Acute management of dental trauma for the Child Patient

KAREN HOWARD BDS, FDS, MPAEDDENT, FDS (PAEDDENT), PGCCE, PHD

CONSULTANT IN PAEDIATRIC DENTISTRY

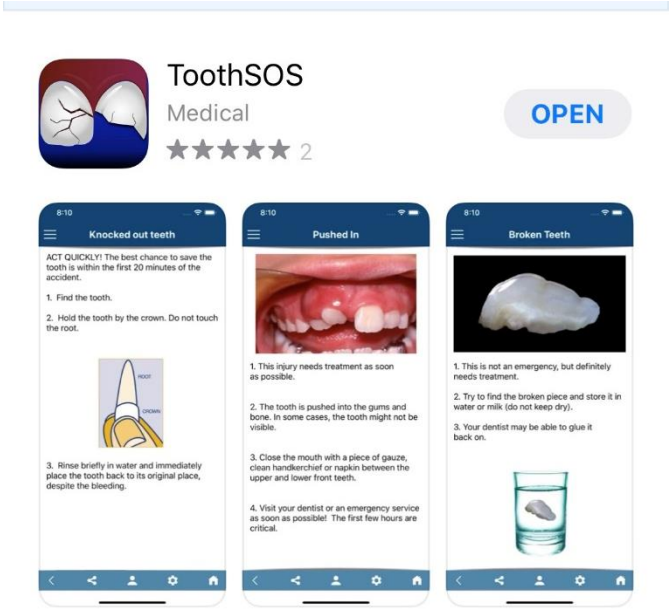
RBHSC

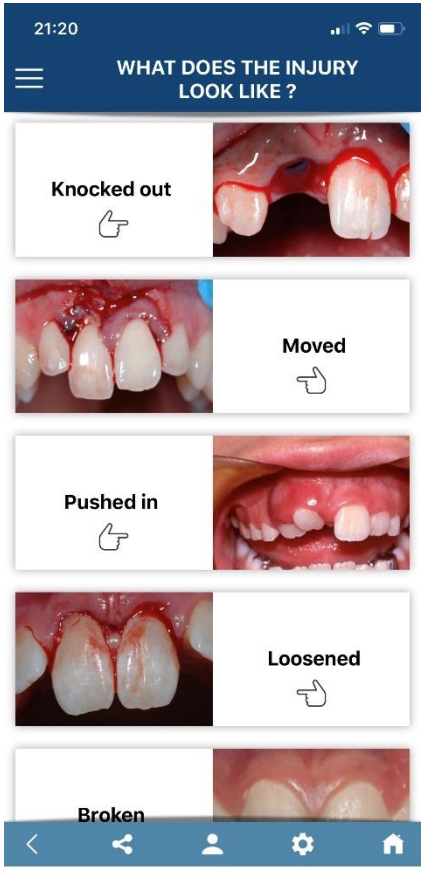
At the end of this session delegates should be able to:

- Describe the **acute management** of traumatic dental injuries in children
- Consider appropriate **splint strategies** for traumatized teeth in the child patient
- Plan for appropriate **follow up** in dental trauma patients.

