WORLD JOURNAL OF ADVANCED SCIENTIFIC RESEARCH

A Novel Approach In Management Of Subluxation In Traumatic Tooth Extraction – Case Report

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Abstract

This case report documents with the clinical approach adopted for upper bicuspids tooth with lateral subluxation trauma. The type of splint used is quick and easy to fabricate and apply, requiring no complicated equipment or laboratory assistance. The proposed procedure involved reposition of the tooth

with immobilization with ligature wire is described, followed by 2 week treatment and 4 month follow up.

Keywords-Splinting, types of splinting, Subluxation ,Accidentally traumatised tooth.

Introduction

Dental trauma is a common injury, especially in children but, it also accounts an adult to whether due to falls, trauma, fight or assaults or any accidental traumatic extractions.[1] The first splinting of teeth is done for the treatment of jaw bone fractures that took place in Egypt in the 16th century B.C. The Extra-oral pin fixation of facial bone fractures was also developed at the end of the 19th century and direct internal fixation of mandibular or maxillary fractures became an alternative to conservative IMF, and is used till today in many clinics.[2] Internal rigid fixation of mandibular fractures allows the, intermaxillary fixation period to be reduced or avoided.[3]

Avulsion is a serious injury that can cause damage to some or all of the dental and surrounding tissues. While subluxation, lateral luxation, extrusive luxation do not cause certain change.[4]

Subluxation is a kind of luxation injury, in which there is a slight horizontal mobility due to laceration of periodontal fibres and bleeding from gingival sulcus. In this cases displacement of teeth is not seen.[5]

What is Splinting?

A splint is defined as an apparatus use to support, protect or immobilize teeth that have been loosened, replanted, fractured or subjected to certain endodontic surgical procedures.[6]Its used for connecting multiple tooth which increases support, when the teeth are used as abutments for a precision attached partial denture.[7]

Based on the purposes of splinting, it can be differentiated as emergency appliance definitive splints and functional treatment.

Emergency appliance- it is a temporary device intended to bridge the interval until definite treatment is performed. Where,definite splints has the role of stabilizing & immobilize the fractured jaw segments during the entire time of treatment, until bone consolidation take place.[8]

Classification

At the time of emergency, the easiest and convenient method is needed to overcome the differentiation between different types of fractures. Classification of tooth fractures, According to Galea (1984):[9]

1.Crown facture without pulp exposure

2.Crown facture with pulp exposure

3.Crown –Root fractures

4. Root fractures

5.Subluxation

6.Subluxation with intrusion

7.Subluxation with extrusion

8.Luxation

9. Fracture of the alveolar socket

10.Dento- alveolar fracture

11. Fractures to the maxilla and mandible

12. Injuries to the soft tissues

13.Other injuries.

Why is splinting needed in mobile teeth

Tooth mobility can be reduced by occlusal adjustment or splinting. The treatment can be selected by increased mobility of tooth than its cause can be anything like periodontal diseases, trauma from occlusion, reduced height of the supporting tissues or combination of any these.[10]

Clinical Rationale for Splinting[11]

- They help in control parafunctional or bruxing forces.
- They stabilize mobile teeth during surgical, especially regeneration therapy.
- They stabilize the periodontally compromised tooth, when more definitive treatment is not possible.
- The prevention of the supra-eruption of an unopposed tooth to eliminate the potential for the development of periodontal ligaments problems.
- To stabilize loose teeth to restore the patient's psychological and physical well being.
- The splinting or following periodontal therapy is useful and beneficial for contouring the effect of second trauma from occlusion.

Different Types of Splints[4]

1. Composite Splints- They are rigid splints and are applied to the labial surfaces of maxillary teeth. It draw backis , it causes more gingival irritation and mostly prone to fracture interproximally.
2. Orthodontic wire and bracket splints- These types of wires mostly involves, orthodontic brackets bonded to teeth with a resin based

orthodontic cement and connects with a light 0.04 NiTi flexible wire.

3. Ligature Splints- Mostly, they are used by oral surgeons in clinic where the materials are not available. They causes gingival irritation resulting, an inflamed tissues.
4. Arch bar- In this a metal bar is bent into the shape of the arch and fixed with ligated wires. Ligature wirescauses irritation to the gingival tissues. These arch bar splint is rigid and may loosen and cause damage.
5. Titanium Splint- These are made of flexible splint of titanium 0.2mm thick and 2.8mm wide. The only draw back it has that, it is very expensive.
6. Fibre Splint- In this polyethylene or Kevlar fibre mesh are attached either with an unfilled rein such as opti-bond TM FL or with composite resin.

Case Presentation

A 45year old male patient was referred to the Department of Oral and Maxillofacial Surgery with the chief complaint of food dislodgement and wants the removal of the grossly decayed tooth since six weeks with the upper right second premolar. The patient gave the history of root canal

treatment with the upper right first premolar tooth 3 years back but due to accumulation of food. Patients want that tooth to be extractedas needful.

Medical history was non contributory. Hard tissue examination, there is presence of blackish discoloration of the occlusal surface of the tooth. On palpation tenderness is present with upper right first pre-molar tooth. The procedure was explained to the patient and an informed consent describing all the pros and cons of the treatment was obtained.

