

بسم الله الرحمن الرحيم

In The Name of God

- ▶ Dr Mohammad Reza Moaddeli
- ▶ DDS, MSc, OMFS



Traumatic Dental Injury and Treatment



Patient Examination

1. Clean the face and the oral cavity with water or saline.
2. Make a short medical and dental history.
3. Questions
 - Where/How/When did the injury occur?
 - Was there a period of unconsciousness?
 - Is there any disturbance in the bite?
 - Is there any reaction in the teeth to cold and/or heat exposure?



Patient Examination

1. Clinical exam

- Examine: face, lips and oral muscles for soft tissue lesions.
- Palpate: facial skeleton for signs of fractures.
- Inspect: dental trauma region for fractures, abnormal tooth position, tooth mobility, and abnormal response to percussion.

2. Radiographic exam

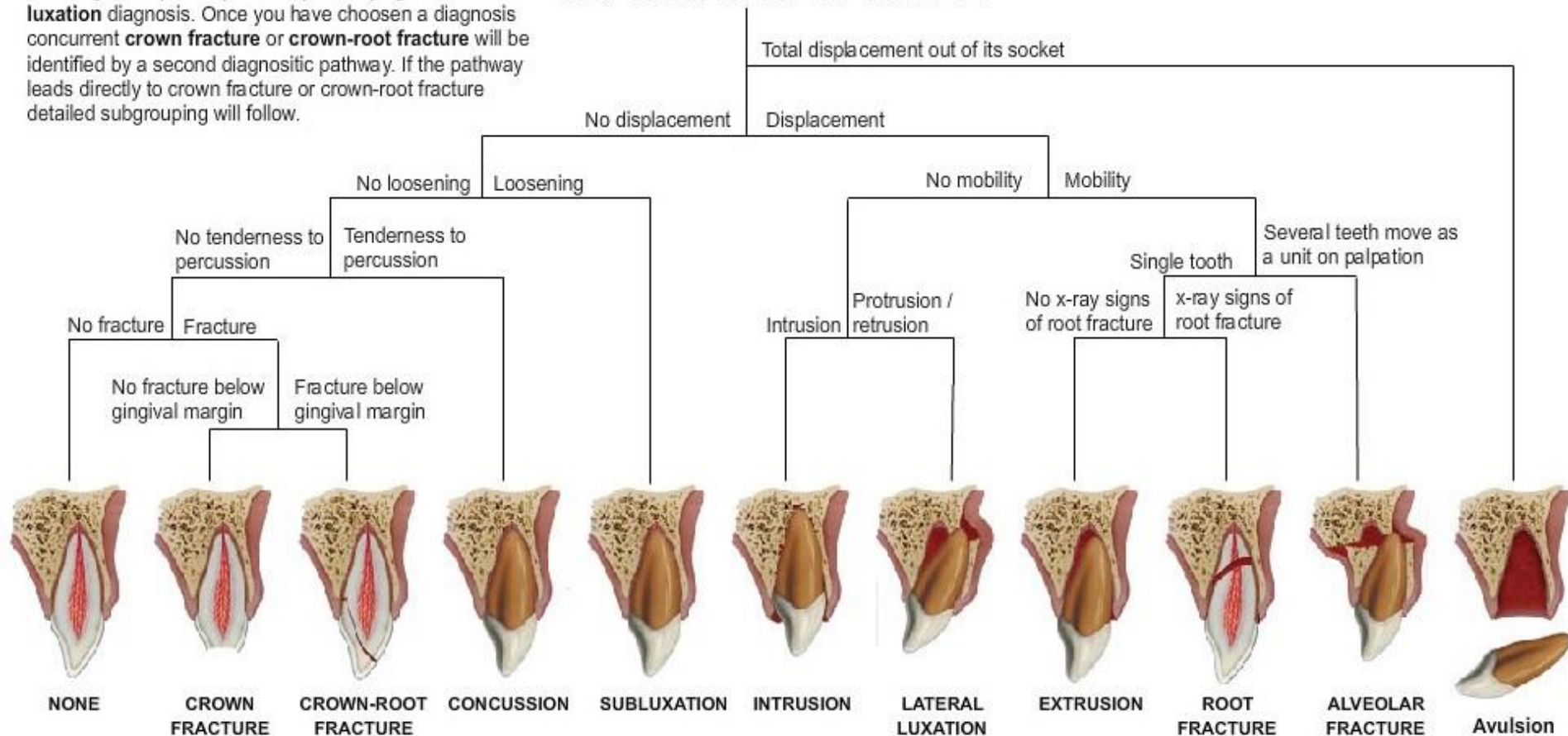
3. Photographic registration

Types of Dental Trauma



The diagnostic pathway starts by identifying the main **luxation** diagnosis. Once you have chosen a diagnosis concurrent **crown fracture** or **crown-root fracture** will be identified by a second diagnostic pathway. If the pathway leads directly to crown fracture or crown-root fracture detailed subgrouping will follow.