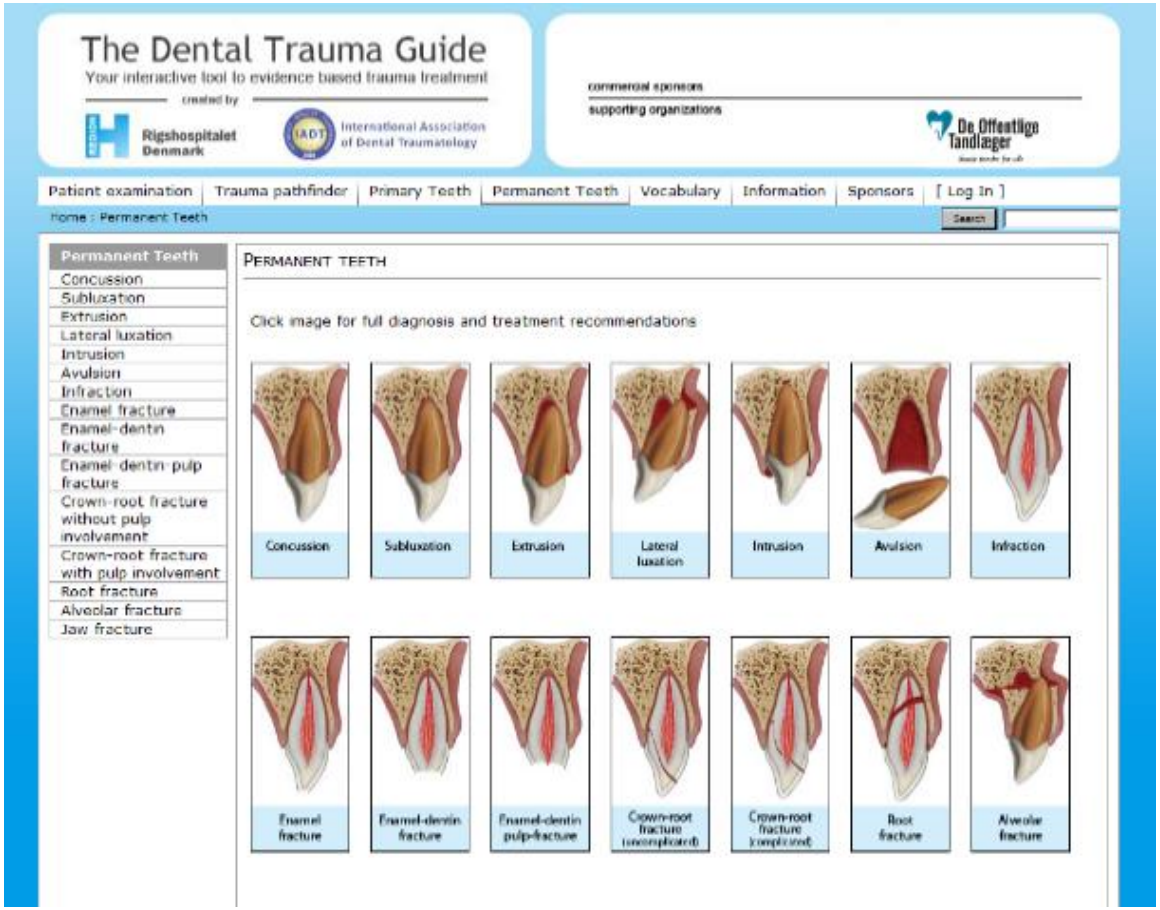
- Acute Management
- Splint strategies
- Follow-up

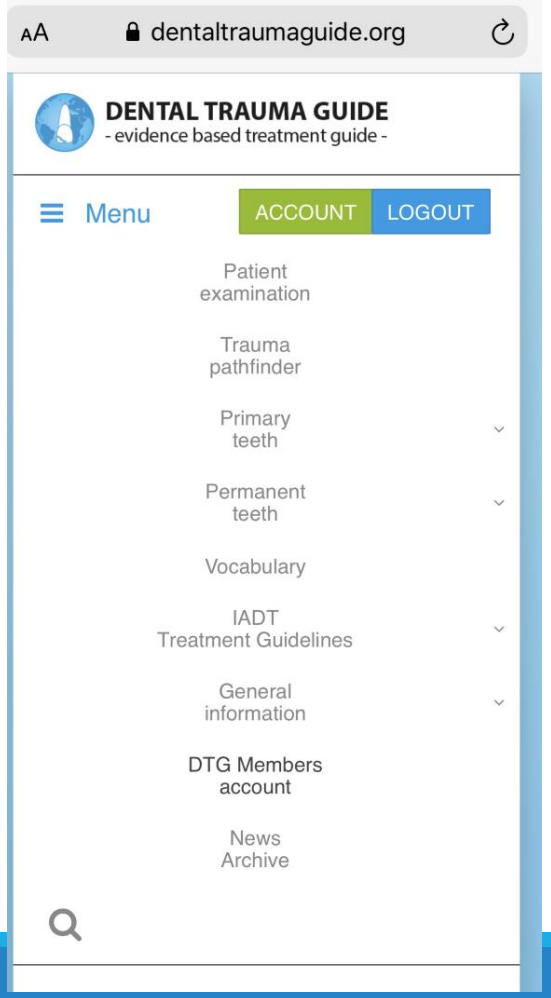
Trauma App – Tooth SoS





Trauma guide





Emergency cover

On call availability

Immediate advice by telephone

- Urgency of treatment is critical in many injuries
- Time of accident usually out of working hours

Respond to

- Trauma
- Acute infections
- Bleeding

Acute Management

History of the accident

- When, Where, How, Witnessed

Teeth/ fragments accounted for?

