Management of Traumatic Injuries to the Teeth of Children

Fracture anterior teeth is a common accident in a child which has great psychological effect on both parents and children and especially if the fracture is in the permanent dentition and this situation present a real problem to the dental practitioner who deal with children.

The prevalence of fracture anterior teeth varies greatly in different studies according to age and sex.

The fracture varies from a simple condition to severe cases, which demand specific dental treatment. If the condition left untreated, it will result in a malformation, degeneration, necrosis, abscess formation and finally tooth loss from the arch.

Trauma to a tooth followed by pulpal hyperemia which cannot be determined by diagnostic methods, congestion and alteration in blood flow in the pulp may be sufficient to initiate irreversible degenerative changes, which over a period of time can cause pulpal necrosis. In addition, the apical vessels may have been severed or damaged enough to interfere with the normal reparative process.

Treatment of pulp exposure or tooth displacement are particularly challenging problem, interesting but not difficult, since the prognosis of the involved tooth is uncertain for an indefinite period of time.

Dental injury to the teeth in the child is infrequent and mostly happen in child when start to move.

The prevalence of dental injury varies according to different Nationalities.

It is vary from very simple fracture of the crown to severe fracture of the crown either it need very simple treatment or very specific Rx or left untreated.

Trauma to the Face

1-Tooth Fracture
2-Tooth displacement

1-Tooth Fracture

The first thing to occur is concussion: is an any injury to the
1. tooth,
2. Supporting structure
Without loosening of the tooth but the tooth is tender to percussion.

Subluxation: loosening of the tooth but without displacement.

Displacement of the Tooth
1-Partial displacement
2-Total displacement (avulsion)

1-Partial Displacement Caused By
a - direct trauma
b - indirect trauma

1- Partial Displacement that caused by direct trauma produce:
a- Palatal or Lingual movement of the tooth with palatal fracture of the alveolar bone.
b- Palatal movement with buccal alveolar bone fracture.
c- Displacement of the tooth from its socket without alveolar bone fracture and the tooth appear longer.

2. Partial Displacement that caused by indirect trauma produce
a- Labial movement of the tooth with fracture of palatal or lingual alveolar bone.
b- Labial movement of the tooth with fracture of labial alveolar bone.
c- Intrusion of the tooth into the socket, the tooth appears shorter.

Fracture of the Crown
The following modification of Ellis’s classification is useful in recording the extent of damage to the crown:

Class I: Simple fracture of the crown involving Enamel only.
Class II: Extensive fracture of the crown involving Enamel considerable dentin, but not the dental pulp.
Class III: Extensive fracture of the crown with an exposure of the dental pulp.
(Involve E & D & pulp)
Class IV: Loss of the entire crown. # Root with or without coronal #

Methods of Clinical Examination
For any fracture case, an accurate medical and dental history should be taken with record information about the condition involves that could be related to the:
1. Cause of the fracture
2. Place of fracture which could be dirty, contaminated, or clean place,
3. The Time of fracture for the treatment plane (for ex. To see the vitality of the tooth). If the fracture before one year, there is high probability that the tooth is non-vital.
   The time is important in pulp exposure for which pulp capping or pulpotomy would be the procedure of choice. Repeated trauma will lead to less favorable prognosis
4. Pain is very important in determining the extent of the injury. Pain caused by thermal change indicate significant pulp inflammation.
   Pain during bringing the teeth in occlusion indicate the tooth has been displaced such pain indicate injury to p.d.l.and supporting tissue.

Clinical Examination
Visual Examination:-
Any bruising or laceration of the soft tissue
Type of fracture
Discoloration of the tooth
Oral hygiene
Occlusion
Digital Examination:
Tenderness of the tooth by gentle percussion
Mobility of the tooth
Vitality test by cold, hot or by electric pulp tester.
Very important point that the child come immediately after trauma and doesn’t give response to vitality test because the tooth is in shock. Reexamination in the next visit after 6 weeks.
If the child doesn’t give a response mean the tooth is died.
In children the electric pulp tester is controversy because it needs cooperation and a relaxed child. When the child come from the 1st time because of anxiety the child will give false response.