TRAUMA PATHFINDER



Crown fracture

No loss of tooth structure

Loss of tooth structure

TX: resin sealing



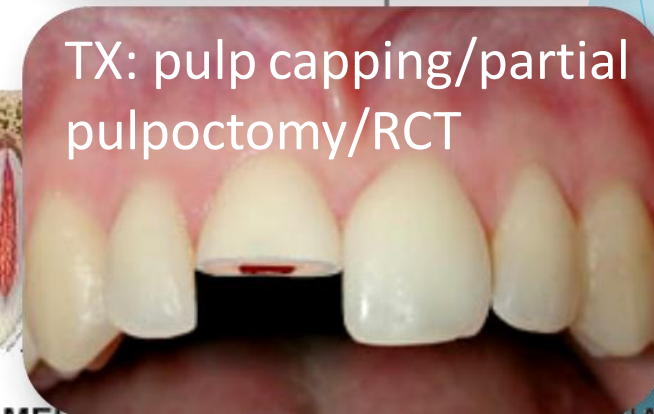
F/U: 6-8 wks and 1 yr



TX: emergency & definitive



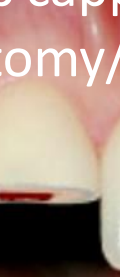
TX: pulp capping/partial pulpotomy/RCT



exposure



ENAMEL
FRACTURE

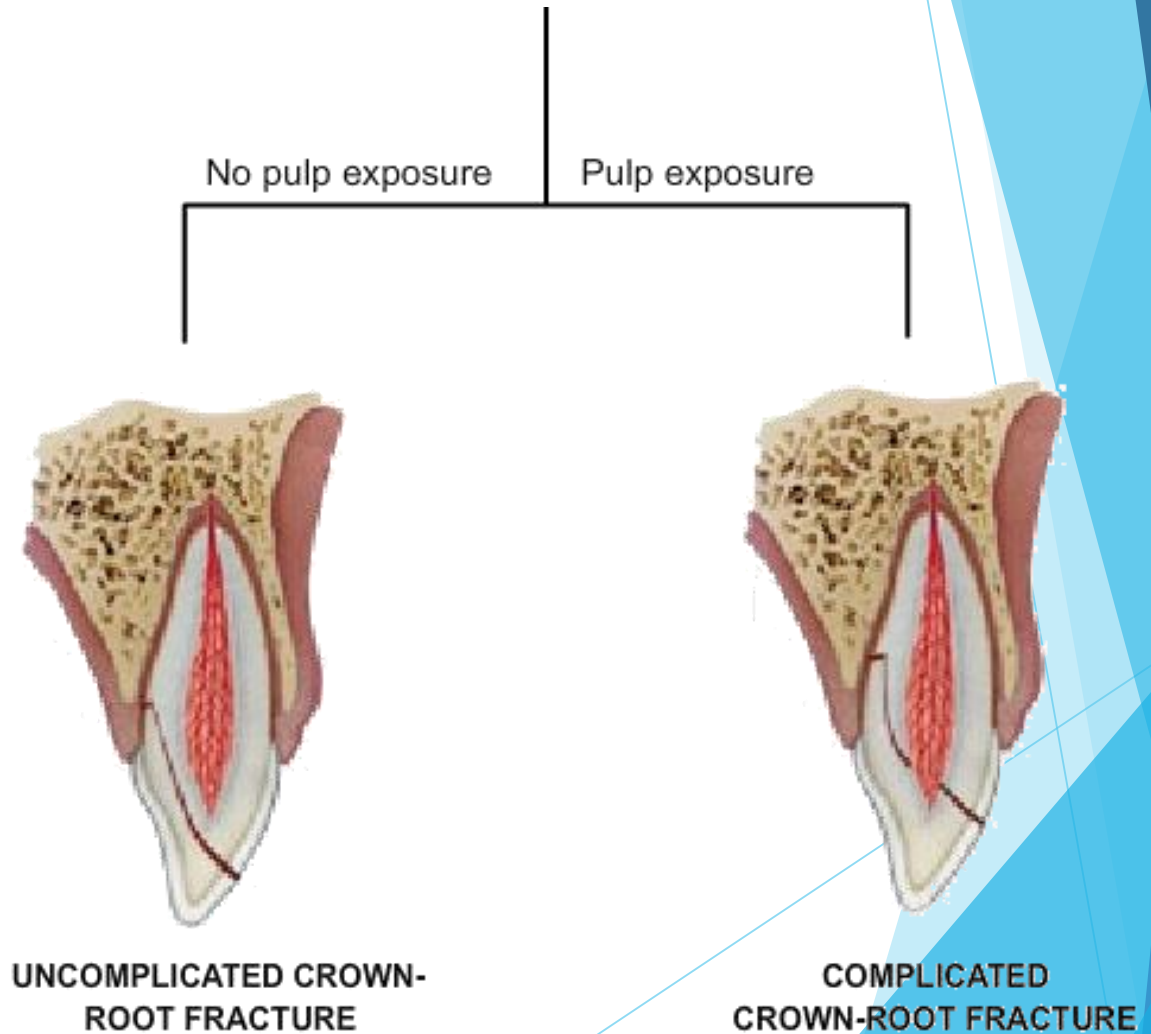


ENAMEL-DENTIN
FRACTURE



ENAMEL-DENTIN-
PULP FRACTURE

Crown root fracture



Crown root fracture

Emergency

- Temporary stabilization of a loose segment to adjacent teeth
- Young patient with open apex: **partial pulpotomy**
- Old patient: **RCT**

Soft diet for 1 wk

Soft brush, CHX rinsing

Definitive

- Fragment removal only
- Fragment removal and gingivectomy (sometimes ostectomy)
- Orthodontic extrusion of apical fragment
- Surgical extrusion
- Decoronation
- Extraction

Concussion

Injury to tooth-supporting structures



mobility(-), displacement(-),
percussion pain(+)



- Soft diet for 1wk
- CHX rinsing
- F/U: 4, 6~8 wks, and 1yr

Subluxation



- **Flexible splint for 2 wks**
- **Soft diet for 1wk**
- **CHX rinsing**