- Abdomen / Chest X-Ray / storage medium

Other injuries

- Loss of consciousness / Head injury / Medical Assessment indicated?
  - ** Triage system

Consider Priority of injuries

Accompanying person - Consent

- **Be aware of NAI (cc GMP)**

Acute Management

Medical History

- Including tetanus vaccination status
- Fasting?- consider maintain / occlusion

Previous Dental History

- Compliance
- State of eruption
- Previous dental trauma

Thorough examination & documentation of injuries, photographs

Radiographs

It has been agreed in the Belfast Health and Social Care Trust that all patients should be examined by a dentist / dentally qualified OMFS surgeon prior to determining if radiographic exposure is required.

The Selection Criteria for Dental Radiography, FGDP (UK), is the accepted guideline to which dentists refer to across all specialties and services.

- Acute Management
- Splint strategies
- Follow-up

Review acute management of

- **Injuries of the soft tissues**
- **Injuries of the primary dentition**
- **Injuries to the permanent dentition**
  - **Dental hard tissues**
  - **Periodontal ligament injuries**

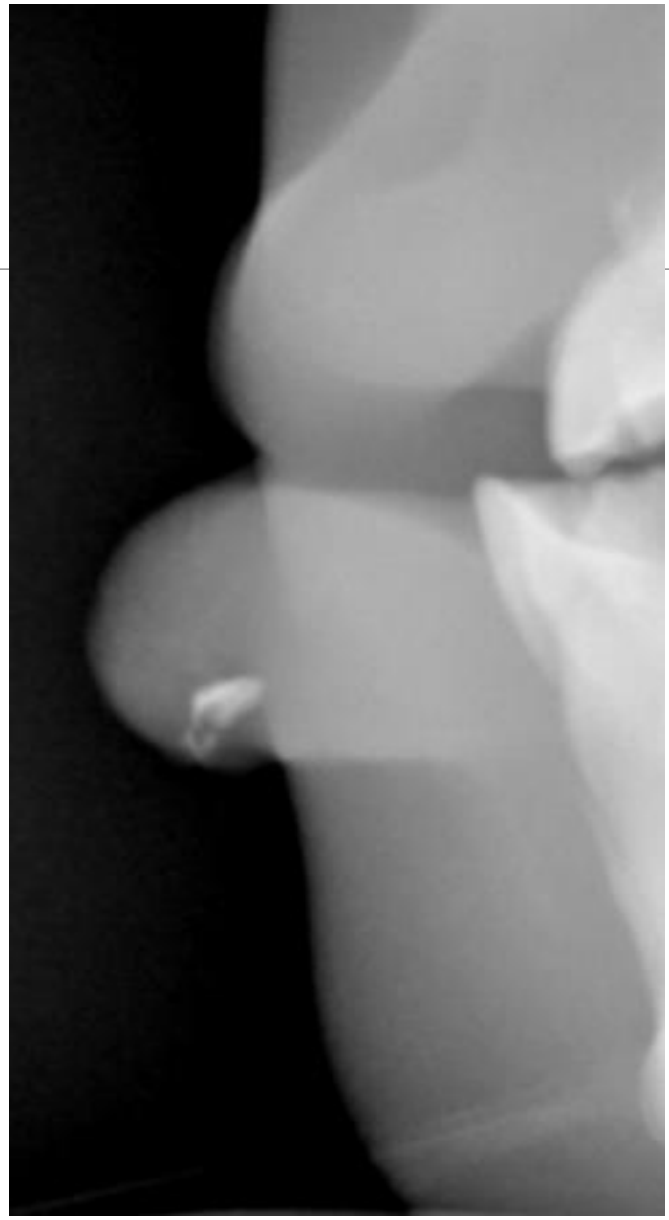
Soft Tissue Injuries

- Apply direct pressure to achieve haemostasis
- Debridement and suture if required
- Tongue-if no haemorrhage consider review after overnight
- Fluids, pain relief, oral hygiene advice (HSMW?/ chlorhexidene)
- Lacerations involving vermillion border – Refer to Plastic Surgery
- Under 5 yrs old- may require GA

Soft tissue lacerations- lips

Check for through & through lacerations
Missing fragments

Missing Fragments



Degloving lacerations

- Degloved gingiva
- Rolled appearance
- Mental vessels

- Acute Management
- Splint strategies
- Follow-up

Review acute management of

- **Injuries of the soft tissues**
- **Injuries of the primary dentition**
- **Injuries to the permanent dentition**
  - **Dental hard tissues**
  - **Periodontal ligament injuries**

