Introduction

Tracheoesophageal fistula/esophageal atresia (TEF/EA) occurs in approximately 1 in 3000 live births, and is frequently seen as part of a constellation of congenital anomalies\(^1\). Cardiac anomalies have been reported to occur in as many as 50% of patients with TEF/EA, and the presence of cardiac anomalies has been associated with more challenging perioperative management and lower survival\(^2\). Another risk factor for mortality is a large pericarinal fistula\(^3\).

Case Description

3 day old, 2.2 kg female born at 36 weeks gestation in whom a failed attempt to place an orogastric tube prompted chest films to be obtained, revealing a TEF. Work-up for other anomalies was significant for a right aortic arch, patent ductus arteriosus, and complete vascular ring. Patient was on 1L NC in the ICU.

Anesthetic Management

General anesthesia was induced with sevoflurane while spontaneous ventilation was maintained. A trial of bag mask ventilation proved successful, following which direct laryngoscopy was performed with placement of a 3.0 cuffed endotracheal tube. Flexible bronchoscopy was used to confirm ETT placement and verified a pericarinal TEF. A second intravenous line and a posterior tibialis arterial line were placed. Maintenance of anesthesia was achieved with sevoflurane and rocuronium, and pressure control ventilation was employed to limit peak airway pressure. Surgery proceeded with ligation of the vascular ring and TEF via left thoracotomy, as well as placement of a gastrostomy tube. The patient tolerated the procedure well and returned to the ICU intubated, with plans for future repair of the esophageal atresia.

Discussion

Reducing perioperative risk involves careful planning of anesthetic care and necessitates a discussion of airway management, induction, monitoring, and postoperative disposition. Airway management options may include flexible versus rigid bronchoscopy to aid in visualization and isolation of the fistula during intubation. Induction options include inhalational induction with spontaneous ventilation, intravenous induction with muscle relaxation, and gastrostomy prior to intubation. Arguments can be made for each of the above choices; however, we determined that a trial of positive pressure ventilation after inhalational induction would be safest, with the use of flexible bronchoscopy to aid in ETT placement. Traditionally, TEF/EA can be repaired without the need for invasive arterial blood pressure monitoring, but is indicated in patients with congenital heart disease\(^3\). Our careful airway management and use of invasive blood pressure monitoring proved an appropriate plan for reducing the perioperative risk for this patient.

References