

RESTORATIVE ARMAMENTARIUM

Authors :

Dr.M.S.Prem Kumar (III year PG Student)

Dr.D.Kandaswamy (Dean, Prof & Head

Dr. MathanRajan.R (Professor)

Department of Conservative Dentistry & Endodontics ,

Sri Ramachandra Dental College,

Porur, Chennai.

ABSTRACT:

Aesthetics play an important role on psychological perspective of an individual. The fracture of an anterior tooth is a common occurrence in young individuals and requires rehabilitation of the affected tooth. This paper presents a clinical case of management of open apex, root fortification and usage of natural tooth crown as a pontic with current restorative material armamentarium.

INTRODUCTION:

The best form of restoratrion is to imitate nature. This is more true to maintain esthetics with priority to anterior teeth. Significant improvements in tooth coloured restorative armamentarium have resulted in numerous conservative aesthetic treatment possibilities. But if we can return the natural tooth to its original place, it will give best of esthetics. One such case is discussed here. Even though there is no novelty in the procedure performed, the choice of the material available today is being discussed.

CASE REPORT:**HISTORY:**

A 15 year old male patient reported to the Department of Conservative Dentistry & Endodontics , Sri Ramachandra Dental College, with the chief complaint of shaking upper front tooth for the past 2 years. History of injury was elicited and the period of injury was uncertain. On examination , fracture involving enamel and dentin in 11 & 21. Dehiscence in 11 till root apex. Radiographic findings ,

1. Radiolucency involving only enamel and dentin -11,21
2. Blunder buss canal – 11,12,21
3. Periapical radiolucency in relation to 11,12,21.

Vitality tests:

- No response to heat and EPT in 11,12,21.

Diagnosis:

- Ellis and Davey's Class IV fracture in 11, 21 with blunder buss canal and periapical pathology in 12,11,21.
- Endo-perio lesion in 11 with dehiscence till root apex

Treatment Plan:

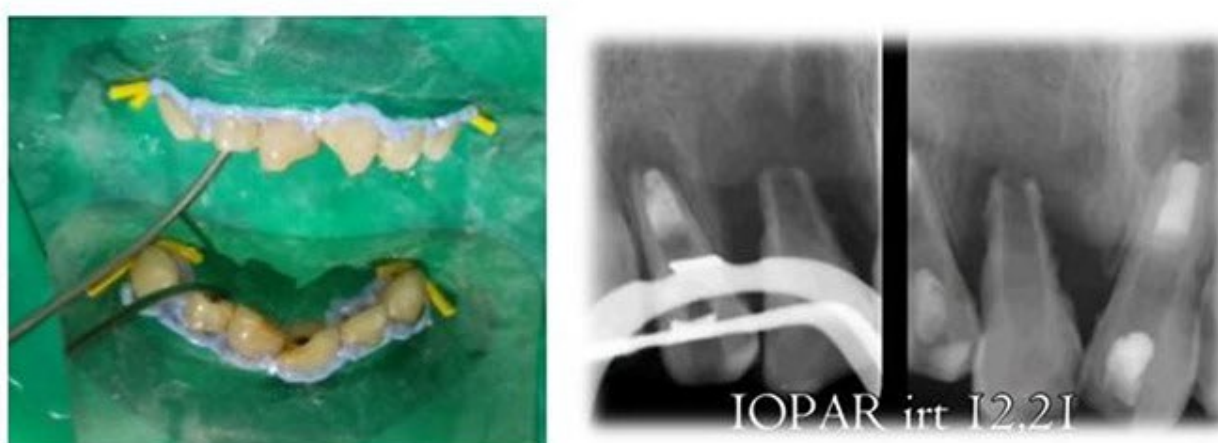
1. Endodontic treatment followed by MTA apexification and root reinforcement using Everstick posts in 12 and 21.
2. Extraction , socket preservation and dehiscence closure in relation to 11 , two stage surgery by Periodontists
3. Immediate temporization with natural tooth pontic in 11 , followed by implant or FPD .



(Fig No.1 : Pre-Operative photograph and Intra-Oral Periapical Radiograph)

MTA APEXIFICATION:

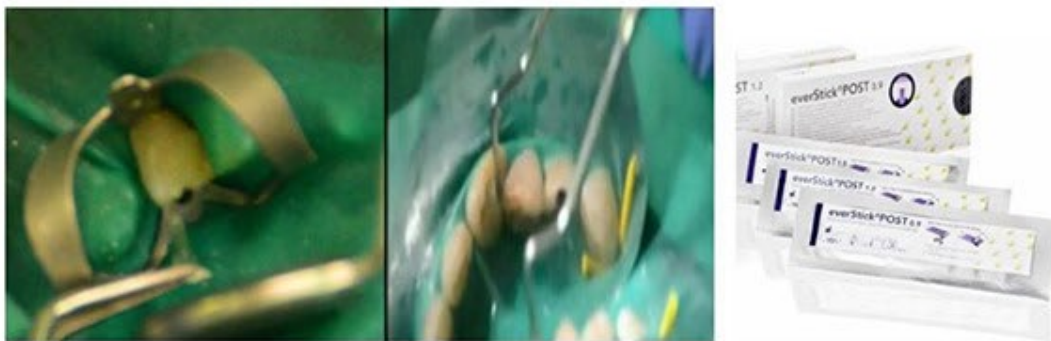
The access cavity was prepared in 12 and 21 under rubber dam isolation. Necrotic tissues were extirpated and saline irrigated . The working length was determined in 12 and 21 and irrigation with 3 % sodium hypochlorite was carried out using side vented needle (Navi tip, Ultradent). MTA (Angelus) apexification (5mm apical plug) was done in 12 and 21 following a week of Ca(OH)₂ intacanal medicament placement (Fig No.2). A wet cotton pellet was placed in contact with MTA and temporary entrance filling was placed