Injuries to Primary Teeth

First step - clean it up !- soaked gauze

Injuries to Primary Teeth

Concussion / subluxation

- Monitor

Minor displacement (luxation)

- Monitor
- If occlusal interference grind or reposition with gentle finger pressure*

*Parental consent

- IADT Guidelines advise if unstable then splint for 4 weeks

Intrusion

- Monitor
- Conservative approach*

Injuries to Primary Teeth

Crown Fracture

- Pulp exposure – extraction,
- pulp therapy*

Extrusion>3mm- extraction

Severe displacement / mobility / root surface exposure

- Occlusion disrupted - **extraction/reposition**

*IADT guidelines

Injuries to Primary Teeth

Root Fracture

monitor / reposition if required* (+/- splint)/ extraction

Avulsion

do NOT reimplant primary tooth

*IADTif coronal fragment displaced and not excessively mobile, leave to spontaneously reposition even if occlusal interference.

Home Care

- How to achieve haemostasis
- Soft diet / maintain oral fluids
- Analgesia
- Good OH / CHX- consider age of pt
- Monitor teeth - short and long term sequelae to primary teeth and successors
- Follow up arrangements

- Acute Management
- Splint strategies
- Follow-up

Review acute management of

- **Injuries of the soft tissues**
- **Injuries of the primary dentition**
- **Injuries to the permanent dentition**
  - **Dental hard tissues**
  - **Periodontal ligament injuries**

Enamel dentine fracture

- Attend for treatment ASAP / ideally same day
- Bring broken fragments of teeth (advise re storage)

No exposure

- GIC bandage
- Ca OH + GIC bandage
- Keep fragment hydrated in milk

Enamel / Dentine Fracture pulpal involvement

If blood is seen in the fractured crown

IMMEDIATE dental treatment is required

Complicated Crown Fracture

- **Pulp Cap**
  - **Complete**/incomplete apex
  - Exposure pinpoint
  - < 24hrs after injury

Pulpotomy

- Incomplete / **complete apex**
- Exposure > 1mm diameter
- > 24hrs after injury
- Vital pulp / not infected
- Sooner the better

Aim is to maintain vitality and allow further root growth and development.

Crown-root fracture

Uncomplicated

Rebond fragment- FU

Remove fragment

Cover exposed dentine

FU

Complicated

Management of pulp

Rebond fragment- FU

Remove fragment

Management of pulp

Cover exposed dentine

FU

- Acute Management
- Splint strategies
- Follow-up

Review acute management of

- **Injuries of the soft tissues**
- **Injuries of the primary dentition**
- **Injuries to the permanent dentition**
  - **Dental hard tissues**
  - **Periodontal ligament injuries**

Displacement injuries

- Concussion / Subluxation
- Extrusive or lateral luxation
- Intrusion
- Avulsion
- Root fractures

Aim of treatment

- Reposition teeth ASAP (if possible at the scene)
- Advise attend dentist immediately, splint if necessary

Subluxation (mobile but undisplaced)

Treatment

- Assess mobility and occlusion
- Splint if necessary 2 weeks

Lateral Luxation and Extrusion

Treatment

- Immediate reposition – finger/ forceps
- Review within 48 hours and treat complications
- Lateral- Splint 4 weeks
- Extrusion- Splint 2 weeks
- Splinting times may be longer if breakdown of marginal bone / alveolar socket#

Intrusion

Was it erupted prior to accident?

- Radiograph

Basis of Immediate treatment decision

- Severity of Intrusion
- Degree of Apical closure
- Early Percussion findings

	Incomplete root development	Complete root development
Mild (<3mm)	Monitor	Monitor or orthodontic repositioning after 4 weeks or surgical
Moderate (3-7mm)	Monitor	Surgical (preferred) or orthodontic repositioning
Severe (>7mm)	Monitor	Surgical repositioning

Avulsion

Telephone Advice

- Hold tooth by the crown (not the root)
- If dirty, rinse gently in milk, saline or tap water
- Re-implant the tooth as soon as possible
- Bite gently on handkerchief, to stabilize the tooth

ATTEND DENTIST IMMEDIATELY

IF NOT REIMPLANTED Store in **MILK, SALINE, LABIAL SULCUS**

DTUK/Advice sheet1/2014

DentalTrauma UK
Saving injured teeth

Save a knocked out tooth

In the unfortunate event of a tooth being knocked out of the mouth:

