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# Natural Tooth Pontic Using Frc Rebbound As Interim Therapy: A Case Report

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**Abstract**
Loss or removal of permanent anterior teeth in early age its final replacement is challenging for clinicians. An immediate definitive restoration is sometimes not possible that can alter functional and esthetic functions till rehabilitation of lost space. Natural tooth pontic is an easy and quick substitute for short-term therapy that requires few visits. This article describes a 13-year-old girl whose reverse-dilated tooth extraction prevented the placement of an implant or any other permanent prosthetic replacement for the foreseeable future. In this instance, an interim repair made of genuine tooth pontic produced excellent aesthetic effects.

## INTRODUCTION

Removal of dilacerated anterior teeth due its possible complications and may compromise patient's confidence. Along with this loss of esthetics and difficulty in speech or altered function can affect quality of life. The replacement of single missing tooth with available prosthetic option is challenging in pediatric dentistry with continuous growth of jaws. Patients usually demand replacement at the earliest possible and sometimes demand immediate replacement. Therefore, in these individuals, a definitive restoration might not be feasible at the time of tooth extraction until their growth is completed[1].

It becomes imperative to provide them with an interim restoration in order to meet both their practical and aesthetic needs. Till the time patient is ready to receive final prosthetic restoration patients own tooth for replacement can be act as "Interim therapy" and most acceptable choice now. For decade clinicians used orthodontic wire to act as splinting between natural and adjacent tooth. Composite resin and fiber-reinforced splint offer a novel, easy-to-use option that is also more aesthetically acceptable, biocompatible, and compliant[2].Patients who are already content with the size, color, and morphology of their natural teeth can get the best aesthetic outcomes with natural tooth pontic[3].

This case report describes the splinting of a natural tooth pontic that was extracted due to reverse dilaceration using fiber-reinforced splint and composite resin to adjacent teeth with minimal cost.

## Case Report

A 13 yrs. old female patient was reported to Department of pediatric and preventive dentistry with chief complaint of Missing tooth in maxillary left anterior region of jaw. Patients mother reported that after exfoliation of milk teeth there is no sign of maxillary left central incisor with no history of previous

extraction. The patient was systemically healthy and had no contributory medical history. The parents could not recall any history of dental trauma.

**Clinical Examination**

Upon intraoral examination, angulation was observed in the labial direction regarding the crown section of the lower left permanent central incisor, suggesting an inverted dilaceration. (Figure 1 (a) and (b): Pre-operative Intraoral view showing dilacerated crown of left mandibular central incisor). A RVG and panoramic radiograph revealed the presence of an inverted and impacted maxillary left central incisor. Throughout the clinical examination and consultation, the mother was concerned and anxious about overall esthetics of girl.

**Treatment Plan**

Orthodontically induced tooth eruption would be the top choice among treatment modalities for the management of an impacted dilacerated permanent tooth. In this case based on age of patient and mothers concern regarding esthetics at the same time to receive cost effective treatment. It was difficult to perform orthodontic management because of the unusual pattern of the impacted central incisor, so surgical removal of the tooth was prescribed. As patient is 13-year-old the final restorative treatment or prosthetic rehabilitation will require few years till the growth completion. The patient and parent were informed about the clinical issues pertaining to the tooth and the potential consequences of removing the tooth without replacing it. It was chosen to employ a chairside fiber-reinforced composite bridge as an interim treatment based on clinical considerations, utilizing the patient's natural tooth as the pontic.

**Treatment of the Extracted Tooth, it is Storage and TRY IN**

The tooth was extracted and placed in saline till its use. (Figure 2: Dilacerated tooth after extraction). After the excised tooth's root was removed, the pulp was taken and the canal was irrigated. Resin composite restorative was used to seal the canal and access. (Figures 3 and 4 show how the access cavity is made on the crown and how composite resin is used to seal it).