- **F/U: 4, 6~8 wks, and 1yr**
- **RCT after 2-3 months**





Intrusion

With comminution or fracture of the alveolar bone



Intrusion

| Apex | Age | Intrusion severity | Repositioning | | |
|---|---------------|--------------------|---------------|-------------|----------|
| | | | Spontaneous | Orthodontic | Surgical |
|  Open | 6-11 years | Up to 7 mm | *** | | |
| | | More than 7 mm | *** | | |
|  Closed | 12-17 years | Up to 7 mm | ** | | |
| | | More than 7 mm | | * | * |
| | Over 17 years | Up to 7 mm | | * | * |
| | | More than 7 mm | | * | * |

- Open: if **no** movement within **4 wks** → **ortho tx.**
- Closed: pulp necrosis → **RCT completed after repositioned**
- **Soft diet for 1wk**
- **CHX rinsing**

Extrusion

Partial displacement



- Rinsed with saline
- Reposition
- Flexible splinting for **2 wks**

Extrusion

- **Open apex:**
 - revascularization? return to EPT(+)
 - Pulp necrosis can be seen within 4 wks
- **Closed apex:**
 - EPT(-), periapical rarefaction, crown discoloration → pulp necrosis
- **F/U:**
 - Splint removal after 2 wks
 - 4 wks, 6-8 wks, 6 m, and 1 yr

