

International **A**ssociation of **D**ental **T**raumatology guidelines for the management of traumatic dental injuries

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International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 1. Fractures and luxations

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International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 2. Avulsion of permanent teeth

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ENDORSEMENTS: INJURIES IN PRIMARY DENTITION

International Association of Dental Traumatology Guidelines for the Management of Traumatic Dental Injuries: 3. Injuries in the Primary Dentition

Endorsed by the American Academy
of Pediatric Dentistry

2020

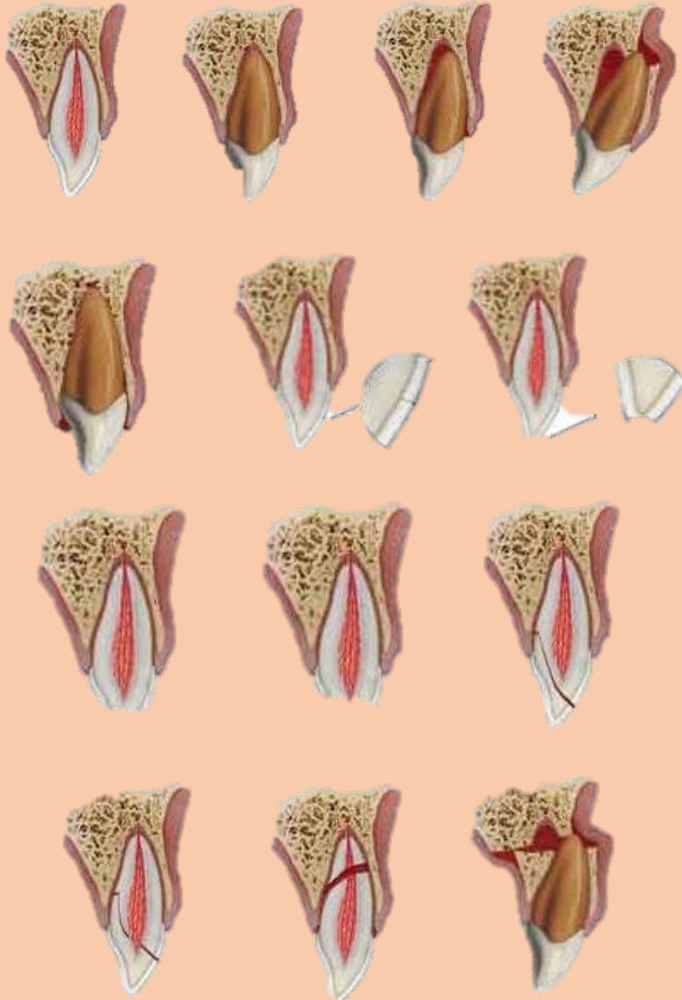
Authors

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Fractures and Luxations



Avulsion of permanent teeth



Injuries in the Primary Dentition

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COMPREHENSIVE REVIEW

Dental Traumatology WILEY

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COMPREHENSIVE REVIEW

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Fractures and Luxations

Avulsion of permanent teeth

Injuries in the Primary Dentition

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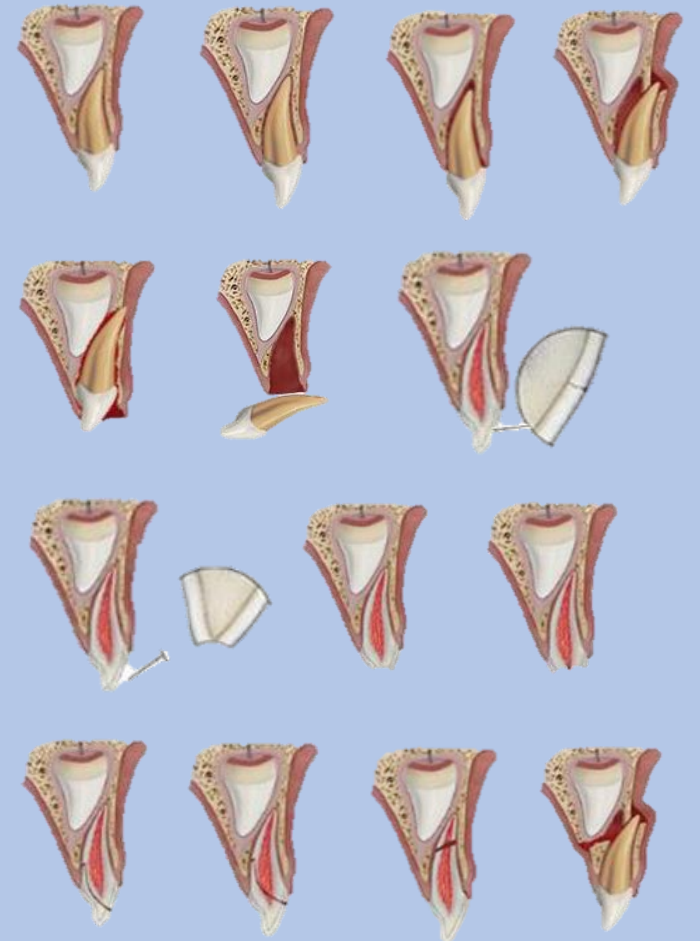
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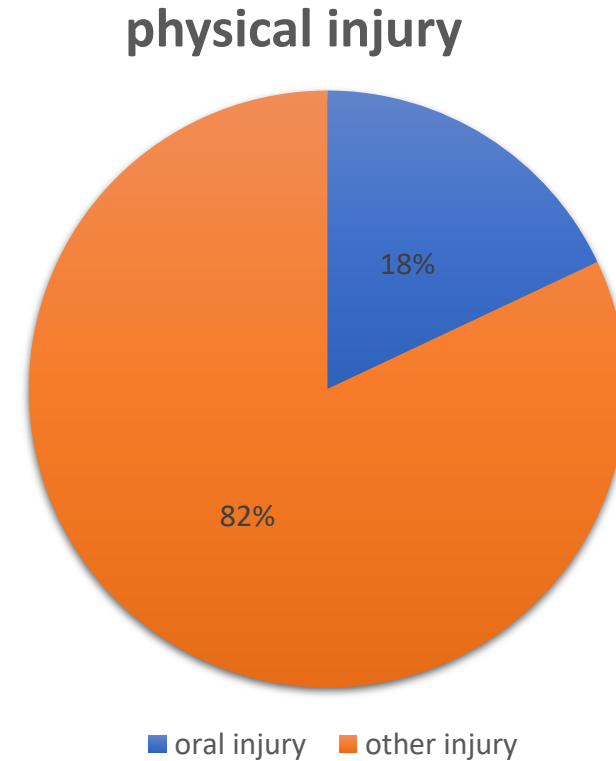