The mesiodistal space in between right central and left lateral incisor was recorded using divider and tooth was trimmed off accordingly. (Figure 5: Final prepared crown). the lingual portion of the crown to about two millimeters below the surface to make room for a fiber-reinforced composite (INTERLINK- FRC REBBOUND). Suitable length extending from right to left lateral incisor was measured using a dental floss. A preliminary prophylaxis for supra- and subgingival calculus was done prior to attachment. (Figure 6: Immediate photograph After healing of extraction socket before splinting).

**Splinting of the Natural Tooth Pontic**

The lingual surfaces of the removed and neighboring teeth were properly isolated, etched with 37% phosphoric acid, and then meticulously cleaned and dried. Similarly, tooth was supplemented with bonding agent along with the fiber. All margins were carefully refined and polished to ensure proper attachment of fiber. The fiber's adequate fit on the removed tooth was examined, and each surface was cured for 20 seconds from many angles. With the aid of flowable composite resin, the Ribbond fiber-adapted central incisor was placed in its proper location and adjusted to the neighboring teeth (Figure 7: Splinting of the Natural Tooth Pontic with Immediate post operative view). In addition to finishing and polishing, the occlusion was examined. Radiological confirmation of the tooth's ultimate location was

obtained. The patient felt inspired to maintain proper dental hygiene. Post operative and periodic follow up instructions was given to both patient and parent. Patient was recalled after a month followed by at 6 months interval next 1-2 years. (Figure 8: Post – Operative Intraoral Photographs-After a year)

**Discussion**

In present case of severe inverted dilaceration there was no possible outcome to save the tooth or to carry out orthodontic treatment.so, extraction of involved tooth was carried out. Early therapy was deemed important due to the elimination of function and aesthetics. Considering the patient's age, the Natural Pontic Interim Therapy was chosen till the final restorative care.

Patients frequently choose the natural tooth pontic (NTP) procedure because of its simplicity, cost effectiveness, and excellent cosmetic outcomes. When used as a pontic in specific clinical situations, an intact natural tooth in good clinical condition can provide advantages including superb color, shape, and size match, positive psychological value, low cost, and little chair side time without requiring a laboratory process.[4.]

Although rebound conforms to the morphology of the teeth and dental arch, it was chosen for the example at hand. It offers outstanding aesthetics since it is nearly colorless, transparent, and blends in with the acrylic or composite without being noticeable.[4.]FRC is advised as a short-term restorative treatment option since it is doable in a single session, practical, affordable, and requires little in the way of laboratory assistance and supplies.

These are few literatures supporting efficacy of FRC:

| Sr.no | Author -Year | Material used | Missing tooth number | Reason | Follow-up |
|---|---|---|---|---|---|
| 1. | Belli S et al 2000[5] | Ribbond® Ribbon Fiber Splint | 11 | Alveolar bone resorption | 1 month<br>1 year |
| 2. | S Nivvula et al 2011[6] | Fixed semi-permanent bridge<br>21 was replanted | 11 | Avulsed tooth failure in replantation | 3 months |
| 3. | Bhargawa S et.al 2011[7] | Interlig® fiber splint<br><br>Fiber composite resin splint with natural tooth | 11 | Avulsion | 14 months of follow up recalled every three months |
| 4. | S Gupta et.al 2011[8] | Ribbond® (Ribbond Inc., Seattle WA) | 21 | Poor prognosis due to root resorption | - |
| 5. | Purra A R et al 2013[9] | A modified resin-bonded | 11 | Trauma | - |