Intraorally tooth was tender on percussion with upper right first pre-molar and bleeding is seen at the sulcus, slight mobility of the tooth (Grade I), absence of any soft tissue damage is seen. Periodontal membrane of subluxated teeth were apically enlarged.(Figure 1)

After anesthetizing the area with 2% Lignocaine with Adrenaline, on extracting of upper right second pre-molar , there is accidentally sub-luxation of upper right first pre-molar took place due to forceful traumatic extraction

Immediately, as the treatment our first concern is to make the tooth stable so that further damage can be avoided, ensure that periodontal fibres are attached and do not get damage while movement, avoid excess bleeding, and without any delay the tooth upper right first premolar is splinted with the ligature wire. The wire should be placed such that it won't hurt any of the surrounding tissues and cause less irritation to gingival tissues.(Figure 2) Occlusal reduction was done for providing the bite relief for the tooth. Regular antibiotics and analgesics

were prescribed for 5 days and patient was recalled after 2 weeks for the wire removal, followed by 4 months followup.

Patient reported back to the department on 15th day and the wires were removed to allow the physiologic mobility of tooth and thereby preventing the ankylosis. After 4 month followup the tooth was non mobile and the patient was happy with the outcome.

Conclusion:

While,the type of splint and the splinting duration have not been generally shown to affect healing outcomes. It has been for the treatment of subluxation, its 2-3 weeks to allow the physiologic movement of tooth to prevent tooth ankylosis and prevention of root resorption.

Figure 1: Preoperative IOPA showing grossly decayed root canal treated right maxillary 2nd premolar

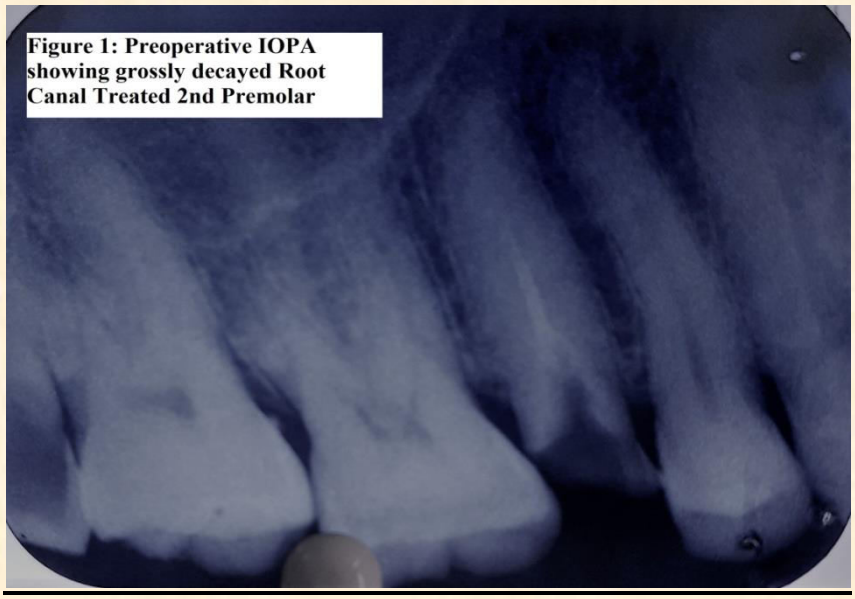
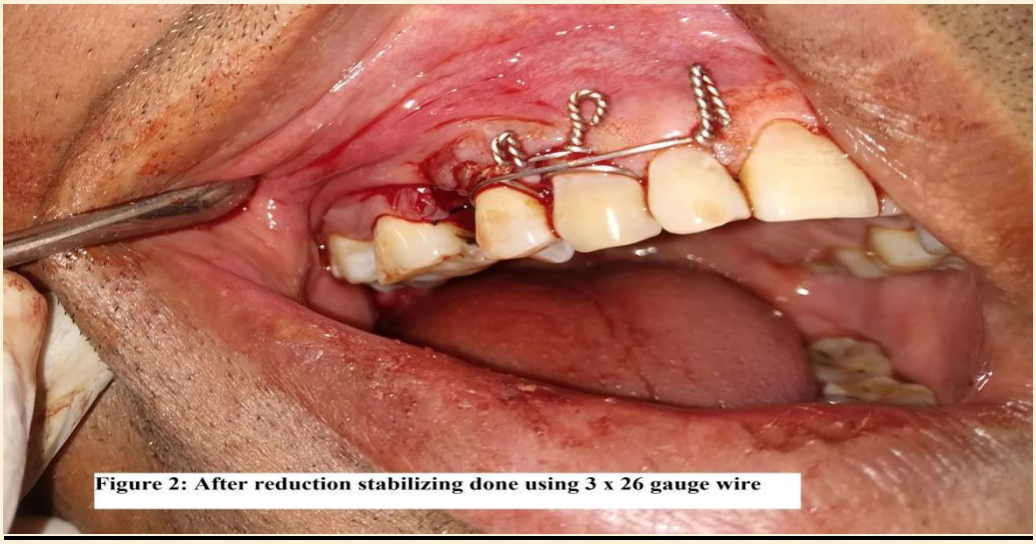


Figure 2: Stabilization of tooth done using wiring



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