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Injuries in the Primary Dentition

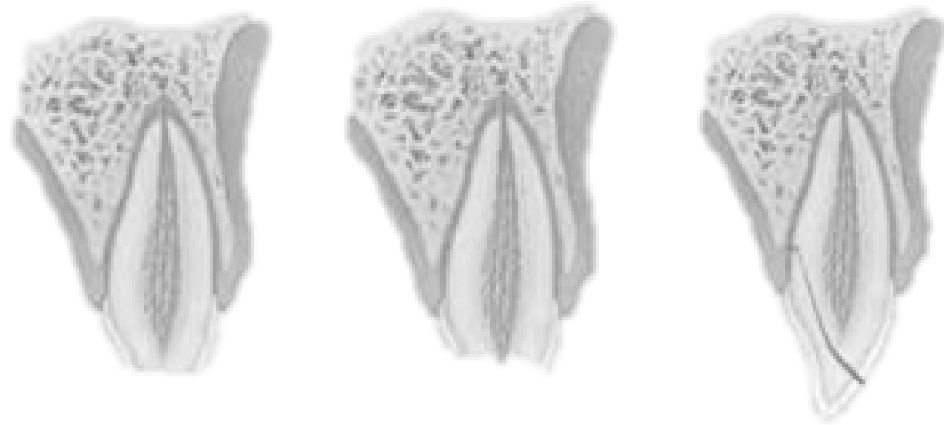
- 0-6 year
 - Oral injury : 18% all physical injury
 - TDIs: 22.7% affecting primary teeth



Injuries in the Primary Dentition

Most common

Permanent teeth



Crown fracture

Primary teeth



Avulsion

Intrusion

Injuries in the Primary Dentition

History taking and Examination

- Patient's history
- Medical history
- Dental history
- History of injuries

Injuries in the Primary Dentition

Patient's history

- General information: Name, Age, Birth date,... etc
- Sign of head injury
 - Amnesia
 - Nausea/vomiting
 - Headache
 - Lethargy/irritability/confusion
 - Loss of consciousness

**Refer to
physician**

Injuries in the Primary Dentition

Medical history

- Current health conditions and medication taken
- Systemic disease
- Allergies: drugs, food
- Status of tetanus immunization: (child at the 2,4,6 months then 15-18 months and 4-6 years and boost every 10 year) **if doubt, refer to a medical practitioner within 48 hours**

Injuries in the Primary Dentition

Medical history

- Antibiotics
 - No evidence recommending the use of ABOs in the management of luxation in the primary dentition
 - Only when TDIs are **accompanied by soft tissue** and other **associated injuries** or significant **surgical intervention** is require

Injuries in the Primary Dentition

Dental history

- Previous dental history
- History of trauma
 - Who come with the patient? (Mom/Dad/Witness)
 - What type of accident? When? Where?
 - How did it occur?
- History of dental treatment

Injuries in the Primary Dentition

Dental history

- Extra-oral examination
 - Wound contamination -> clean
 - Facial swelling?
 - Limitation of mandibular movement or mandibular deviation -> jaw fracture/dislocation
 - Face, Lip, chin: foreign body?

Injuries in the Primary Dentition

Dental history

- Radiographic examination
 - ALARA
 - Periapical film (size 0)
 - Occlusal film (size 2)



- Radiograph of soft tissue if the fractured fragment is suspected to be embedded: decrease exposure time

Injuries in the Primary Dentition

Dental history

- Photographic record
 - Intra-extra oral photographs are **strongly recommended**
 - Patient consent is required



Injuries in the Primary Dentition

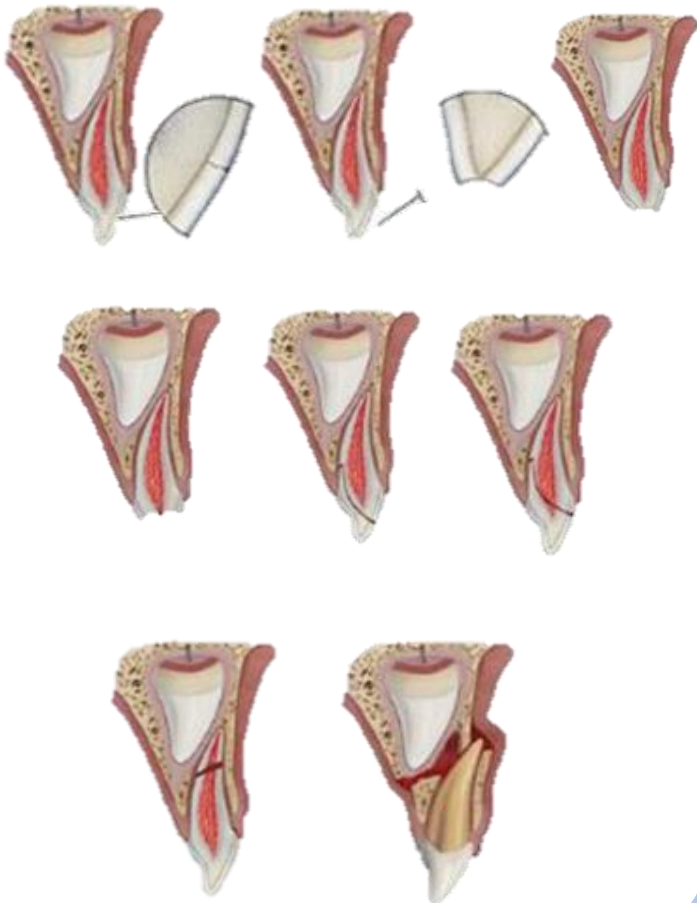
Dental history

- Diagnosis
 - Pulp sensibility tests are **unreliable** in primary teeth and are therefore not recommended
 - Tooth mobility, color, tenderness to manual pressure, and the position or displacement should be record

