CASE HISTORY

17y female with a 2-month history of stridor, dyspnea, and orthopnea that was initially diagnosed as asthma. Her history was significant for anxiety, depression and methamphetamine use. CT revealed a nearly occlusive mid-tracheal mass with pneumomediastinum. She presented for tracheoscopy and possible removal of the airway mass. The case was performed with ENT, general surgery, and anesthesiology in the OR. A huddle was conducted prior to commencing the case to review the plan. The patient underwent sitting awake nasal tracheoscopy to evaluate the mass. With no sedation, she was topicalized, while maintaining spontaneous ventilation throughout. Once the mass was deemed resectable, sedation was initiated and the patient was gradually positioned supine. Intermittent ventilation via bronchoscope was performed during morselization. We began a propofol infusion when the patient was in suspension to prevent injury. Steroids were given for airway edema. The patient was successfully extubated the following day.

THE CHALLENGE

Anesthetic management of a patient with a large tracheal mass can be a challenge as it involves sharing the airway with the surgical team while maintaining patency of the airway during manipulation and instrumentation.

TREATMENT PLAN

Compressible mass
Compressible mass
Non-compressible mass
Non-compressible mass
Intubate Trachea
Intubate Trachea
W/ Anode Tube
W/ Anode Tube
Surgical Resection of Trachea
Surgical Resection of Trachea

Awake fiberoptic W/ ENT
Awake fiberoptic W/ ENT

ECMO STANDBY

ECMO STANDBY

Greatly increased the likelihood of using ECMO because of:
A) Inability to pass a reinforced ET
B) Inability to pass an ET beyond a mid-tracheal mass
C) Acute respiratory decompensation

CONCLUSION

Near occlusive tracheal masses increase case acuity and require thorough planning, strong multidisciplinary teamwork, and aggressive strategies to maintain oxygenation, such as ECMO and surgical airway management. ECMO use, as a tool for difficult airway management, is described as having advantages such as maintaining oxygenation when other standard modalities of intubation are not feasible. These advantages must be weighed against the risks of cannulation and the difficulties of monitoring a patient intraoperatively while on ECMO. The use of ECMO as an airway modality requires multiple care providers who must communicate effectively and work cohesively. Closed-loop communication, time outs, effective leadership, and adaptability are traits that characterize multidisciplinary teamwork. Amongst healthcare providers, challenges such as hierarchy and rapid decision-making must be overcome by proper communication. Our case would not have been feasible without planning and optimal team communication between multiple providers and ancillary staff. This multidisciplinary team dynamic is paramount in successful management of such critical airways.
