Trauma Management in a Patient with a Congenital Heart Defect

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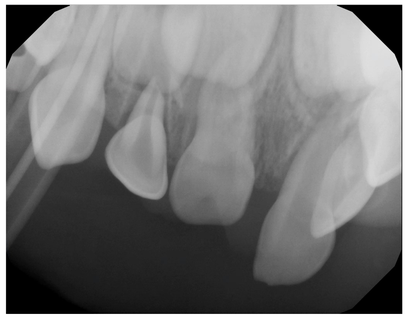
BACKGROUND

Patient's with hypoplastic left heart syndrome (HLHS) are not compatible with life without medical intervention. To palliatively care for HLH syndrome, patients will undergo 3 stages of surgeries to restructure the plumbing of the heart. Stage 1 is the Norwood procedure, stage 2 is the bidirectional Glenn or the hemi-Fontan, and stage 3 is the Fontan procedure [1]. Children with a congenital heart disease are at an increased risk for developing infective endocarditis (IE)[2] and many of these children are given an antibiotic prior to dental treatment to reduce the risk of IE. The American Heart Association recommends antibiotic prophylaxis prior to treatment for any patient with a repaired congenital heart defect within the last 6 months or if prosthetic material was used in the repair [3].

CLINICAL PRESENTATION

A 3-year-old female was transferred to Riley Children's Hospital Emergency Department with a chief complaint of tooth displacement and recent facial trauma after falling up a step in the family's home. Her medical history was significant for hypoplastic left heart (HLH) syndrome with an unbalanced AV canal, S/P Norwood, S/P Fontan, and was G-Tube fed. Her current medications were Aspirin, Furosemide, Melatonin, and Sildenafil. Her father reported she was allergic to adhesive tape and had no known drug allergies. The patient presented with mild discomfort, a swollen upper lip, and displaced maxillary incisors interfering with normal intercuspation. A clinical exam revealed #D was palatally luxated >5mm, #E was fully intruded >6mm, #F was Class II mobile but not displaced, #G was sound, and there was a gingival laceration near #D and #E. To obtain a thorough oral and radiographic examination and to perform necessary treatment in a controlled environment, the patient required sedation under general anesthesia.

RADIOGRAPHS

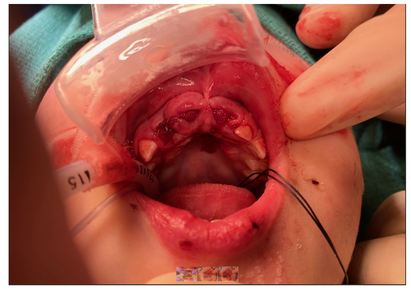


#D- luxated, #E-Intruded, #F-no displacement

#G- widened PDL

CLINICAL PHOTOGRAPHS

Clinical Photos from ED



Clinical Photos from OR

TREATMENT/MANAGEMENT

To minimize the risk of a dental infection secondary to trauma in a patient with a reconstructed heart, timely, definitive treatment of the traumatized teeth is critical. Radiographs were attempted in the ED; however, patient cooperation was suboptimal requiring sedative measures to be taken to complete treatment. The patient was brought to Riley Children's Hospital Day Surgery where localized dental treatment was completed under general anesthesia. A limited oral examination was completed, radiographs of the affected area were taken, and a treatment plan was composed. Teeth #D, #E, and #F were extracted and GelFoam was placed in each socket with no complications. A 3-0 chromic gut suture was placed to approximate the tissues of the gingival laceration near #D and #E. The patient was provided an appointment in 1 month in the outpatient dental clinic to assess healing after trauma and for a comprehensive oral evaluation, prophylaxis, and fluoride varnish application. However, the patient did not follow up with that appointment.

The AAPD guidelines for management of extrusive luxation injuries to primary dentition say to extract the tooth if displaced >3mm or excessively mobile [4]. Based on these guidelines, #D and #F were to be extracted due to extent of extrusion and mobility. The AAPD guidelines for intrusive injuries instruct providers to allow the primary tooth to spontaneously re-erupt [4]. While leaving #E to spontaneously re-erupt is in line with the AAPD guidelines, leaving an infection risk behind on a patient with a reconstructed heart is not recommended. While not all dental traumas lead to future dental infections, a study by Soprowski showed that 25% of primary luxated teeth become necrotic[5]. The treatment plan we followed adhered to the AAPD guidelines, AHA recommendations, and put the patient at a lower risk for a future dental infection secondary to dental trauma.

REFERENCES