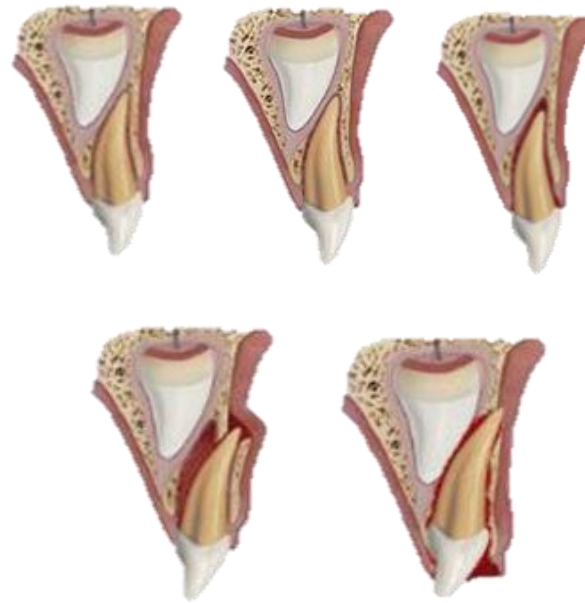
Injuries in the Primary Dentition

Diagnosis and management

Fracture



Luxation



Avulsion

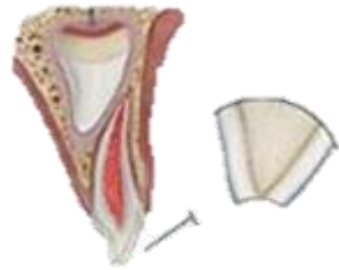


Injuries in the Primary Dentition

Fracture



Infraction



Enamel fracture



Enamel-dentin fracture



Enamel-dentin fracture exposed pulp/
Complicated crown fracture



Crown-root fracture



Root fracture



Alveolar fracture

Fracture



<https://pocketdentistry.com/18-traumatic-dental-injuries/>



<https://www.semanticscholar.org/paper/Sublingual-Hematoma-Kudek-Knox/64fdd56566a381f0936bd17853656b69d53c59d3/figure/1>

Management

- Soft tissue injury
 - Laceration and hematoma
 - Lip, oral mucosa, attached & free gingiva
 - Examined for possible tooth fragments
- X-ray
 - Intra-oral: minimize exposure time 25%
 - Extra-oral: minimize exposure time 50%

Fracture

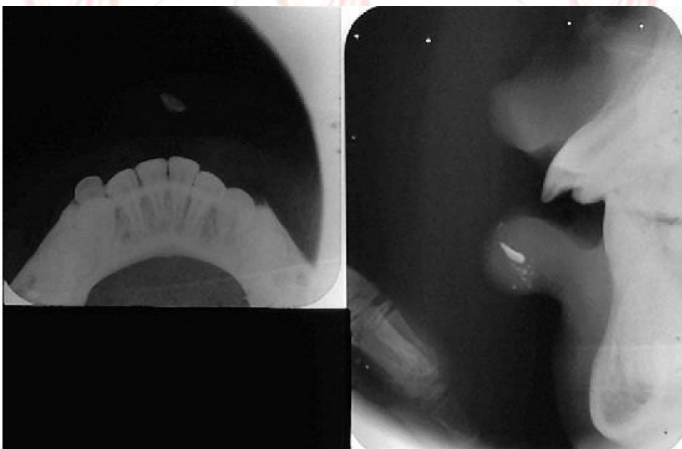


Figure 19 from Dental and Orofacial Injuries. |
[Semantic Scholar](#)

Management

- Soft tissue injury
 - Laceration and hematoma
 - Lip, oral mucosa, attached & free gingiva
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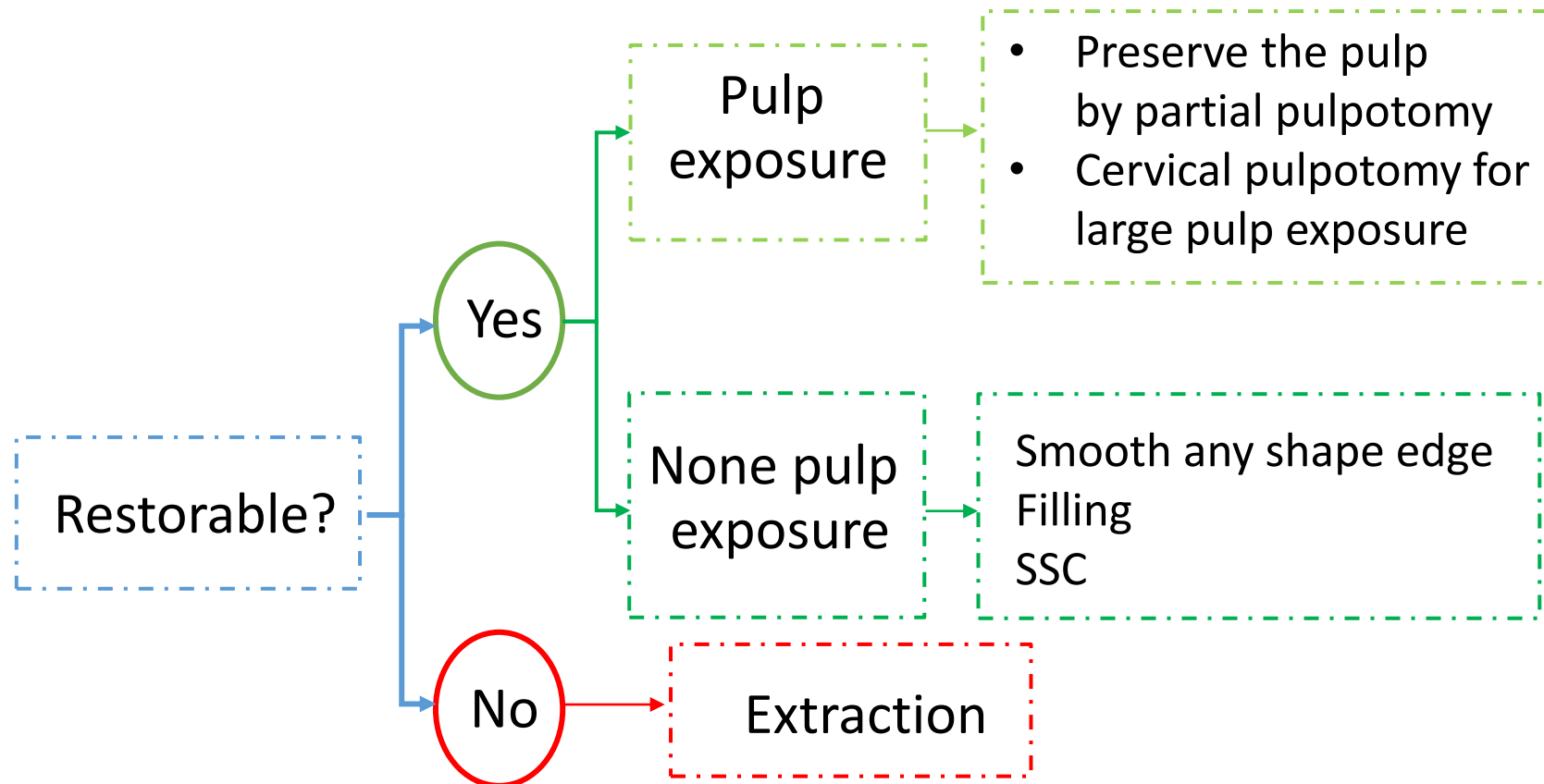
Injuries in the Primary Dentition