| | | | | | |
|---|---|---|---|---|---|
| | | fixed partial denture -resin wire splint | | | |
| 6. | G Srinidhi et al 2013[10] | Reinforce *Fiber splint*-reinforced composite resin Splint | 41 | Poor periodontal prognosis | - |
| 7. | Kumar A L et al 2015[11] | Ribbond® Ribbon Fiber Splint | 41 | Crown Dilaceration with root resorption | 1 year |
| 8. | J H Jang et al 2015[12] | Fiber resin splint (Not mentioned) followed by laminate veneers | 21 | External root resorption | 1 year |
| 9. | Dhariwal et al 2016[13] | Interlig® fiber splint<br><br>Fiber composite resin splint with natural tooth | 11 | Dilacerated and submerged tooth 11 | Short period of time |
| 10. | K N Vaghani et.al 2019[14] | fiber-reinforced splint and composite resin | 22 | hopeless prognosis due to extensive horizontal bone loss | - |
| 11. | S Mogre et al 2020[4] | fiber-composite resin splint | 31 | Dilacerated tooth | 1 year |
| 12. | Nallanchakrava S et al 2020[15] | Orthodontic therapy followed by Lingual retainer | 21 | Deviated dilacerated tooth | 1 year |
| 13. | M. P. Sockalingam et al[16]<br>2022 | One unit cantilever resin bonded bridge followed by orthodontic therapy | 21 | Nasally displaced dilacerated tooth | 6 months &1 year follow up |
| 14. | M S Tavangar et.al | The pre- | 11 12 | Generalized | 1 Year |

| | | | | | |
|---|---|---|---|---|---|
| | 2022[3] | impregnated resin fiber strip (Interlig®, Angelus, Londrina, Brazil) | | severe chronic periodontitis and gingival recession | |

The patient was advised of the technique's limitations, including the possibility of long-term supporting framework fracture and deboning of the natural tooth pontic.

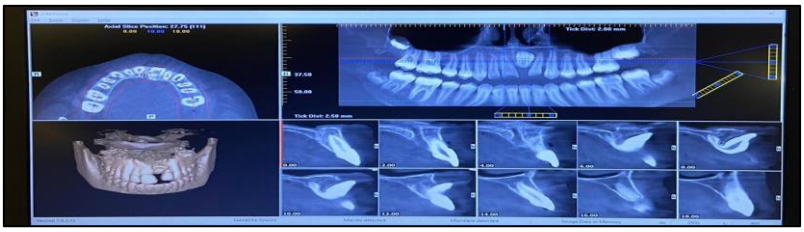
**Conclusion**

Missing anterior tooth pose a greater challenge to clinicians. In these scenarios it is at most important to go for reliable, a practical and aesthetic immediate fixed tooth replacement which is cost effective as well. The present case is all about management of inverted dilacerated tooth removal followed by natural tooth crown pontic as interim therapy. It is essential to provide patients with information and instructions on how to maintain a light bite and clean their gingival embrasures.

**Figure 1 (a) and (b): Pre-operative Intraoral view and radiographic pictures showing dilacerated crown of left mandibular central incisor).**