1. Keep calm
2. Find the tooth & **PICK IT** up by the crown
3. Clean the mouth by rinsing with water
4. Mop up any blood with a tissue
5. Hold the tooth by the crown only

If it is visibly dirty get the person to **LICK IT** clean OR pour water over it
DO NOT scrub the tooth

6. Gently **STICK IT** back into position
7. Bite down on a hanky or a tissue

Go to a dentist as an emergency

If you are unable to reposition the tooth
put the tooth in MILK and go to a dentist immediately

** NEVER replant a baby tooth **

www.dentaltrauma.co.uk

Replantation procedure

L.A. may be necessary

Prepare tooth

- Rinse to remove contamination

Prepare socket

- Rinse out old blood clot – do not curette!
- Manipulate bone only if necessary

Insert tooth & functional splint up to 2 weeks

- **Antibiotic**
- ***<12 years Penicillin based AB unless allergic***
- **Review**

When not to re implant

Almost never – balance risk and benefit

Primary tooth

Unrestorable tooth

Other severe injuries

Medical history

- Impaired immune system
- Cardiac – type of defect

Very young child

- Open apices – short root

Root Fractures

- Reposition coronal fragment
- Functional Splint until periodontal injury healed 4 wks
- Up to 4 months for coronal 1/3 of root

Dentoalveolar (Tooth SOS)

- Acute Management
- Splint strategies
- Follow-up

Which type of splint?

Facilities available / site / weekend

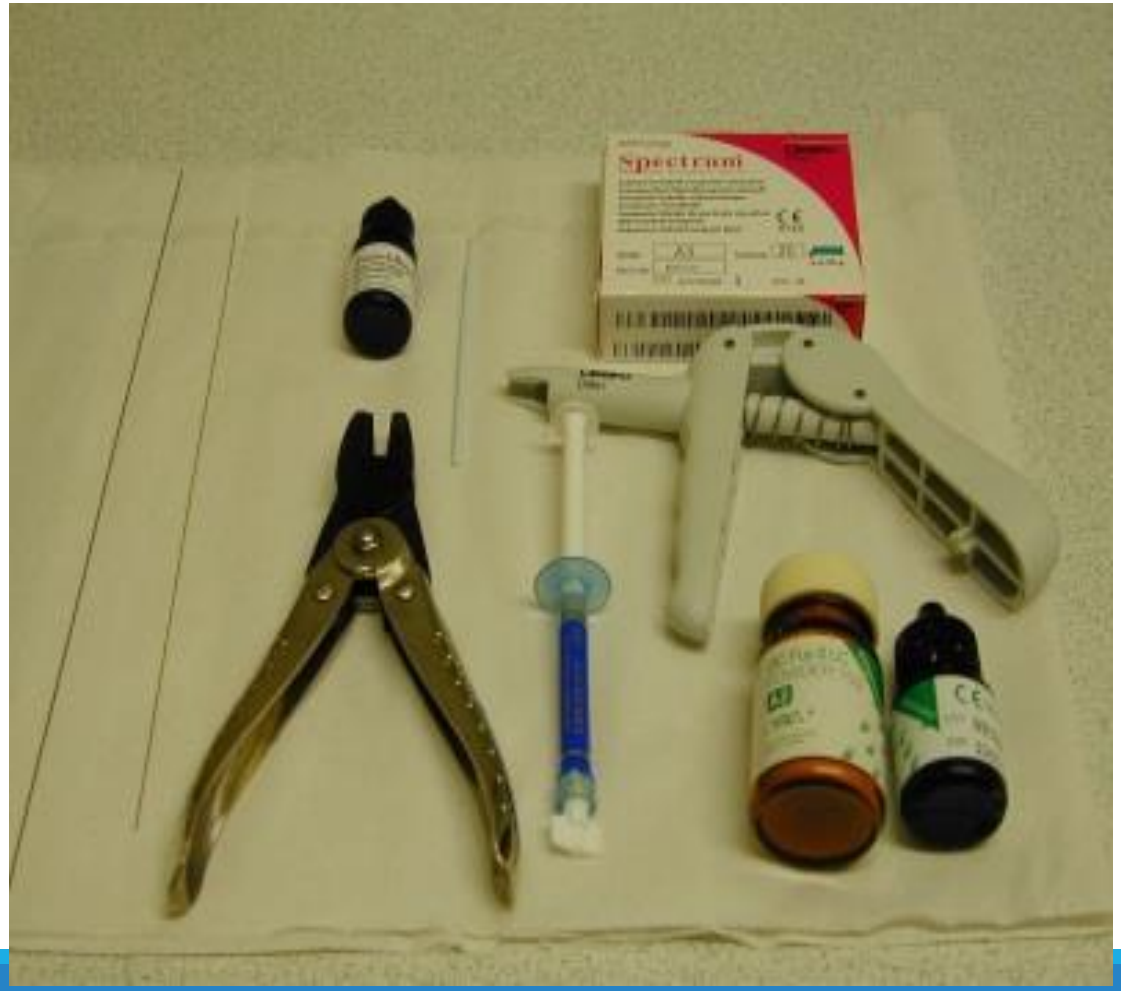
- Emergency - in casualty
- Pressure formed - in lab
- Dental surgery - composite + orthodontic wire/TTS