Crown/Crown-root Fracture

Fracture



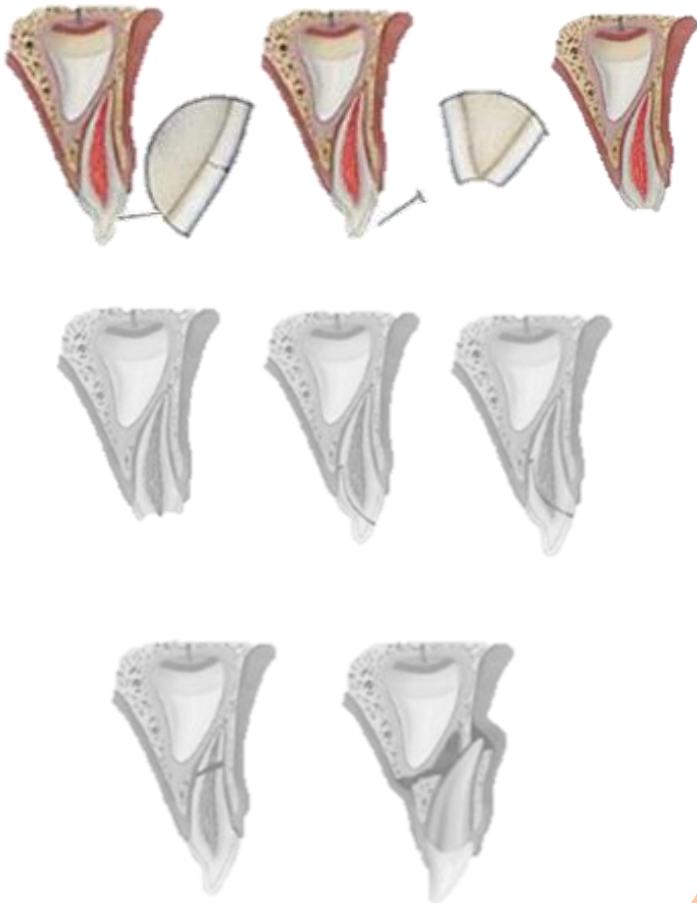
Management



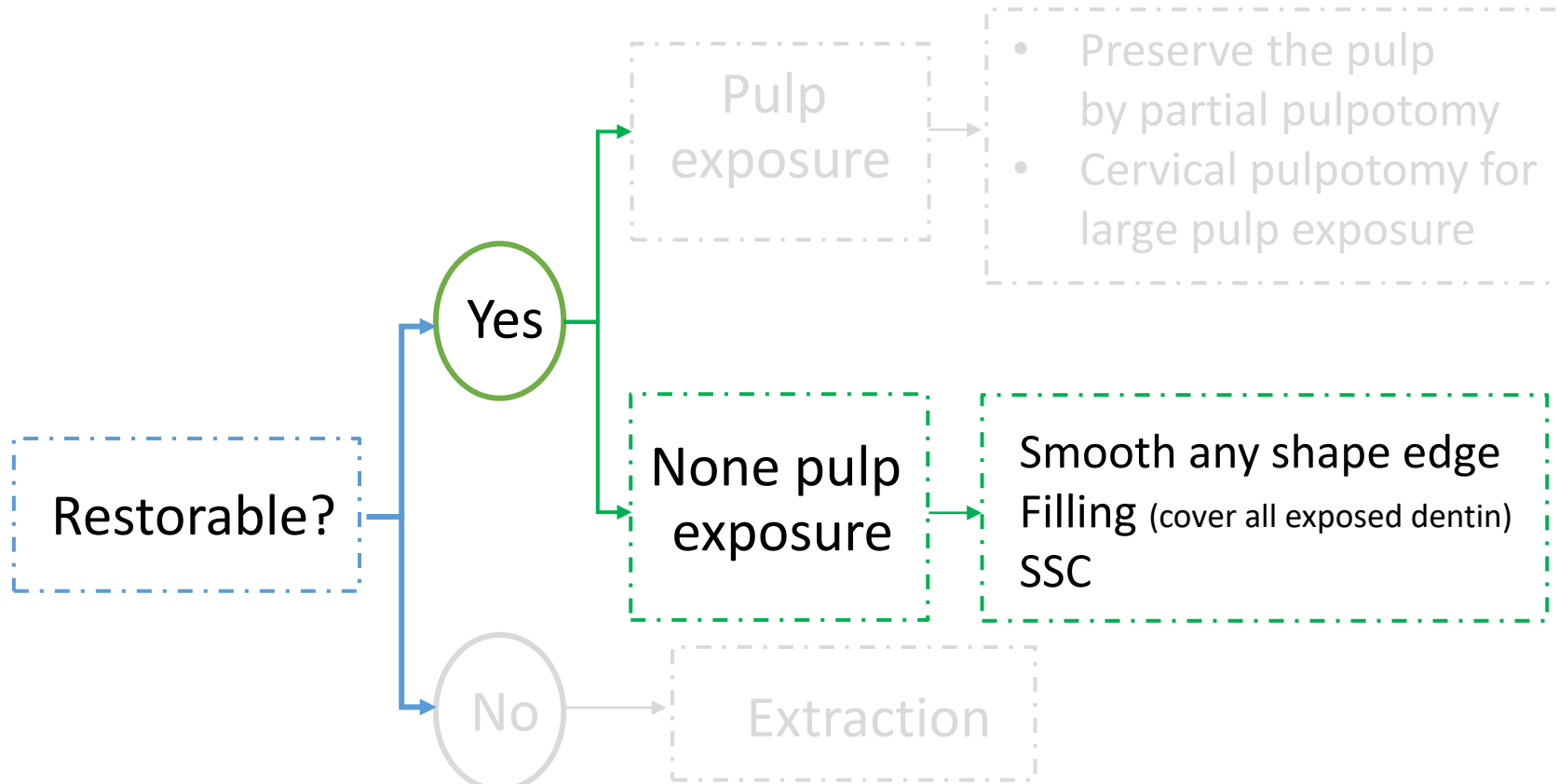
Injuries in the Primary Dentition

Crown/Crown-root Fracture

Fracture



Management



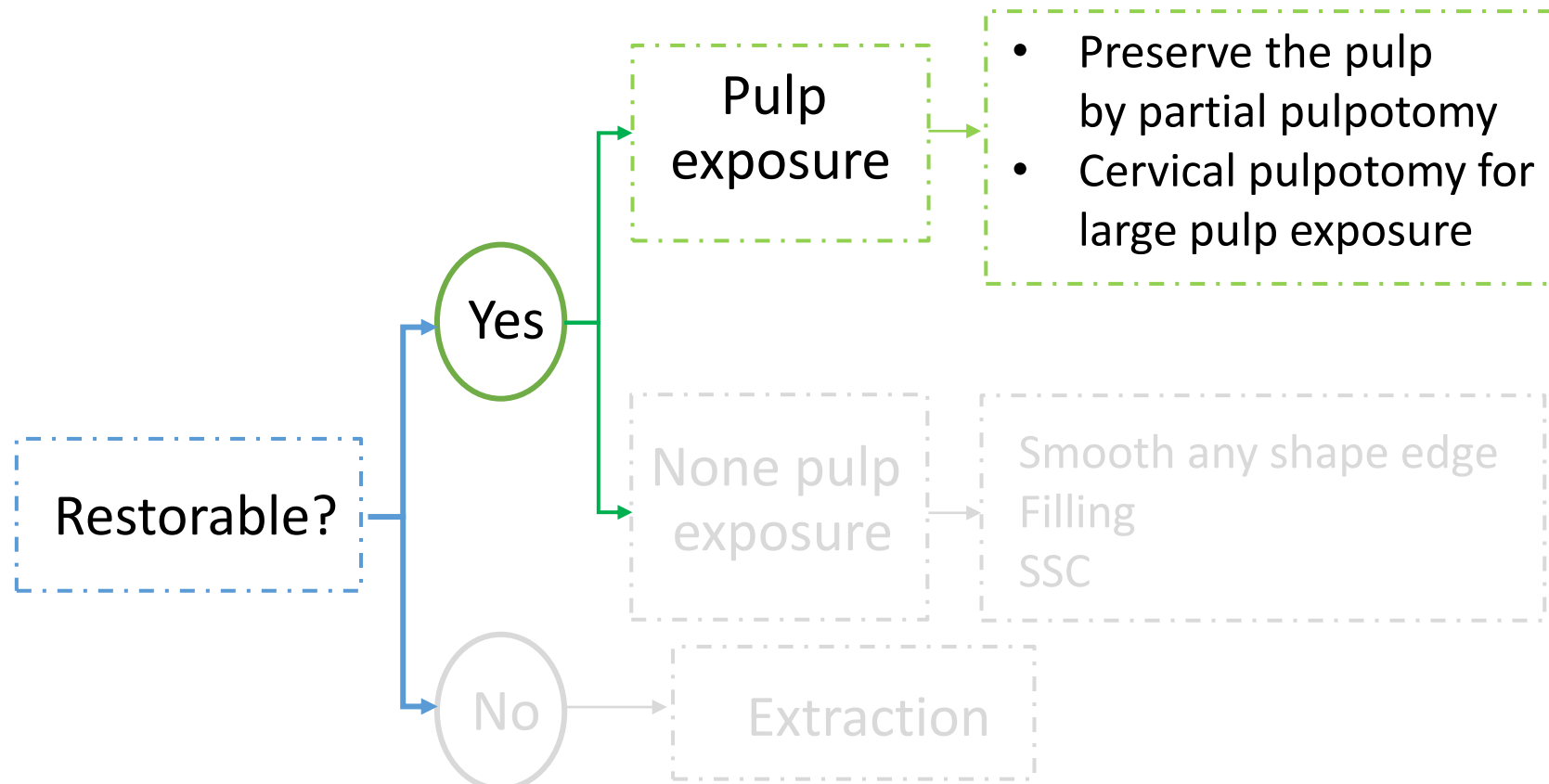
Injuries in the Primary Dentition

Crown/Crown-root Fracture