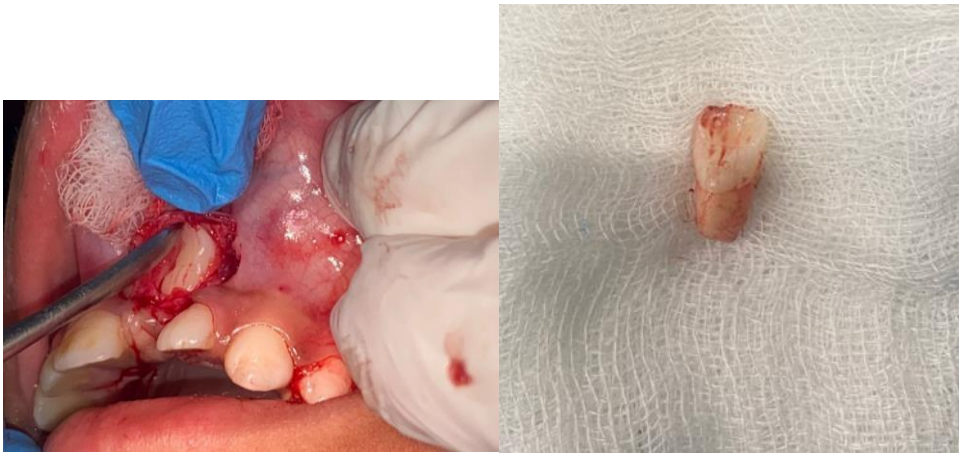
**Pre _ Operative Photographs**

**Pre - Operative Radiographs**



**Operative Records**

**Figure 2: Dilacerated tooth during and after extraction**



**Figures 3 & 4: Access cavity prepared on the crown and Sealing of the access cavity with composite resin**

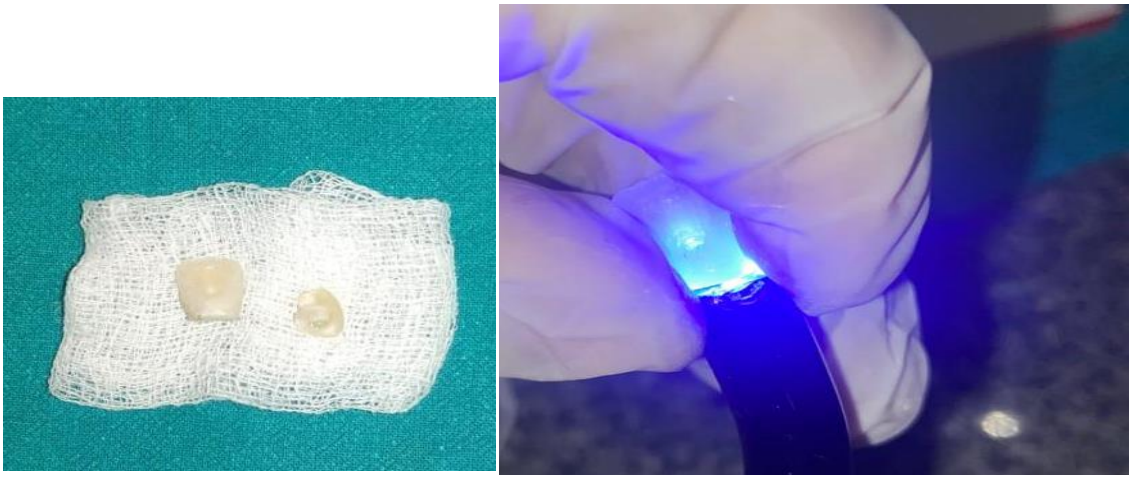


**Figure 5: Final prepared crown**

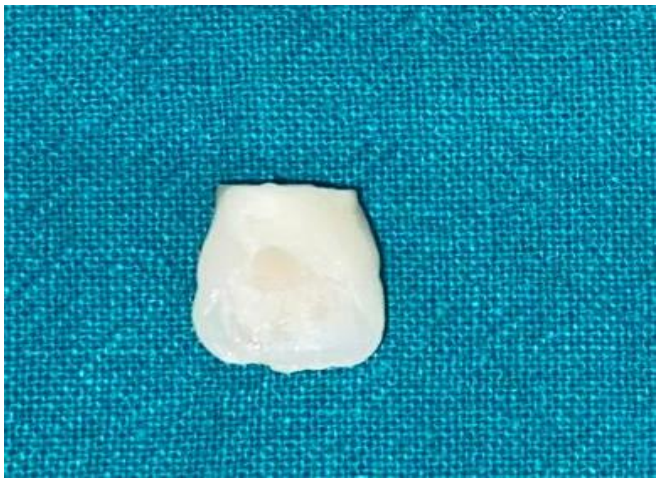


**Figure 6: Immediate photograph After healing of extraction socket**

**Figure 7: Splinting of the Natural Tooth Pontic with Immediate post operative view**

**Figure 8: Post – Operative Intraoral Photographs-After a Year**

**References:**

1. Kumar KP, Nujella SK, Gopal SS, Roy KK. Immediate Esthetic Rehabilitation of Periodontally Compromised Anterior Tooth Using Natural Tooth as Pontic. Case Rep Dent. 2016;2016:8130352. doi: 10.1155/2016/8130352. Epub 2016 Apr 19. PMID: 27195156; PMCID: PMC4853937.
2. Sekhar LC, Koganti VP, Shankar BR, Gopinath A. A comparative study of temporary splints: bonded polyethylene fiber reinforcement ribbon and stainless steel wire + composite resin splint in the treatment of chronic periodontitis. J Contemp Dent Pract. 2011 Sep 1;12(5):343-9. doi: 10.5005/jp-journals-10024-1057. PMID: 22269194.
3. Tavangar MS, Aghaei F, Nowrouzi M. Reconstruction of Natural Smile and Splinting with Natural Tooth Pontic Fiber-Reinforced Composite Bridge. Case Rep Dent. 2022 Nov 28;2022:9974197. doi: 10.1155/2022/9974197. PMID: 36479450; PMCID: PMC9722297.
4. Saumil Mogre, et. al. "Management of Crown Dilaceration Using Natural Tooth Pontic: A Case Report."IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), 19(6), 2020, pp. 28-32.
5. Belli S, Ozer F. A simple method for single anterior tooth replacement. J Adhes Dent. 2000 Spring;2(1):67-70. PMID: 11317410.
6. Nuvvula S, Mohapatra A, Kiranmayi M, Rekhalakshmi K. Anterior fixed interim prosthesis with natural tooth crown as pontic subsequent to replantation failure. J Conserv Dent. 2011 Oct;14(4):432-5. doi: 10.4103/0972-0707.87220. PMID: 22144819; PMCID: PMC3227297.
