



## BACKGROUND

- Intrusion injuries are one of the most severe and rare injuries contributing to only 0.3-2.0% of all dental injuries
- There are 3 treatment modalities including: spontaneous re-eruption, orthodontic repositioning, and surgical repositioning
- There are many common complications which can result from the injury such as inflammatory root resorption, replacement resorption, and marginal bone loss
- In growing patients with varying degrees of skeletal, dental, and occlusal development the complications resulting from intrusive injuries can be particularly difficult to treat
- Replacement resorption is reported to occur in 5-31% of teeth following intrusion and incidences of ankylosis increase with the degree of intrusion
- Replacement resorption is more likely to occur in mature vs immature teeth
- Most ankyloses occur during the 6 months following the initial trauma

## CASE REPORT

### History of injury:

- An 8-year-old boy presented to Nationwide Children's Hospital Dental Clinic following a fall on wet floor at home

### Initial Injury

- Numerous dental injuries and gingival lacerations
- Maxillary buccal plate fracture (area of teeth #7-10)

Tooth #	Injury	Fracture	Severity
#7	Intrusion	Enamel-Dentin	>6 mm
#8	Intrusion	Enamel-Dentin	>6 mm
#9	Intrusion	Enamel-Dentin	>6 mm
#24	Subluxation	Enamel-Dentin	-
#25	Subluxation	None	-
#10	Concussion	None	-
#23	Concussion	None	-
#26	Concussion	None	-