(Fig No.2 : MTA (Angelus) Apexification -12,21)

ROOT REINFORCEMENT:

The closed dressing was removed after a day. Everstick® Postequal to the remaining root length was selected. The dual cure resin luting cement (RelyX ARC) was coated inside the post space with slow speed lentulospiral file and Everstick post was placed. Initially single post was placed and adapted laterally with the help of a plugger and then two more posts were placed in the similar manner to fill in the space completely (Fig.No :3). Excess luting cement was removed, light cured for 40 secs and was followed by composite entrance filling.



(Fig No .3 : Root Reinforcement using Everstick® Post)

EXTRACTION AND PREPARATION OF NATURAL TOOTH PONTIC- 11

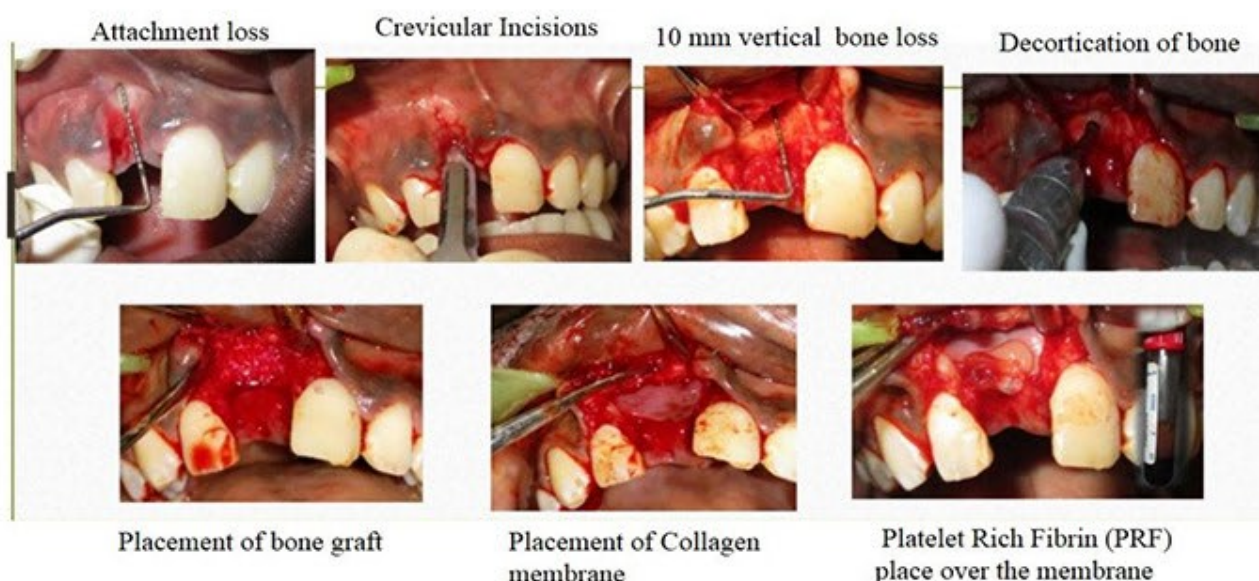
The extracted tooth was sectioned and the pulp chamber was debrided , irrigated using 5.25 % NaOCl and restored with composite resin. The Finishing and polishing of the ridge lap area of the ovate pontic was done using Sof-Lex™(3M ESPE) and Enamlize & Flexibuff (Cosmedent) (Fig.No:4) (4) .



(Fig No.4 – Extraction and preparation of Natural Tooth Pontic-11)

SOCKET PRESERVATION& DEHISCENCE CLOSURE:

Socket preservation and dehiscence closure procedure was carried out by Periodontists. Grafting was done with bioactive glass (Perioglas™) mixed with patient’s own serum. The graft was covered by a collagen membrane (Healiguide™). The prepared PRF was placed over the collagen membrane and primary closure of the soft tissue dehiscence was attempted (Fig.No:5).The soft tissue palatal graft was not used because of patient’s compliance.



(Fig No.5 : Socket Preservation in relation to 11)

SPLINTING OF NATURAL TOOTH PONTIC (NTP):



(Fig No.6 : Splinting of Natural Tooth Pontic)

The prepared natural tooth pontic was tried in after socket preservation procedure and splinted using Everstick Crown and Bridge and composite resin (Fig.No.6).