7. Bhargava S, Namdev R, Dutta S, Tiwari R. Immediate fixed temporization with a natural tooth crown pontic following failure of replantation. Contemp Clin Dent. 2011 Jul;2(3):226-9. doi: 10.4103/0976-237X.86468. PMID: 22090769; PMCID: PMC3214533.
8. Raj, Rishi et al. "Natural Tooth Pontic: An Instant Esthetic Option for Periodontally Compromised Teeth—A Case Series." *Case Reports in Dentistry* 2016 (2016): n. pag.

9. Purra AR, Mushtaq M. Aesthetic replacement of an anterior tooth using the natural tooth as a pontic; an innovative technique. Saudi Dent J. 2013 Jul;25(3):125-8. doi: 10.1016/j.sdentj.2013.01.001. Epub 2013 Apr 10. PMID: 24179322; PMCID: PMC3809477.
10. Surya raghavendra, Srinidhi & Srinidhi, Gauri. (2015). Natural Tooth Pontic with Splinting of Periodontally Weakened Teeth Using Fiber-Reinforced Composite Resin. J Dent Allied Sciences. 3. 43-46. 10.4103/2277-4696.156531.
11. Dua, Ankur & Patil, Anand. (2010). Crown dilaceration of a permanent mandibular central incisor - a case report. Hong Kong Dental Journal. 7. 36-40.
12. Jang JH, Lee SH, Paek J, Kim SY. Splinted Porcelain Laminate Veneers With a Natural Tooth Pontic: A Provisional Approach for Conservative and Esthetic Treatment of a Challenging Case. Oper Dent. 2015 Nov-Dec;40(6):E257-65. doi: 10.2341/15-020-S. Epub 2015 Sep 2. PMID: 26332738.
13. Dhariwal, Neha & Gokhale, Niraj & Patel, Punit & Hugar, Shivayogim. (2016). Natural tooth as an interim prosthesis. The Journal of Natural Science, Biology and Medicine. 7. 189-93. 10.4103/0976-9668.184710.
14. Vaghani KN, Nadig PS, Shah MA, Dave DH. Natural tooth pontic: An interim restoration for compromised aesthetic conditions. Adv Hum Biol 2019; 9:173-6
15. Nallanchakrava S, Mettu S, Reddy NG, Jangam K. Multidisciplinary Approach for the Management of Dilacerated Permanent Maxillary Incisor: A Case Report. Int J Clin Pediatr Dent. 2020 Nov-Dec;13(6):725-728. doi: 10.5005/jp-journals-10005-1847. PMID: 33976502; PMCID: PMC8060930.
**16.** M. P. Sockalingam, S. N., & Mohamed Khan, K. A. (2022). Multidisciplinary Management of A Nasally Displaced Dilacerated Tooth Following Early Childhood Dental Trauma: A Case Report. *European Journal of Dental and Oral Health*, *3*(1), 9–13. https://doi.org/10.24018/ejdent.2022.3.1.152.