Intraoperative Cardiac Arrest: A Case of Incidentally Discovered Tracheal Stenosis

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CASE SUMMARY
• 11-mo, complex PMH/PSH
• Presents for elective cleft palate repair
• Intraoperative events:
  • pinpoint mid-tracheal stenosis
  • 15-minute cardiorespiratory arrest
• After ROSC, PICU for hypothermic therapy
• Slide tracheoplasty via open sternotomy

INTRAOPERATIVE COURSE
• PMH: 6 kg female with prematurity (36 week gestation), 15q13.3 deletion syndrome, 16p13.3 deletion, Veau II cleft of the hard and soft palate, occipital encephalcele, chiari III malformation, fused thalami, dysgenesis of the corpus callosum, ventriculomegaly, anterior anus, PFO, right renal agenesis and difficult IV access
• Plan: elective palate repair
• Induction: Uncomplicated sevoflurane induction, spontaneous ventilation with LMA; intraoperative IR for vascular access; propofol and rocuronium administered; intubation was attempted with a 3.5 cuffed oral RAE, however met significant resistance
• Intraoperative ENT consult showed an anterior subglottic ridge and mid-tracheal stenosis
• Sudden decrease in the end-tidal carbon dioxide.
• Attempted ventilation through an LMA failed; LMA was removed and the patients trachea was ventilated thru the rigid bronchoscope. Despite a visually secured airway no capnographic tracing was obtained and the patient developed bradycardia and asystole
• Chest compressions initiated and ECMO team called
• 3.0 oral RAE under direct bronchoscopic guidance was placed with ROSC and capnographic trace
• Post operatively: PICU for inotropic support, hypothermic protocol, and slide tracheoplasty via open sternotomy three days post arrest

INTRAOPERATIVE EVALUATION

DISCUSSION
• Unique case of intraoperative cardiac arrest
• Presumed cause: obstruction of the tracheal stenosis by either clot or secretions
• Prompt recognition and treatment of the intraoperative arrest
• Highlights the importance of early assessment of the airway in a non-active, asymptomatic patient who has had multiple prior airway manipulations

REFERENCES
• Morray et al. Anesthesia-related cardiac arrest in children: initial findings of the Pediatric Perioperative Cardiac Arrest (POCA) Registry. Anesthesiology. 2000 Jul;93 (1): 6-14

BACKGROUND
• Perioperative cardiac arrest is a rare complication in pediatric anesthesia
• Prior studies have shown a change in the causes of arrest with a reduction in the number of medication related events
• Cardiovascular-related are the most frequent cause (usually attributed to hemorrhagic shock and hyperkalemia)
• Respiratory arrests account for ~27% of cases, often related to laryngospasm

SUBGLOTTIC CLEFT

MIDTRACHEAL STENOSIS

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