Disclaimer

This movie is an educational resource only and should not be used to manage your health. All decisions about the management of Dental Trauma in Deciduous Teeth must be made in conjunction with your Dental Surgeon or a licensed healthcare provider.
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INTRODUCTION

The teeth are the hardest parts of our body. They are essential for chewing food and they also play an important role in correct pronunciation of words. Deciduous teeth are the first teeth that appear in a child’s mouth and are commonly referred to as “baby teeth” or “milk teeth”.

A child is in a dynamic state of growth and is always curious to explore his surroundings. As a result, children are more susceptible to falls and injury due to their curiosity and lack of motor coordination. Falls and injury can lead to dental trauma to the baby teeth.

Dental trauma refers to an injury to the teeth and its supporting structures as a result of a fall, automobile accident or any other blow to the face. In order to learn more about dental trauma, it is necessary to understand the normal anatomy of the teeth.
Normal Tooth Anatomy

The teeth consist of two main parts, the crown and the root.

Crown: The visible part of the tooth projecting above the gums is the crown.

The crown has three layers:

(Refer fig. 1 to 3)
- Enamel
- Dentin
- Pulp

Enamel

It is the hardest outermost part of teeth. It is white in color and is made of calcium hydroxyapatite. The enamel layer is thinner in deciduous teeth, about 1mm.

(Refer fig. 4)
**Dentin**

It lies below both the enamel and cementum layer of tooth and is softer than enamel which makes it more susceptible to decay. It is yellowish in color.

*(Refer fig. 5)*

**Pulp**

It is present at the center of the tooth and is commonly referred to as the ‘nerve’ of the tooth. It is the softer, living inner structure of teeth and is made up of blood vessels and nerves. The pulp chamber is larger in deciduous teeth (baby teeth).

*(Refer fig. 6)*

**Root:** The deciduous teeth have longer and more flared roots. It is that part of the tooth that is embedded inside the jawbone. This portion is made up of dentin overlying which a mineralized layer is called cementum.

Cementum contains very small fibers called periodontal ligament fibers which help in anchoring the teeth to the bone. Inside the roots there are small canals through which the main blood vessels and nerves pass to the pulp chamber. These are referred to as root canals.

*(Refer fig. 7)*
What is Dental trauma in Deciduous Teeth?

Dental trauma in deciduous teeth is an injury to the mouth and baby teeth including other oral structures such as lips, tongue and cheeks. The primary tooth may be broken, displaced or even knocked out from the socket. Tooth injury may lead to pulp necrosis and is very painful in most cases.

Types of Dental trauma in Deciduous Teeth

- **Enamel Fracture**: a simple fracture of the crown involving little or no dentin
- **Enamel and Dentin Fracture**: an extensive fracture of the crown involving dentin but not the pulp
- **Fracture involving the pulp**: an extensive fracture of the crown involving dentin and exposing the pulp
- **Root fracture**: a fracture involving cementum, dentin and pulp
- **Concussion**: the supporting structures of the tooth are injured but the tooth is not loosened or displaced from its socket
- **Mobility**: loosening of the tooth in its socket

(Continued in next page)
DENTAL TRAUMA IN DECIDUOUS TEETH
Multimedia Health Education
Unit 2: Overview of Dental Trauma

Intrusion: the tooth is pushed into the bone
Extrusion and Lateral luxation injuries: the tooth is slightly displaced out of its socket or in a different direction.
Avulsion: The tooth is completely knocked out of its socket.

Causes of Dental Trauma
Dental trauma to deciduous teeth can be intentional, such as in domestic violence cases, or unintentional, such as with sporting injuries.

- Domestic violence: child abuse and neglect
- Sports activities: contact sports, bicycle or horse riding
- Other causes: road traffic accidents, falls and collisions

Symptoms
Symptoms of dental trauma in deciduous teeth can include the following:

- Discoloration of the tooth injured
- Pain, redness and swelling in the area of injury
- If a tooth is broken, the socket appears bloody and swollen
- If the jawbone is broken, there may be malocclusion where the upper and lower teeth do not fit together properly.
Risk Factors

You may be more prone to suffer dental trauma if you have:

- **Accident-prone profile**: protruding upper front teeth
- **Inadequate lip coverage**: due to short upper lip and mouth breathing habit
- **Disabled children**: Children with cerebral palsy, epilepsy, and intellectual challenges are prone to injuries due to their abnormal muscle tone and poor coordination.
- **Dental anomalies**: such as dental hypoplasia (white spots) that can weaken tooth structure.
- **Dental caries**: cavities result in weakening of teeth.
Diagnosis

- **Medical and dental history:**
  Information about patient’s general health condition is collected.

- **History of the dental injury:**
  The dentist will ask about the time lapsed after the injury, the cause and where the injury took place.

- **Clinical examination of the head and neck:**
  Your dentist will examine for any extra-oral wounds. The jaw movements are also checked for any deviation.

- **Oral examination of soft and hard tissues:**
  Your dentist will check for fractured, displaced and avulsed teeth.

- **Radiographic examination:**
  Your dentist will obtain X-rays to check for the extent of damage to broken teeth.

Treatment

Treatment will depend on the type of trauma sustained. Following is a list of trauma types and the associated treatments.

Enamel fracture
With small enamel fractures the rough edges are smoothed.

(Refer fig. 9 to 32)

(Continued in next page)
With large enamel fractures the tooth is restored using acid-etch composite resin.

Enamel and dentin fracture
The exposed dentin is protected with a layer of calcium hydroxide to prevent pulpal irritation.

The tooth is then restored with composite resin or by preformed polycarbonate crown.

(Refer fig. 9 to 32)
Fracture involving the pulp  
The treatment depends on the vitality or health of the tooth:

If the tooth is vital: Formocresol Pulpotomy is done in which the coronal portion of the pulp is removed with a round bur and a cotton pellet moistened with formocresol is placed over it.

(Refer fig. 9 to 32)

(Continued in next page)
If the tooth is non-vital: root canal treatment is done and restored with a crown.

Root Fracture

In primary teeth with root fracture without mobility, normal shedding (tooth loss) may be expected.

Extraction is done if the fracture is in the middle 1/3 and coronal 1/3 of the root.

(Refer fig. 9 to 32)
Concussion
The tooth is freed from occlusion to ensure a proper bite.

The tooth is kept under observation for any future problems.

Mobility

Avoid eating with the involved loose teeth
Follow-up examination is necessary for monitoring
No splint is required

(Refer fig. 9 to 32)
Intrusion
If the intruded deciduous tooth is in contact with the permanent tooth bud, the deciduous tooth must be extracted.

If it is not in contact, the intruded tooth is allowed to re-erupt.

Extrusion and lateral luxation
In this type of trauma, extraction is preferred because of the possibility of aspiration of the mobile teeth or subsequent damage to the developing permanent tooth bud.

(Refer fig. 9 to 32)

(Continued in next page)
Avulsion
Primary teeth that have avulsed are not re-implanted.
Instead the tooth is replaced by an artificial substitute.

(Refer fig. 9 to 32)

Prevention
Preventing dental trauma to deciduous teeth can involve the following:
DENTAL TRAUMA IN DECIDUOUS TEETH
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Unit 3: Treatment Options

Educate children on the use of mouth guards when playing sports.

Make sure your children wear bicycle helmets when riding bikes.

Teach children to always wear seat belts when in the car.

Safety proof your home for small children.
Disclaimer

Although every effort is made to educate you on Dental Trauma in Deciduous Teeth and take control, there will be specific information that will not be discussed. Talk to your dentist or pedodontist about any concerns you have about Dental Trauma in Deciduous Teeth.