Fracture



Management

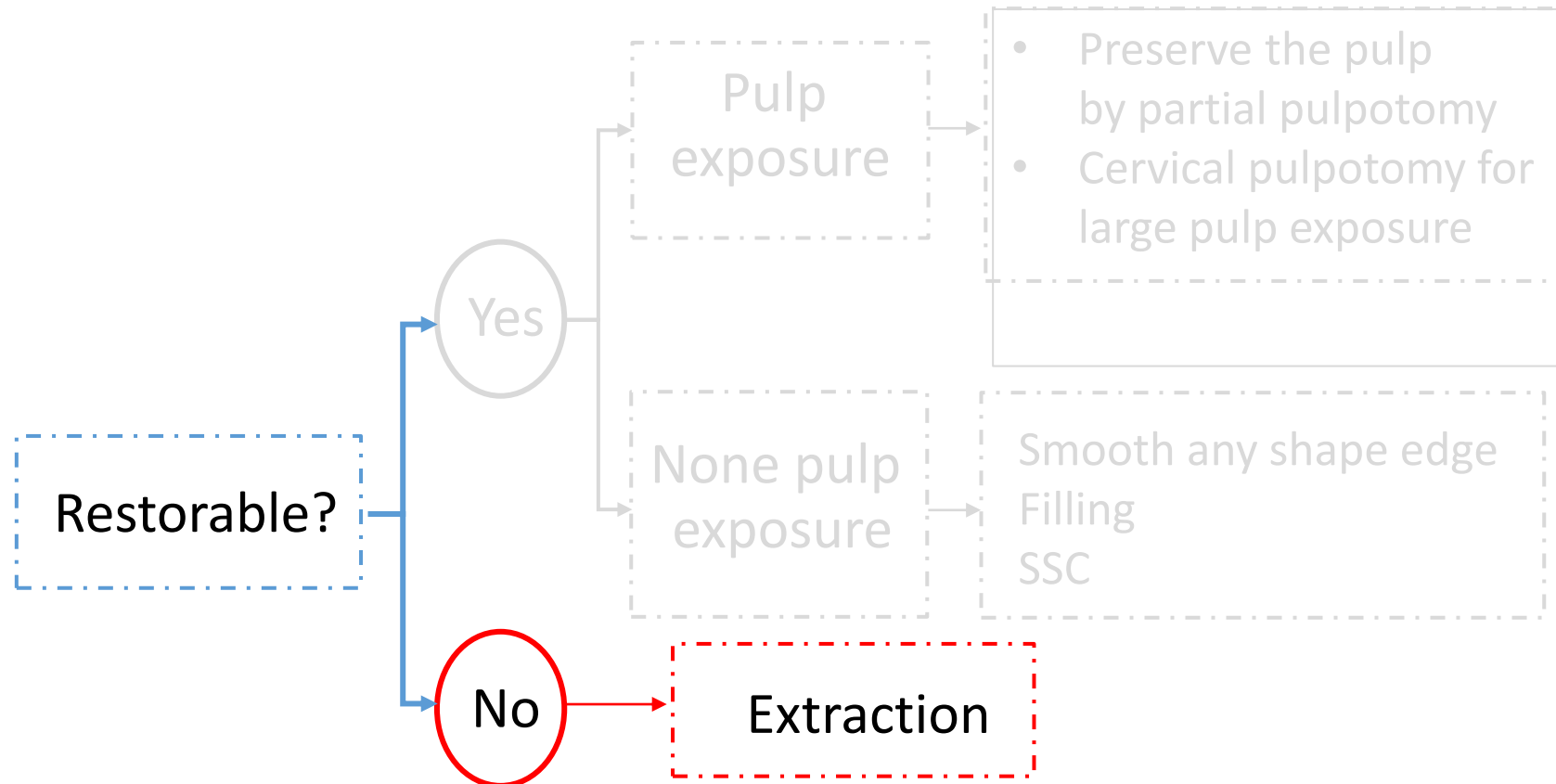


Injuries in the Primary Dentition

Crown/Crown-root Fracture



Management



Fracture



Management

- Level of movement of coronal segment
- Occlusal interference
 - No: F/U
 - Mild: LA, Reposition & flexible splint for 4 weeks
