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Caring for patients with anterior mediastinal masses is challenging. We present a case of an 8 year old female who acutely developed respiratory failure requiring emergency airway management secondary to an anterior mediastinal mass.

The child presented to the emergency room with an enlarging neck mass and two month history of increasing fatigue. CT scan showed an 8.1 x 7.2 cm mass encasing the thoracic vasculature and completely compressing the left jugular and brachiocephalic veins. An open biopsy was performed under IV sedation with spontaneous ventilation. Forty-eight hours later she acutely decompensated. The PICU physicians found the patient cyanotic, thrashing with all IV access dislodged. They administered IM ketamine, placed an IO line and called for assistance. Two attending anesthesiologist arrived to find the patient with oxygen saturation in the 80's and difficult bag mask ventilation. The neck anatomy was obscured due to severely enlarged lymph nodes, her face was plethoric suggesting SVC syndrome, and the trachea was difficult to palpate. Oxygenation was improved by placing the child in left lateral decubitus position with the head rotated to the right, an oral airway and two handed bag mask technique. Slight changes from this position resulted in immediate ventilation difficulty and desaturation. Pediatric surgery was called for possible ECMO activation and it was agreed intubation was necessary given the tenuous airway status.

A 20-gauge PIV was placed and CT scans were reviewed. We attempted pre-oxygenation and a rapid sequence induction was performed with succinylcholine. A 5.0 cuffed endotracheal tube was placed and intubation was confirmed, however breath sounds remained unequal. During transport to the PICU, positioning of the patient continued to be critical for adequate oxygenation and ventilation. On arrival the patient was given steroids and the endotracheal tube was changed to a 5.0 reinforced tube over an 11 French airway exchange catheter.

Usually these patients are treated in a controlled environment with minimal sedation, judicious use of local anesthesia, and spontaneous ventilation. A unique problem presents when these patients rapidly decompensate requiring emergent airway management. Closed claim data suggests care of these patients is improving as the number of anesthesia related adverse events has decreased over the last decade. This is likely due to increased awareness of the high risk of these patients and improved planning and resources.

There is little literature discussing airway management in acute respiratory failure with impending doom outside the operating room. In this case we had surgeons with the ability to perform rigid bronchoscopy and the ECMO team was notified. Of note the surgeons felt ECMO may be unsuccessful due to compression of the great vessels and small femoral vessels. Muscle relaxation was used given patient already in respiratory failure and the reinforced tube further improved ventilation.

Patients with respiratory failure must be treated swiftly including steroids even if a tissue diagnosis has not yet been obtained.

Sticker PA, et al. Anesthetic management of children with an anterior mediastinal mass. J Clin Anesth 2010;22:159-63.

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