

Goodrich A, A L

Texas Children's Hospital , Houston , TX, USA

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Anesthetizing a child with a large anterior mediastinal mass carries the risks of airway obstruction and cardiovascular collapse<sup>1</sup>. A major challenge for the anesthesiologist is to predict the risk of anesthesia in patients with anterior mediastinal masses scheduled for emergent surgery. We describe two such patients requiring emergent pericardiocentesis.

#### Case 1:

Preoperative evaluation: 3 year-old girl presented with cough, congestion, and fatigue. She breathed loudly at night and had “panic episodes” when lying flat. On exam she was tachycardic and tachypneic. Chest X-ray (CXR) showed a wide mediastinum and pleural effusions. Transthoracic echocardiography (TTE) revealed partial superior vena cava obstruction and a pericardial effusion with tamponade physiology.

Intraoperative course: Extracorporeal membrane oxygenation (ECMO) and otolaryngology (ENT) with rigid bronchoscopy were on standby in the operating room (OR). The patient was seated upright in bed. She received 10 L/min oxygen by facemask, 1.3 mg/kg ketamine, and 8 mcg/kg glycopyrrolate. The surgeon created a pericardial window, which drained 200mL of fluid. She maintained spontaneous ventilation throughout the case lasting 31 minutes.

#### Case 2:

Preoperative evaluation: 13 year-old girl presented with orthopnea and facial swelling. She was tachycardic, hypotensive, and unable to lie flat. CXR showed a large mediastinal mass, enlarged cardiac silhouette, and pleural effusions. TTE demonstrated a pericardial effusion with diastolic right atrial collapse.

Intraoperative course: ECMO and ENT were on standby in the OR. The head of bed was elevated to ninety degrees. She was given 10 L/min oxygen by facemask, 1.1 mg/kg ketamine, and 4.5 mcg/kg glycopyrrolate. The cardiologist drained 180ml fluid via a pericardial drain using TTE guidance. She breathed spontaneously during the procedure, which lasted 120 minutes.

#### Discussion:

In children the most common anterior mediastinal mass is lymphoma, which was diagnosed in both patients<sup>1</sup>. High-risk findings related to the mass include stridor, orthopnea, wheeze, SVC obstruction, syncope, tracheal cross-sectional area <70%, and pericardial effusion<sup>2</sup>. For elective cases, typical work-up consists of CXR, computed tomography, electrocardiogram, and TTE. However, in an emergency many of these results are unavailable.

We describe two cases of emergent operative management in pediatric patients with symptomatic anterior mediastinal masses. We followed the available guidelines (Figure 1) at our tertiary hospital and requested ECMO and ENT presence in the OR<sup>3</sup>. Recent literature questions the benefit of ECMO as the time required to implement may result in significant morbidity<sup>4</sup>. We did not find recommendations for these patients in non-tertiary hospitals without the resources for ECMO. Additional guidelines are needed for the anesthetic management of patients with anterior mediastinal masses presenting in extremis.

