

Primary Dentition Acute Management of Traumatic Injuries and Follow-up Care during the COVID-19 Pandemic

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Tooth Injury	Acute management	Follow-up	Review period					Risk of resorption at 12M ^s		Pulp necrosis at 12M ^s
			1W	4W	8W	6M	12M	Infection-related	Ankylosis	
Enamel fracture	Check and account for any fragments and reassure Give post-injury advice [‡]	Follow-up within routine care unless other injuries or wider concerns identified						No data	No data	No data
Enamel-dentine fracture	Check and account for any fragments and reassure Give post injury advice [‡] If symptomatic, dry with cotton wool and seal over the fractured tooth surface with GIC or RMGIC +/- smooth edge with hand-held abrasive disc	Remote consult at 8W; to assess oral hygiene, healing and complications. If concerns see in clinic for detailed assessment +/- treatment			*			0% (CI not available)	0% (CI not available)	5% (CI 0-13)
Crown fracture involving the pulp	Check and account for any fragments Extract Give post-injury advice [‡]	Follow-up within routine care unless other injuries or wider concerns identified						No data	No data	No data
Crown-root fracture	Taking care not to damage the permanent successor, extract all loose fragments and leave firm root fragment in situ; or extract the entire tooth Give post-injury advice [‡]	Follow-up within routine care unless other injuries or wider concerns identified						No data	No data	No data
Root fracture	If no, or minimal, occlusal interference from the coronal fragment, leave tooth to reposition spontaneously and observe If coronal fragment is displaced, excessively mobile and/or interfering with the occlusion, or is a risk of ingestion or inhalation; extract the loose coronal fragment(s) only. The firm apical fragment should be left in-situ to be resorbed Give post-injury advice [‡]	If observing - remote consult; to assess oral hygiene, healing and complications. If concerns see in clinic for detailed assessment +/- treatment If coronal fragment is extracted – follow-up within routine care unless other injuries or wider concerns identified	*		*		*	0% (CI not available)	0% (CI not available)	9% (CI 2-17)
Alveolar fracture	Under local anaesthesia reposition any displaced segment which is mobile and/or causing occlusal interference. Stabilise to adjacent uninjured teeth with flexible splint (AGP) Give post-injury advice [‡]	Clinic review at 4W for splint removal, 12M Remote consult at 1W, 8W; to assess oral hygiene, healing and complications. If concerns see in clinic for detailed assessment +/- treatment	*	*SR	*		*R	0% (CI not available)	12% (CI 0-24)	15% (CI 2-29)

See notes and references at bottom of table

Tooth Injury	Acute management	Follow-up	Review period					Risk of resorption at 12M ^s		Pulp necrosis at 12M ^s
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Concussion	Observation	Remote consult at 1W and 8W; to assess oral hygiene, healing and complications. If concerns see in clinic for detailed assessment +/- treatment	*		*			0% (CI not available)	0% (CI not available)	5% (CI 0-13)
Subluxation	Give post-injury advice [‡]		3% (CI 1-5)	0% (CI not available)	8% (CI 5-12)					
Extrusion	If no, or minimal, occlusal interference leave tooth to reposition spontaneously - observation If the tooth is excessively mobile or extruded >3mm then extract - especially if there is a risk of ingestion or inhalation. Give post-injury advice [‡]	If observing – remote consult at 1W, 8W and 12M; to assess oral hygiene, healing and complications. If concerns see in clinic for detailed assessment +/- treatment If extracted –follow-up within routine care unless other injuries or wider concerns identified	*		*		*	2% (CI 0-5)	0% (CI not available)	6% (CI 0-12)
Lateral luxation	If no or minimal occlusal interference leave tooth to reposition spontaneously - observation If tooth is severely displacement then extract Give post-injury advice [‡]	If observing - remote consult at 1W, 8W, 6M, 12M; to assess oral hygiene, healing and complications. If concerns see in clinic for detailed assessment +/- treatment If extracted –follow-up within routine care unless other injuries or wider concerns identified Concomitant crown fracture increases chances of pulp necrosis	*		*	*	*	6% (CI 3-8)	0% (CI 0-0)	17% (CI 13-21)
Intrusion	The tooth is allowed to spontaneously reposition irrespective of the direction of displacement – observation Give post-injury advice [‡]	Remote consult at 1W, 8W, 6M, 12M; to assess oral hygiene, healing and complications. If concerns see in clinic for detailed assessment +/- treatment Spontaneous improvement in the position of the intruded tooth is expected within 6 months although it can take up to 12 months	*		*	*	*	7% (CI 4-11)	4% (CI 1-6)	20% (CI 15-26)
Avulsion	Avulsed primary teeth should not be replanted, Check and account for tooth and reassurance Give post-injury advice [‡]	Follow-up within routine care unless other injuries or wider concerns identified	*					N/A	N/A	N/A