## TREATMENT

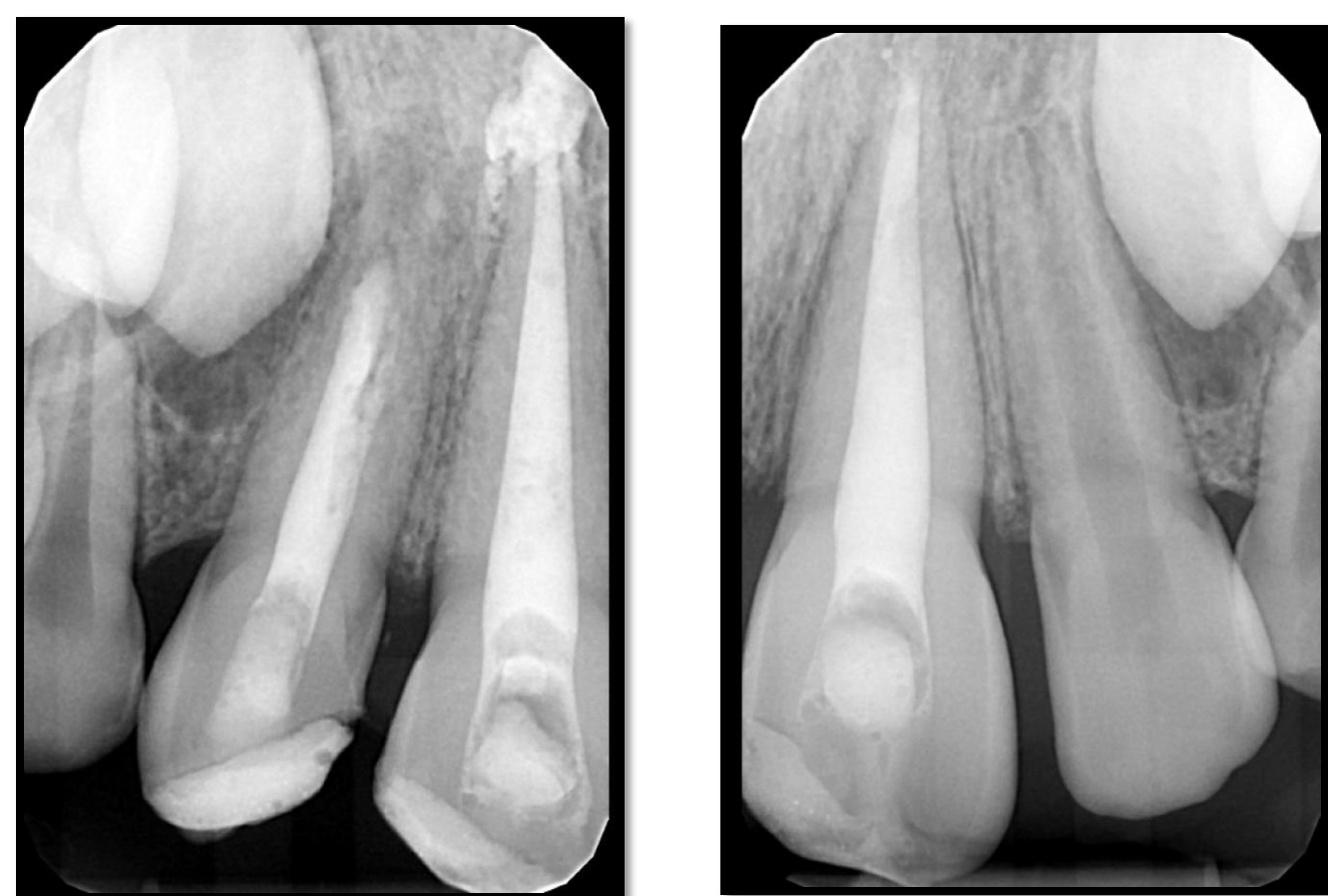
### Initial Trauma Treatment

- Surgically repositioned #7, 8 and 9
- Placed composite band-aids on #7, 8 and 9
- Sutured de-gloved gingiva
- Note: tooth #7 has immature apex



### 4 & 8-week Follow Up

- Clinical and radiographic exam of teeth #7-10 completed
- Patient asymptomatic
- Teeth #7, #8 and #:9 Pulpectomy completed and intra-canal Calcium Hydroxide dressing was placed
- Splint remained intact until for 8 weeks due to concerns of tooth stability



### 5-Month Follow Up

- CC: "The teeth are beginning to turn color."
- Tooth #8: beginning to ankylose- informed MOP about likely decoronation in the future
- Tooth #7 was re-accessed and bleach left in the chamber in attempts to resolve discoloration
- Goal was to replace calcium hydroxide in #8 and #9, however behavior became a concern and was not completed



### 6-Month Follow Up

- Parent wanted esthetics addressed
- #8 definitive ankylosis
- Strip crowns completed on #7, 8 and 9
- Informed MOP that future goals are to complete GP fills on #7 and #9



### 1-Year Follow Up

- Gutta Percha obturation completed on teeth #7 and #9
- Tooth #8 less than 1 mm submerged- plan to decoronate when tooth is >1 mm submerged
- Placed sodium perborate for internal bleaching
- Tooth #7 with calcific barrier - suspected to have 2 canals or abnormal canal morphology



## TREATMENT CONTINUED

- Internal bleaching successful on #7
- Removed gutta percha to below the level of the CEJ on #9
- Added composite to the facial of #9 to mask discoloration
- Patient and MOP pleased with esthetic outcome



### Long Term Plan

- Internal bleaching for tooth #9 when cooperation permits
- Decoronation when #8 becomes approximately 1 mm or greater submerged with interim flipper for replacement
- Implant & crown to replace tooth #8 once growth subsides

## DISCUSSION/CONCLUSIONS

- Numerous follow-up visits to ensure successful outcome (9 total visits during the one year post-injury) and compliance from family
- Informing family of outcomes and expectations from early on
- Patient cooperation allowing treatment in the dental clinic with nitrous oxide
- This case shows the numerous outcomes possible with severe intrusion injuries in both mature and immature root apices including: replacement resorption, ankylosis, periodontal healing, etc.
- Maintaining ankylosed teeth as long as possible is beneficial from an esthetic perspective and will continue to maintain bone levels until decoronation is absolutely indicated

## REFERENCES

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