Perioperative Complex Arrhythmia as a Clinical Manifestation of Blunt Chest Trauma after MVA

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Introduction

- Leading cause of pediatric mortality is unintentional injury with motor vehicles.
- Factors associated with higher mortality includes unrestrained or improperly restrained and accidents in rural areas[1].
- Death associated with TBI and/or blunt chest/abdominal trauma.

Case History

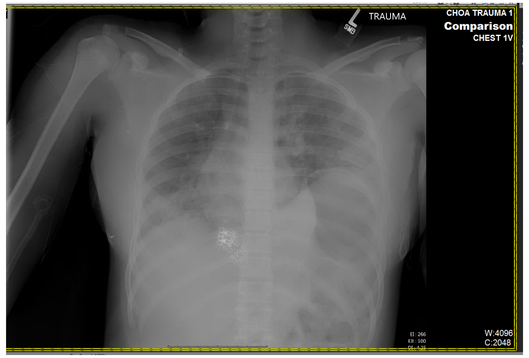
Patient History

- A 13 year-old female presented after a high speed, roll-over MVA as unrestrained passenger.
- On arrival: GCS 14, electively intubated in the ED.
- Injuries included: traumatic diaphragmatic rupture, bilateral femur and pelvic fractures, multiple tooth avulsions and chest/abdominal wall lacerations.

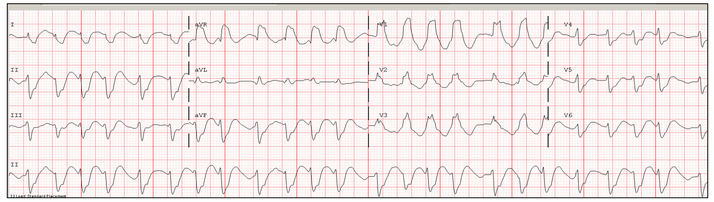
Case Details

- Patient was taken to the OR for exploratory laparotomy with repair of diaphragmatic injury and pelvic/femoral fixation.
- Intraoperatively, patient exhibited short periods of narrow complex tachycardia mixed with sinus rhythm.
- An intraoperative echocardiogram was ordered due to concern for tamponade, revealing normal cardiac function and no evidence of tamponade.

Case History



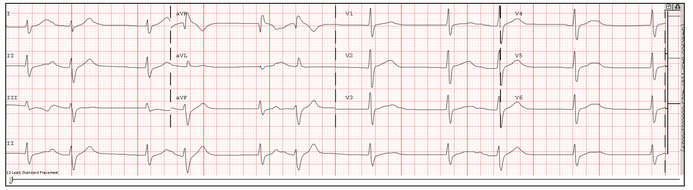
- There was intraoperative suspicion of blunt myocardial injury of the His-Purkinje system and AV node with the resultant dysrhythmias.
- Orthopedic procedure was cancelled and patient was transferred to PICU.
- On arrival to PICU, patient developed pulseless wide complex tachycardia requiring CPR and defibrillation.



- POD 1: Intermittent runs of V-Tach, requiring lidocaine and amiodarone.

Case History

- POD 2: Heart block with junctional escape rhythm without pacing requirements.



Discussion

- Blunt cardiac injury is unusual in children with a prevalence of 0.3% in blunt trauma cases[3].
- Manifestations include dysrhythmias, unexplained hypotension, and elevation of cardiac enzymes.
- Death may result quickly from acute pump failure due to septal/valvular defects[4].
- Management is largely supportive with inotropes for contusion related hypotension and antiarrhythmics.

References

1. https://www.cdc.gov
2. J Pediatr 187 (2017): 295-302.
3. Crit Care Med 30.11 (2002): S409-S415.
4. J Trauma 40.1 (1996): 61-67.