1 MONTH FOLLOW-UP:



(Fig No.7 : 1 Month Follow-up)

3- MONTH FOLLOW - UP :

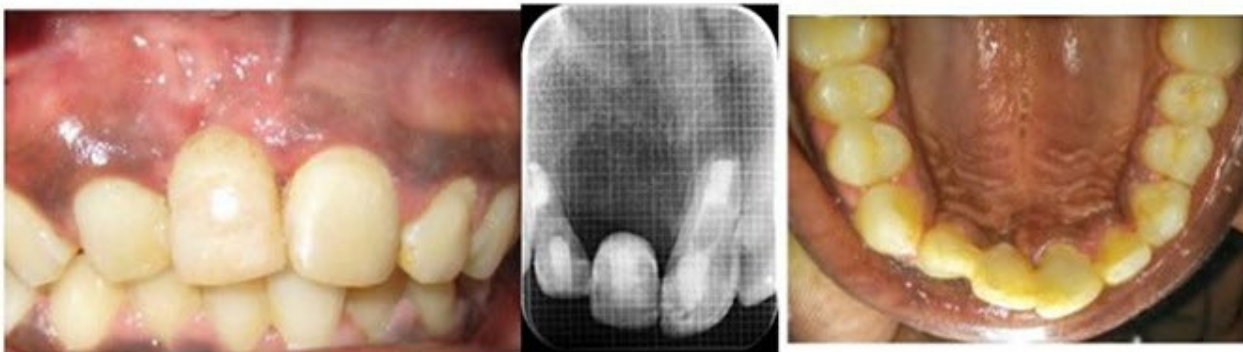
V-shaped soft tissue defect was evident in relation to 11. Satisfactory periapical healing in relation to 12 and 21 and bone formation in relation to 11 was seen (fig.No:9).



(Fig No.8 : 3 - Month Follow-Up)

6-MONTH FOLLOW-UP:

Satisfactory gingival zenith with good periapical healing in 12 and 21 along with trabecular pattern of bone in relation to 11 (fig .No: 9) .



(Fig No.9 : 6- Month Follow-up)

DISCUSSION:

MTA apexification has been the choice of treatment for management of open apex in 12 & 21. Since the remaining root dentin thickness was very minimal in 12 and 21, regular posts cannot be used because the post space preparation will further weaken the root. The usage of rigid post might result in the fracture of the tooth. Hence there is a requirement of a post which does not require post space preparation and bonds well to the root dentin. Ribbond® and Everstick® post are the two materials which satisfy these criterias. Everstick® Post was used in this case as it consists of approximately 2000-4000 individual glass fibers in one bundle. The silanated E-glass fibres are impregnated with PMMA and big-GMA which results in better bonding to root dentin and its reinforcement (5,6). Natural tooth pontic was used as an interim restoration to bring back the gingival zenith and it also improved the psychological behavior of the patient. Everstick® Crown & Bridge was used because of its better bonding and other advantages (5,7).

CONCLUSION:

Today the restorative dentistry have advanced so much. The fiber reinforcement of composite resin have seen its improvement in technology by leaps and bounds and they have come to a stage in a big way. This presentation highlights the importance and usage of such materials in dentistry.

Acknowledgements:

Dr.Vamsi Lavu (Associate Professor ,Dept of Periodontics, Sri Ramachandra Dental College) for helping in the periodontal treatment.

References:

1. Huang G.T.-J. Apexification: the beginning of its end. *International Endodontic Journal*, 42, 855–866, 2009.
2. Albadri S, Chau YS, Jarad F. The use of mineral trioxide aggregate to achieve root end closure: three case reports. *Dental Traumatology*. 2013 Dec;29(6):469-73.
3. MahimaTilakchand , KH Kidiyoor and R Nageshwar Rao. Natural Tooth Pontic using Fiber-reinforced Composite for Immediate Tooth Replacement. *World Journal of Dentistry*, October-December 2010;1(3) : 175-179.
4. Juliana Da Costa, Jack Ferracane, Rade D. Paravina, Rui Fernando Mazur, Leslie Roeder. The Effect of Different Polishing Systems on Surface Roughness and Gloss of Various Resin Composites. *Journal of Esthetic and Restorative Dentistry* 19:214–226, 2007.
5. S Vidhya, C Chandrasekar, L Narayanan. A Comparative Evaluation Of Fracture Resistance And Penetration Of Bonding Resin Into Three Different Fiber Reinforced Posts Using Confocal Microscope. *The Internet Journal of Dental Science*. 2009 Volume 9 Number 1.
6. Omar Ahmed Abo El-Ela, Osama Abdallah Atta, Omar El-Mowafy. Fracture Resistance of Anterior Teeth Restored with a Novel Nonmetallic Post. *Journal of Canadian Dental Association*, June 2008, Vol. 74, No. 5: 441 (a-e).
7. Robert A. Lowe. An Advancement in Fiber Reinforcement for Restorative Dentistry .*Inside Dentistry* ,April 2015, Volume 11, Issue 4.