it allows patients to better accept the loss and transition toward definitive prosthetic treatment in the future [8]. With the advent of fiber-reinforced composite technology, the strength and durability of such restorations have improved significantly, reducing the risk of debonding and enhancing longevity [9]. This case series describes the successful application of the natural tooth pontic technique in the immediate rehabilitation of a maxillary anterior tooth.

Case Report 1

A 52-year-old female presented with a complaint of mobility in the upper front tooth region. The patient reported progressive loosening of her left central incisor over several months, accompanied by occasional pain. Her medical history was normal, with no systemic conditions or medications that could influence dental treatment. On intraoral examination, the maxillary left central incisor 21 exhibited grade III mobility with tenderness on palpation. A periapical radiograph

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revealed severe bone loss and a well-defined periapical radiolucency, confirming the hopeless prognosis of the tooth. The patient was highly concerned about the esthetic consequences of extraction and specifically requested an immediate solution that would not be financially burdensome.

After discussing various treatment options, including removable prosthesis, fixed partial denture, and implant-supported replacement, the natural tooth pontic technique was chosen as an interim solution, considering her financial limitations and desire for immediate esthetic rehabilitation. Informed consent was obtained, and the procedure was planned.

The extraction of tooth 21 was performed atraumatically using a periotome under local anesthesia. Care was taken to preserve the alveolar socket walls, and granulation tissue was removed by gentle curettage. Hemostasis was achieved. The extracted tooth was cleaned, and the root was sectioned near the cemento-enamel junction using a diamond bur, retaining the crown for pontic fabrication. The basal surface was contoured to a modified ridge-lap design, ensuring convex adaptation to the gingiva without exerting undue pressure, thus maintaining tissue health while providing natural emergence [10].

The pulp chamber was accessed extraorally, and pulpal remnants were removed. The chamber was disinfected with 2% chlorhexidine and subsequently restored with a light-cure composite resin (Filtek™ Z350, 3M ESPE), sealing the access cavity and restoring the crown's esthetics. The pontic was stored in saline to prevent dehydration until bonding.

The adjacent teeth, the left lateral incisor 22, were etched with 37% phosphoric acid for 30 seconds, rinsed thoroughly, and dried. A bonding agent (Adper™ Single Bond, 3M ESPE) was applied and light-cured. Flowable composite resin was placed across the palatal surfaces of the abutment teeth. A pre-cut polyethylene fiber reinforcement (Ribbond) was adapted across the abutments and the natural crown pontic, which was positioned in its original anatomical alignment. The fiber was impregnated with bonding resin and light-cured, followed by an additional composite layer to fully embed the fiber [11]. Finishing and polishing were performed, and occlusion was adjusted to eliminate functional contacts on the pontic.

The patient was given postoperative instructions, including meticulous oral hygiene maintenance, avoidance of biting directly on the pontic, and regular follow-up visits. At the one-week review, the patient expressed satisfaction with the esthetic and functional outcome, reporting improved confidence and comfort. The gingival tissues around the pontic were healthy, with no signs of inflammation. At the one-month review, the restoration remained intact with no evidence of debonding, and the gingival contours had healed satisfactorily.

Figure 1 : Preoperative images

Grade III mobile 21 (extruded)Deep periodontal pocket

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Figure 2 : Atraumatic extraction using periotome and extraction forceps

Figure 3: Extraoral preparation of the pontic

Figure 4: Postoperative Image

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Case Report – 2

A 38-year-old male patient reported with the chief complaint of mobility in the upper front tooth region. The patient noticed progressive loosening of his upper left lateral incisor over several months, which was occasionally accompanied by mild pain and discomfort during mastication.

The patient's medical history was non-contributory, with no systemic diseases or long-term medication use that could influence dental treatment. Extraoral examination revealed no facial asymmetry or swelling. Intraoral examination showed the maxillary left lateral incisor (tooth 22) exhibiting grade III mobility and tenderness on palpation. The surrounding gingival tissues appeared mildly inflamed, and there was no evidence of pus discharge or sinus tract formation.

After a thorough clinical and radiographic evaluation, the tooth was deemed non-restorable due to advanced attachment loss. Various treatment options, including a removable partial denture, a fixed partial denture, and an implant-supported prosthesis, were discussed with the patient. Considering the patient's aesthetic concerns, cost factors, and the desire for a minimally invasive interim replacement, the natural tooth pontic technique was selected as a provisional treatment.

