Introduction

• One of the most common regional blocks used in children is the single-shot caudal.
• Despite its widespread use and relative safety, complications may occur.
• In this report, we describe a 3-month-old infant who presented for inguinal hernia repair, received a caudal anesthetic, and subsequently developed cardiac arrest.

Case Presentation

• A 4 kg, 3-month-old infant born at 27 weeks, presented for inguinal hernia repair.
• PMH: mild BPD, no oxygen requirement, and surgical history significant for PDA ligation.
• Following an uneventful induction, a single-shot caudal was performed.
  – The caudal was placed without difficulty and with negative aspiration.
  – Two minutes after a negative test dose, a total of 1 ml/kg of 0.25% bupivacaine with epinephrine was injected.
• Twenty minutes after the caudal injection and prior to surgery start, the EKG changed from sinus rhythm, to bradycardia, to asystole.

Case Presentation

• Cardiac resuscitation followed
  - Chest compressions began promptly
  - ETT position confirmed
  - Epinephrine administered
  - 20% Intralipid was given for suspected local anesthetic toxicity (within three minutes of the arrest)
• An Intralipid bolus was repeated 14 minutes later as asystole continued.
• Chest compressions continued, ETCO2 was positive throughout, and EKG rhythm and pulse were restored 30 minutes into the resuscitation.
• The patient remained intubated for several days, but was eventually discharged from the hospital without obvious sequelae.
• The patient returned four months later with an incarcerated inguinal hernia and received an uneventful general anesthetic without local anesthetic for the block and aspiration.

Discussion

• It has been noted that children less than four months of age are at greater risk of local anesthetic systemic toxicity (LAST).
  - Compared to older children and adults, infants display decreased clearance of amide anesthetics.
  - Neonates exhibit increased levels of unbound, active drug due to decreased plasma concentrations of alpha acid glycoprotein, which persist until 3 to 6 months of age.
  - Detecting an intravascular injection of local anesthetic in anesthetized infants and children can be difficult.
  - Seizures may not be seen, the test dose may be unreliable, and the first sign of toxicity may be dysrhythmias or even cardiac arrest.
• While most symptoms of toxicity will occur within 5 minutes of an injection, up to 25% of symptoms occur after 5 minutes.
• We concluded LAST was the most likely cause of cardiac arrest in this patient and treated accordingly.
• We present this case to relate our experience with both a delayed presentation of LAST and a delayed response to rescue therapy.

Learning Points

• The likelihood of local anesthetic toxicity in children is extremely rare.
  - However, when toxicity does occur, its effects can be severe.
• Always use the lowest effective dose of local anesthetic for the block and aspirate before every injection.
• Be prepared: Make a local anesthetic toxicity kit and post instructions for its use in your center.

References