Moving Forward After a Near Miss

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Case
CL is a 19 y/o, ASA 3 with relapsing polychondritis who presented to the ED with a 2 month history of progressive stridor. Neck x-ray showed diffuse narrowing of the lumen of his proximal cervical trachea from the level of the subglottic region, extending craniocaudally for 2cm (figure 1). Diameter of the lumen was measured to be 4mm (AP) and 9mm (TR). ENT flexible fiberoptic exam showed bilateral limited vocal cord abduction and fixation of the vocal cords (figure 2). Their recommendations included transfer to a monitored floor, declaration of the patient as a difficult airway and the use of a smaller ETT if intubation were to be required.

The following morning the rheumatology service found the patient to have worsening dyspnea, audible stridor, prolonged inspiratory phase and drowsiness. ENT was notified and recommended heliox with a plan to go to the OR for bronchoscopy and possible tracheostomy. Although the urgency of the situation was appreciated by those caring for the patient on the floor, it was not communicated to the services who were going to care for the patient in the OR. Anesthesia arrived to transport the patient and recognized the need for an emergent awake tracheostomy which was performed by ENT in the OR within 30 minutes.

References

Implementation
Although development of the difficult airway patient list took a mere three months, the greater challenge became educating the numerous users in a large, academic institution. Efforts to do so included announcements at departmental meetings, email communications, and personal interactions with other providers. The Michigan Airway Management Task Force, described below, became instrumental to furthering our cause.

Ongoing Efforts
Due to several sentinel events involving patients with difficult airways, the Office of Clinical Safety requested review and revision of the existing Difficult Airway Management process. The Michigan Airway Management Task Force, consisting of providers from Anesthesiology, Otolaryngology and Emergency Medicine, was created with the goal to achieve a simple, comprehensive and standardized method to address patients with known or suspected difficult airways. The group is proposing 2 notes: 1. The Standardized Airway Management Procedure note which would be completed for every airway management procedure performed in the health system and 2. The Airway Management Risk Assessment note which would allow us to qualify our concerns and hopefully inform downstream airway management decisions. Both of these methods would allow providers to activate the same “Difficult Airway Process” where extra consideration, equipment, and expertise is applied to the airway management of these identified patients. While these greater-reaching goals are imperative to a smooth and successful process, the timeline to development, approval, implementation, and education is long. In the meantime, our EPIC difficult airway patient list will help providers respond to inpatient airway emergencies with the knowledge and equipment to provide appropriate and improved patient care.

Quality Improvement
This case was presented at the Anesthesia M&M Conference. Discussion included a desire for a comprehensive list of difficult airway patients admitted to the hospital so that anesthesia providers could be aware of these patients in the event of an emergency. By working with the anesthesia informatics lead and the EPIC Application Coordinator such a list was created.

By way of the current process, a difficult airway assessment is performed by either the ED or admitting physician. The provider then completes a difficult airway note and places an order in EPIC which prompts a “flag” to be placed in the patients record. All admitted patients with this difficult airway flag now populate a difficult airway patient list. Users of EPIC can add this list to their “patient list” favorites for easy access to all inpatients with known difficult airways (figure 3). It includes the patient's name, registration number, age, and hospital location. Specifics about the reasons for the difficult airway or any recommendations for management of the airway will still need to be reviewed in the patient records.

Figures:
Figure 1
Figure 2
Figure 3