Lateral Luxation

With comminution or fracture of labial/lingual alveolar bone



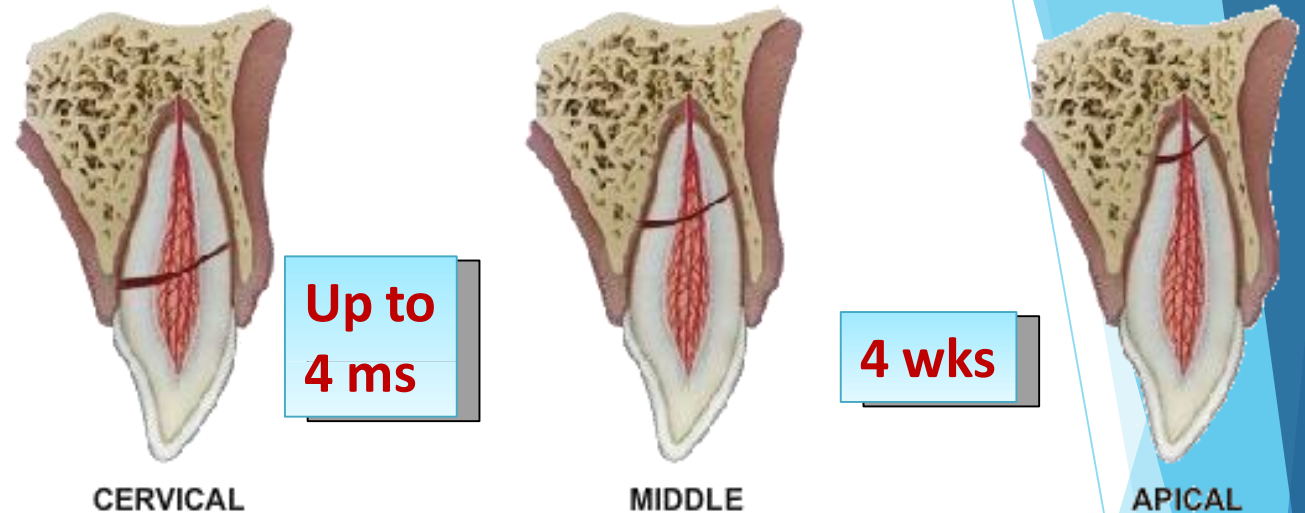
- Rinsed with saline
- Local anesthesia
- Reposition
- Flexible splinting for 4 wks
- F/U: 2, 4, 6-8 wks, 6 m, and 1 yr (yearly for 5 yrs)

Root Fracture



- Rinsed with saline
- Check that correct position
- Flexible splinting for **4 wks.** (Cervical: up to 4 ms)
- Monitor healing for at least 1 yr

Root Fracture



- **F/U:**
 - 6-8wks, 4 ms, 6 ms and 1 yr (yearly for 5 yrs)
 - RCT of the coronal fragment if pulp necrosis develops after 3 months
 - EPT, x-ray films shows RL next to the fracture line

Alveolar Fracture

Should be treated first!



- Repositioning
- Flexible splinting for **4 wks**
- F/U: 6-8 wks, 4ms, 6ms and 1 yr (yearly for 5 yrs)

Avulsion



Avulsion

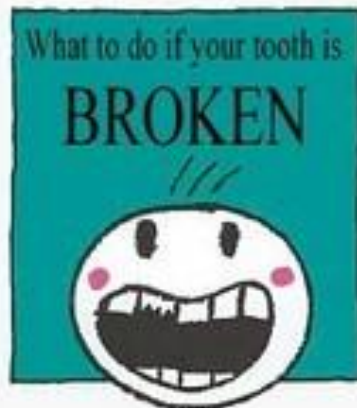
- If a tooth is avulsed, make sure it is a permanent tooth (primary teeth should not be replanted).
 1. Keep the patient calm.
 2. Find the tooth and pick it up by the crown. Avoid touching the root.
 3. If the tooth is dirty, wash it briefly (10 ss) under cold running water and reposition it. Try to encourage the patient / parent to replant the tooth. Bite on a handkerchief to hold it in position.

Avulsion

- If a tooth is avulsed, make sure it is a permanent tooth (primary teeth should not be replanted).
 - Place the tooth in a suitable storage medium, e.g. a glass of milk or a special storage media for avulsed teeth if available. The tooth can also be transported in the mouth, keeping it between the molars and the inside of the cheek. **Avoid storage in water.**
 - Seek emergency dental treatment immediately.