 - severe displacement: Extraction of coronal and leave apical segment

Fracture



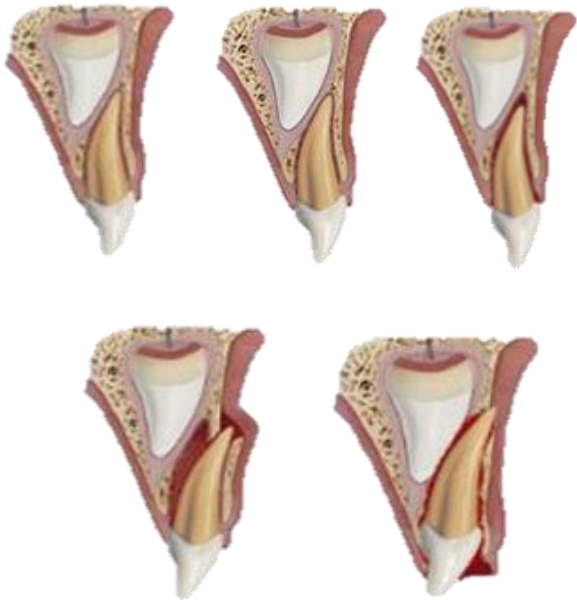
Common finding

- Mobility and dislocation of the segment
- Several teeth moving together
- Occlusal interference

Management

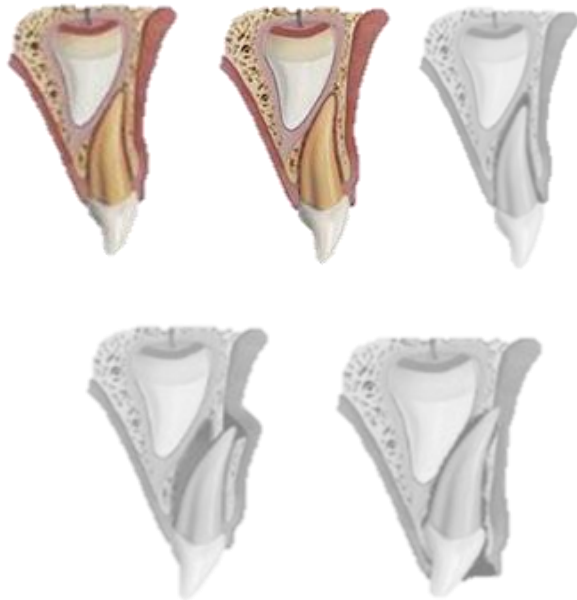
- LA
- Reposition & apply flexible splint for 4 weeks