See notes and references at bottom of table

Managing traumatic dental injuries to the primary dentition and minimising the risk of transmission of COVID-19 to patients and staff. This guidance is to be read in conjunction with wider guidance on resuming general dental services¹, principles for acute care during the pandemic² and the new 2020 IADT trauma guidelines^{3,4}. While the new IADT guidelines^{3,4} advocate conservative treatment options⁸ following traumatic injuries to the primary dentition, during the COVID-19 pandemic BSPD and Dental Trauma UK suggest treatment options should focus on either observation or extraction. This approach minimises the number of face-to-face consultations and reduces Aerosol Generating Procedures. This guidance is likely to evolve over time as dental services return to normal, at which point this guidance will be withdrawn in preference for the new 2020 IADT trauma guidelines^{3,4}.

⁸Other conservative treatments include pulpotomy, composite build-ups, root canal treatment and repositioning and splinting.

Following acute injury, remote consultation (e.g. telephone, photographs or video conferencing) can help clinical teams to clarify a provisional diagnosis and treatment. In addition to history taking, this facilitates discussions with parents or carers and the patient, preparing them for what to expect and allows-mask-free interactions. An effective remote consultation may also reduce the face-to-face time on clinic, and thereby maximising the potential use of clinic and minimise Personal Protective Equipment usage. For complicated cases it is prudent to discuss them with senior colleagues where available.

Observation may require an initial face-to-face consultation to ensure an accurate diagnosis where remote consultation is not possible or diagnosis is uncertain. Follow-up appointments are undertaken to assess healing, oral hygiene and complications. The incidence of pulp and periodontal complications is provided in the table for each injury. The IADT guidelines^{3,4} recommends clinical reviews to be undertaken at the time points highlighted in green and blue. Remote consultation, highlighted in green, should assess patient reported healing, complications/concerns and reinforced oral hygiene. BSPD and Dental Trauma UK has tried to balance the potential risk for late identification of complications while minimising face to face consultations. During phase 2b¹, we anticipate a return to standard clinic-based follow-up appointments.

Extractions of primary teeth under local anaesthetic can be challenging at the emergency consultation especially with a distressed or pre-cooperative child and the need for appropriate Personal Protective Equipment. In some situations, clinical teams may choose to delay the extraction/s until a follow-up visit to minimise the potential for the development of post-traumatic stress and/or dental anxiety⁴

* = review appointment = clinic consultation

* = review appointment = remote consultation (.g. telephone, photographs or video conferencing). If complications (such as signs of pulp necrosis) are suspected then the patient should be seen in clinic for further assessment. This appointment will need to be planned with the provision that an extraction may be necessary and therefore time allowed for this.

S = splint removal – see permanent dentition guidance around splinting and splint removal

R = intra oral radiograph.

AGP = aerosol generating procedure/s AGP – see national (Scottish and Welsh) guidance^{1,5} for dental activities classed as AGP

GIC = glass ionomer cement

RMGIC = Resin Modified Glass Ionomer – Orthodontic guidance⁶ describes how light cured modified GIC can be used without generating an AGP. Its suitability in dental trauma situations is unknown.

[§] Prognosis data is provided by the Dental Trauma Guide (www.dentaltraumaguide.org). Some care should be taken with the prognosis figures as it is not reported if tooth loss related to extractions at the time of the acute injury or following complications. The prevalence of tooth loss for different injuries was: root fracture 72%, alveolar fractures 23%, extrusion 77%, lateral luxation 21% and intrusion 31%.

CI – confidence interval

[‡]Post injury advice – (i) Care when eating not to further traumatise the injured teeth while encouraging a return to normal function as soon as possible, (ii) To encourage gingival healing and prevent plaque accumulation, clean the affected area with a soft brush or cotton swab combined with an alcohol-free chlorhexidine gluconate mouth rinse applied topically twice a day for one week. Confirm allergy status before advising the use of chlorhexidine.

REFERENCES

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