The affected tooth was atraumatically extracted and stored in saline. The root portion was sectioned approximately 2 mm apical to the cemento-enamel junction, and the root surface was contoured and smoothened to create a convex tissue-contacting surface. The pontic was positioned in its original site and bonded to the adjacent teeth using orthodontic stainless steel wire and light-cured composite resin. Occlusal adjustments were made to prevent functional loading on the pontic.

Figure 5: Preoperative images

Figure 6 :Atraumatic extraction using periotome

Figure 7 : Preparation of the pontic

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Figure 8: Splinting of the pontic to adjacent teeth

Figure 9: Pre and postoperative Photographs
Preoperative Photograph Postoperative Photograph

II. DISCUSSION

The replacement of an anterior tooth poses a unique challenge due to the high esthetic expectations of patients. Immediate rehabilitation is often demanded, as even a temporary period without a tooth can have significant psychological and social consequences [1,2]. In such cases, the natural tooth pontic technique offers an efficient and conservative solution. By using the patient's own crown, the esthetic outcome is superior to any laboratory-fabricated pontic, as the shape, size, and shade are inherently ideal [6,7]. This eliminates the challenges of color matching and morphology adjustments that often arise with acrylic or ceramic pontics. Furthermore, the technique provides immediate restoration within a single appointment, reducing patient anxiety and maintaining confidence [8].

The use of fiber-reinforced composites has enhanced the clinical success of natural tooth pontics. Earlier attempts involving wire, nylon, or metal mesh suffered from poor bonding to composite resins, leading to frequent debonding [12]. Polyethylene fibers such as Ribbond, however, are chemically compatible with composites, providing strong and esthetic reinforcement [13]. This results in greater resistance to functional stresses, thereby prolonging the survival of the restoration. Several studies have demonstrated satisfactory short- and medium-term outcomes with fiber-reinforced pontics, with survival rates comparable to resin-bonded fixed partial dentures [14].

When selecting an interim or definitive replacement option, clinicians must balance esthetics, cost, biological preservation, and treatment time. Among these, the natural tooth pontic offers unmatched immediate esthetics and patient acceptance in situations where definitive therapy is postponed.

Removable partial dentures are economical but often fail esthetically and may impede socket healing. Resin-bonded bridges are conservative but prone to debonding, while conventional fixed partial dentures are functional and durable but require irreversible preparation of healthy abutments. Implant-supported crowns remain the gold standard for long-term replacement but are costly, surgical, and time-intensive [3–5]. The natural tooth pontic occupies a unique niche by

providing an immediate, conservative, and economical option that maintains esthetics and confidence while patients prepare for definitive therapy.

In the above cases, the technique proved effective in addressing the patient's immediate esthetic concerns. The modified ridge-lap pontic design ensured optimal tissue adaptation while facilitating hygiene. Fiber-reinforced bonding provided adequate stability, and the patient's satisfaction was evident during follow-up. The case underscores the value of natural tooth pontics in situations where implants or fixed prostheses are not feasible, serving as a bridge toward definitive rehabilitation in the future.

The literature supports this approach, with numerous case reports and series highlighting its practicality. Raj et al. described successful outcomes with natural tooth pontics combined with platelet-rich fibrin for socket preservation [14], while Khetarpal et al. reported single-visit fiber-reinforced bridges using natural crowns as esthetic and functional interim options [9]. Ulusoy and Cehreli also described provisional use of natural crowns after failed replantation [7], further validating the versatility of the technique. These casesreinforce the clinical relevance of natural tooth pontics in contemporary practice.

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III. CONCLUSION

The natural tooth pontic technique provides an immediate, conservative, and esthetically superior method for replacing hopeless anterior teeth, particularly in patients with financial constraints or reluctance to undergo surgical procedures. By combining the unmatched esthetics of the patient's own crown with the strength of fiber-reinforced composites, clinicians can deliver rapid and psychologically acceptable rehabilitation. Although not a substitute for definitive prosthetic treatment, the technique serves as an invaluable interim solution, allowing patients to transition comfortably to long-term options such as implants or conventional fixed prostheses.

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