Luxation



- Injury of tooth and periodontal tissue
- Mobility
- Displacement of tooth

Luxation



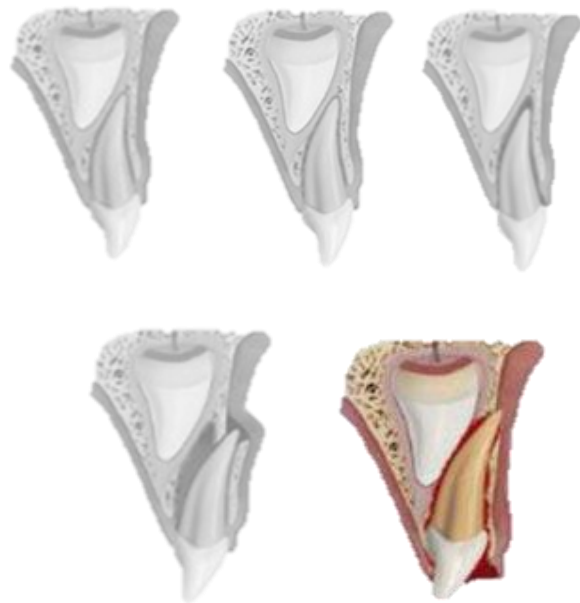
Common finding

- Concussion: normal mobility, no bleeding
- Subluxation
 - increase mobility/ tender to touch
 - Sulcular bleeding

Management

- Baseline radiograph
- Observation
- F/U 1 wk , 6-8 wks

Luxation



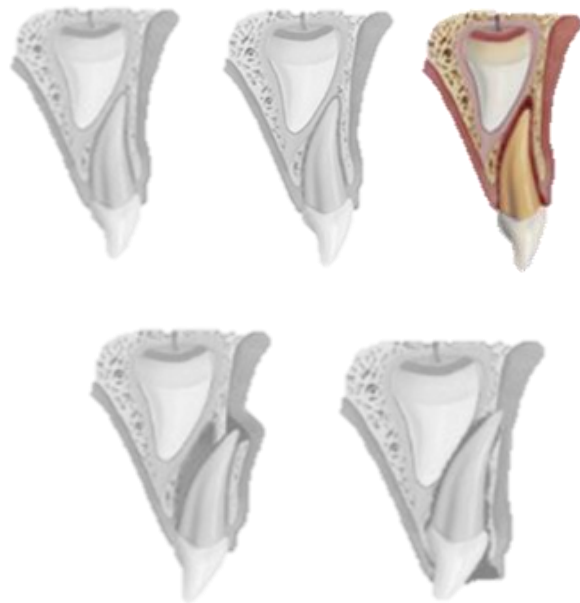
Common finding

- tooth has almost or completely disappeared into the socket

Management

- **Extraction** is not recommended
- Baseline radiograph
- F/U: spontaneous re-eruption 6-12 mo
 - 1 wk, 6-8 wks, 6 mo, 12 mo
- Unfavorable outcome: ankylosis

Luxation



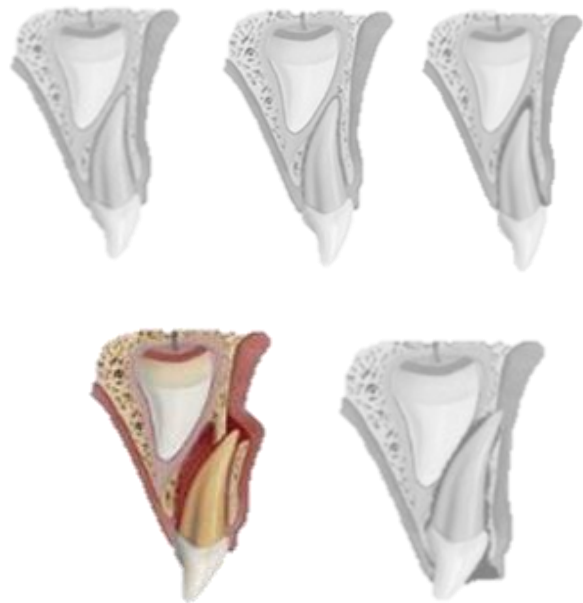
Common finding

- Partial displacement of the tooth out of its socket

Management

- Treatment base on displacement, mobility, occlusal interference
 - Displace > 3 mm: Extraction
 - Displace < 3 mm + none interference: spontaneous reposition
- Baseline radiograph

Luxation



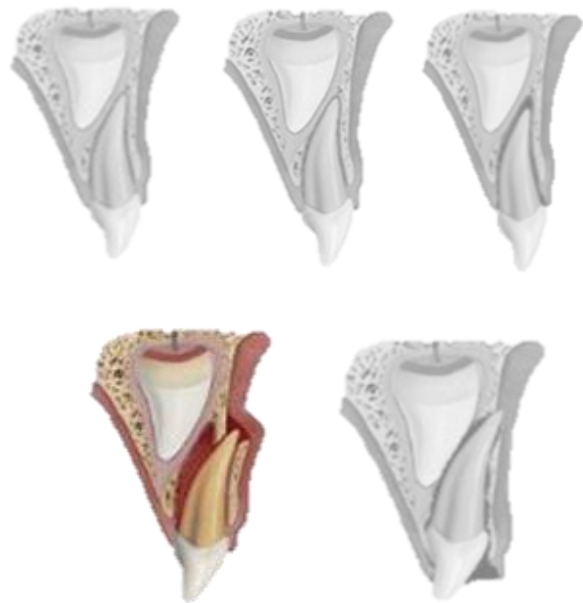
Common finding

- Tooth displacement
 - Palatal/lingual direction
 - Labial direction
- Tooth immobile
- Occlusal interference