Presence of other injuries

Teeth present / age of child

Future anticipated treatment

Composite and wire splint



Up to 0.016” / 0.4mm

Hints

Reposition

- Hold position with gauze

Suture

Splint

- Consider abutment
- Adjacent teeth then traumatised
- Consider gingival margins
- Consider occlusion
- Consider dark composite

Titanium splint

- Acute Management
- Splint strategies
- Follow-up

Follow-up Arrangements

Outpatient- GDP/ CDS (cc GMP)

HDS - RBHSC

- 07824549063 (DCT mobile on call phone)
- paeddentalreferral@belfasttrust.hscni.net
  - Could be delay so phonecall better 9am -5pm

Admission

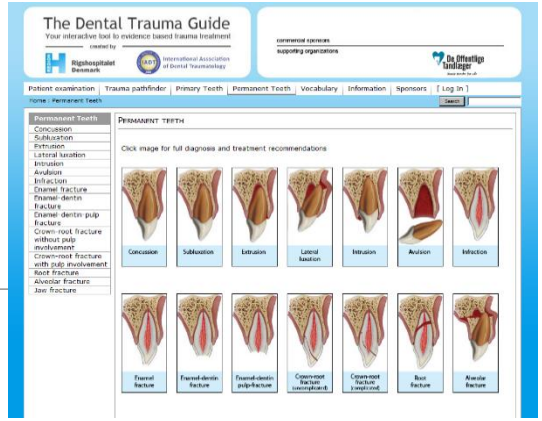
GA

Transfer of patients to UHD

Formal SLA in place

- Phonecall to DCT to confirm Maxillofacial Consultant On Call
- Consultant to Consultant discussion and agreed plan for patient
- If not being transferred then plan for assessment in RBHSC (ED / Ward)
- Haematological investigations - may have been done by ED. If maxfac require further bloods then this may be completed in UHD on transfer.

Further Reading



Paediatric Dentistry - Welbury

Clinical Guidelines - update 19/5/2020

http://www.dentaltraumaguide.org/

Guidelines – International Association of Dental Traumatology (iadt-dentaltrauma.org)

Patient 1

2 year old boy (fit and well, reasonable cooperation for exam)

Complicated crown root fracture ULA (small very mobile fragment of tooth)

Not fasted, no room on emergency list until tomorrow)

- Consider initial management options
- Intermediate management options
- Discussions/ advice to parents

Patient 2

3 year old girl (fit and well, difficult to examine, dummy sucker)

Palatal luxation injury URB (no occlusal derangement)

Extrusive luxation injury URA (>3mm extruded, grade 3 mobile)

Large enamel dentine fracture LRB, with subluxation injury (Grade 2 mobile)

- Consider initial management options
- Intermediate management options
- Discussions/ advice to parents

Patient 3

6 year old boy, complex congenital heart disease, learning disability, (knee to knee exam required, pre cooperative for radiographs). Avulsed LR1, LL1. Dry time 2 hours 1.5 hours in milk.

Consider initial management options including discussions/ advice you would like to have

Intermediate management options

Conversation with parents

Patient 4

8 year old boy who fell from bicycle, fit and well no other injuries, cooperative for examination and radiographs. Avulsed UL1. Initially dry for 10 minutes, attended ED placed in milk for 1.5 hour. Placed in socket by ED team (no LA) and transferred to your unit, by the time you assess it is 5 hours following the initial trauma. On exam the UL1 is extruded by 3 mm compared to the UR1 which is subluxated (Gd 2 mobile). Upper anterior teeth present, URC, UL1, UL1, ULB (mobile), ULC (buccal cavity).

Consider initial management options and follow up arrangements