Save your tooth

Most of your permanent teeth may be saved if you know what to do after a blow to the mouth



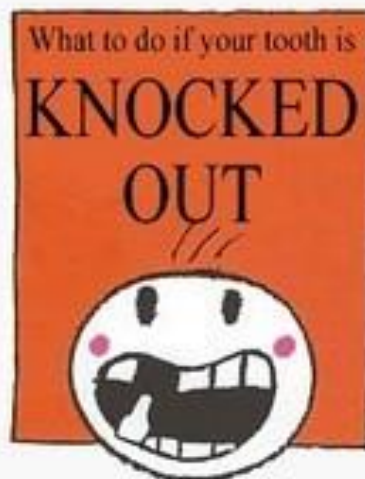
Find the piece of the tooth



The piece can be glued on



For this to be possible, seek attention immediately from a dentist



Find the tooth



Hold it by the crown



(Plug the sink)
Rinse in cold tap water

4
FOLLOW ONE OF THESE ALTERNATIVES

Save your tooth

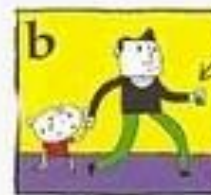
Most of your permanent teeth may be saved if you know what to do after a blow to the mouth



4
FOLLOW ONE OF THESE ALTERNATIVES



Put the tooth back in its place



Place the tooth in a cup of milk or saline



When milk is not available, place the tooth in the mouth between the cheeks and gums



Seek immediately specialized dental treatment, within a two hour time period



Avulsion



- > Closed apex: Tooth replanted prior to the patient's arrival at the dental office or clinic
- > Closed apex: Extra-oral dry time less than 60 min
- > Closed apex: Extra-oral dry time exceeding 60 min or longer storage in non-physiologic media



- > Open apex: Tooth replanted prior to the patients arrival at the dental office or clinic
- > Open apex: Extra-oral dry time less than 60 min
- > Open apex: Extra-oral dry time exceeding 60 min or longer storage in non-physiologic media

Closed apex: Tooth replanted prior to the patient's arrival at the dental office or clinic

Closed apex: Extra-oral dry time less than 60 min

- Clean the area.
- Leave the tooth in place/Replant the tooth with gentle pressure.
- Suture gingival lacerations if present.
- Verify normal position.
- **Flexible splint for up to 2 wks.**
- Administer **Tetracycline** (Doxycycline, BID for 7 days). → The risk of discoloration of permanent teeth. **Phenoxymethyl** Penicillin (Pen V) is an alternative.
- Tetanus booster
- **RCT 7-10 days after** replantation and before splint removal.

Closed apex: Tooth replanted prior to the patient's arrival at the dental office or clinic

Closed apex: Extra-oral dry time less than 60 min

- **F/U**
 - Once a week during the first month.
 - RCT 7-10 days after replantation. Ca(OH)_2 dressing for up to 1 month.
 - Splint removal after 2 weeks.
 - 4 wks, 3 ms, 6 ms, 1 yr and then yearly thereafter.

-> Closed apex: Extra-oral dry time exceeding 60 min or longer storage in non-physiologic media

- Remove attached necrotic soft tissue with gauze.
- **RCT prior to replantation, or 7-10 days later.**
- Immerse the tooth in a **2% NaOCl solution for 20 min.**
- Irrigate the socket with saline.
- Reposition/Replant.
- Suture gingival lacerations if present.
- Verify normal position.
- **Flexible splinting for 4 wks.**
- Administer systemic antibiotics.
- Tetanus booster

-> Open apex: Tooth replanted prior to the patients arrival at the dental office or clinic

-> Open apex: Extra-oral dry time less than 60 min

- Leave the tooth in place.
- ▶ Suture gingival laceration if present.
- Clean the area.
- Verify normal position.

▶ **Flexible splint for up to 1-2 wks.**

Administer systemic antibiotics. Tetanus
booster

-
- ▶ The goal for immature teeth in children is to allow for possible revascularization of the tooth pulp. If that does not occur, RCT is recommended.
-

-> Open apex: Extra-oral dry time exceeding 60 min or longer storage in non-physiologic media

- Remove attached necrotic soft tissue with gauze.
- RCT prior to replantation through the open apex.
- Immerse the tooth in a **2% NaOCl solution for 20 min.**
- Irrigate the socket with saline.
- Reposition/Replant the tooth.
- Suture gingival lacerations if present.
- Verify normal position.
- **Flexible splinting for 4 wks.**
- Administer systemic antibiotics.
- Tetanus booster

-> Open apex: Extra-oral dry time exceeding 60 min or longer storage in non-physiologic media

- **F/U**

- If RCT was not performed at the initial treatment session then RCT should be performed 7-10 days after replantation.
- Radiographic control after **2 weeks**.
- Splint removal and radiographic control after 4 weeks.
- **3 ms, 6 ms, 1 yr and then yearly thereafter.**



Thank you
for your attention!