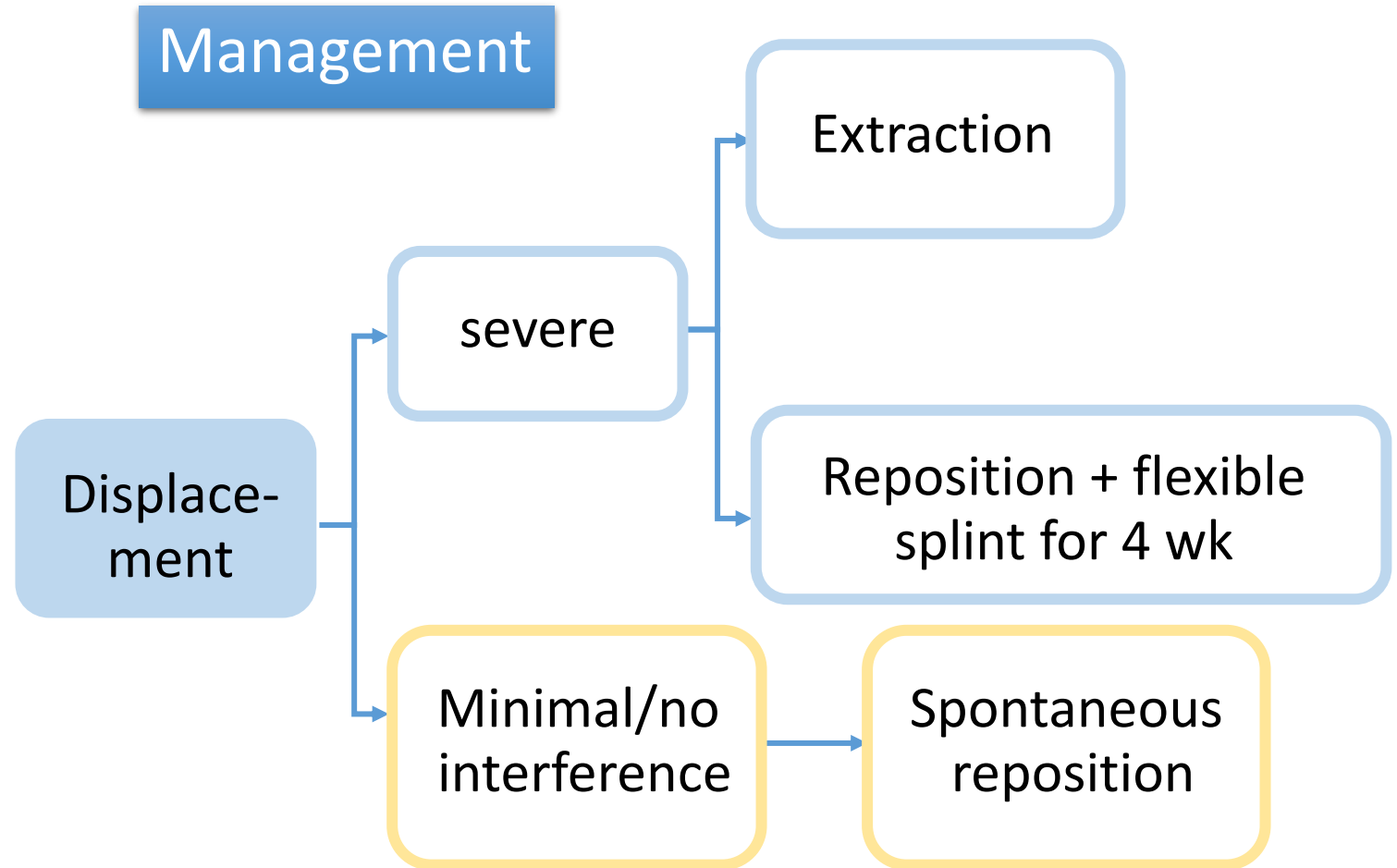
Injuries in the Primary Dentition

Lateral Luxation

Luxation



Management



Avulsion



Common finding

- Tooth is completely out of socket

Management

- **Location of the missing tooth**
 - Accident site
 - Embedded soft tissue
 - Not found: refer for medical evaluation eg. Chest x-ray
- **Replantation** is not recommended

Injuries in the Primary Dentition

Parental instruction for home care

- Clean the affected area with soft brush/cotton swab + alcohol-free chlorhexidine gluconate 0.12% mouth rinse for 1 week
- Advise about possible complications
- Any sign of infection if present, they should take the child to the dentist



Injuries in the Primary Dentition

Follow up

Diagnosis	1 wk	4 wk	6-8 wk	6 mo	1 y	Further F/U
Enamel fracture						
Enamel-dentin fracture (not exposed)			C			
Enamel-dentin fracture (exposed)	C		C		C+R (pulpotomy)	
Crown-root fracture	C		C		C+R (pulpotomy)	
Root fracture	C	C (splint removal)	C		C	
Alveolar fracture	C	C (splint removal)+R	C		C+R	

C: clinical examination
R: radiographic examination

Injuries in the Primary Dentition

Follow up

Diagnosis	1 wk	4 wk	6-8 wk	6 mo	1 y	Further F/U
Concussion	C		C			
Subluxation	C		C			
Extrusive luxation	C		C		C	
Lateral luxation	C	C (splint removal)	C	C	C	
Intrusive luxation	C		C	C	C	6 y of age (monitor eruption)
Avulsion			C			6 y of age (monitor eruption)

C: clinical examination
R: radiographic examination



Thank You

Injuries in the Primary Dentition

Favorable outcome

- Asymptomatic
- Pulp healing with
 - Normal color of the remaining crown
 - No sign of pulp necrosis and infection
 - Continued root development in immature teeth
- Periodontal healing
- Realignment of the alveolar segment with the original occlusal restored
- No disturbance to the development and/or eruption of the permanent successor

Injuries in the Primary Dentition

Unfavorable outcome

- Symptomatic
- Sign of pulp necrosis and infection such as
 - Sinus tract, gingival swelling, abscess, or increased mobility
 - Persistent dark grey discoloration plus one or more sign of root canal infection
- Radiographic sign of pulp necrosis and infection
- No further root development of immature teeth
- Negative impact on the development and/or eruption of the permanent successor