



Understanding the Differences of Otolaryngologic Airways, Otolaryngology Residents as the Teacher



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Abstract

Objectives:

Increase emergency practitioner awareness and understanding of otolaryngologic airways and their associated emergencies to improve patient care in an emergency setting. Assess the perceived effectiveness of otolaryngology resident teaching to non-otolaryngology residents.

Study Design:

Prospective quality improvement initiative.

Methods:

Quality improvement (QI) review board approval was obtained. An interactive, case-based seminar regarding otolaryngologic airways and their management was delivered to an emergency medicine department at a tertiary care institution. Pre- and post-seminar surveys were completed to evaluate audience demographics, assess the effectiveness at improving understanding of otolaryngologic airways and to measure the perceived gain from this seminar.

Results:

17 resident physicians and 2 attending physicians completed both surveys in their entirety. All respondents were trained in advanced life support and had previously orotracheally intubated a human. 63% of respondents were aware that laryngectomy patients could have a tracheostomy tube in their stoma compared to 100% following the seminar. At completion of the seminar, 100% of respondents knew that tracheostomy patients could potentially be orotracheally intubated and 95% knew that this was not anatomically possible in a laryngectomy patient. Respondents reported an increase of comfort with this topic by 33% at the end of the seminar, while 100% indicated that the seminar was beneficial and 100% reported further interest in other otolaryngology directed educational session.

Conclusions:

Emergency personnel may not be familiar with basic management of surgical airways in life threatening emergencies. Otolaryngology resident teaching of a resident based audience may be an effective and well received means to increase understanding of otolaryngologic emergencies to emergency personnel and nonsurgical physicians.

Introduction

Failure to appreciate the difference between otolaryngologic airways, namely tracheostomies and laryngectomies, can be the difference between life and death in a patient with respiratory distress. Despite emergency providers' ability to manage critically ill patients, lack of familiarity with relatively rare surgical procedures has led to several untoward outcomes. Situations like this are unfortunately not limited to our institution.^{1,2} As a response, an hour long interactive seminar was prepared for the Department of Emergency Medicine weekly education series. The following report summarizes the results of the aforementioned seminar and proposes that more resident teaching at academic institutions should be done by resident physicians.

Methods and Materials

Quality Improvement (QI) Review Board approval was obtained in lieu of Institutional Review Board (IRB) as per the University of Pittsburgh's policy. Before the educational seminar commenced, a pre-seminar survey was delivered to assess the demographics of the audience and their level of understanding of surgical airways. Following this, a case-based discussion focusing on the differences between tracheostomies and laryngectomies was given. The seminar reviewed pertinent anatomy, surgical indications and technique, complications and management algorithms for both tracheostomies and laryngectomies. A section was also devoted to the description of different tracheostomy and laryngectomy tubes as well as speaking valves. Following completion of this seminar, a post-seminar survey was administered to assess audience understanding and the perceived gain from this seminar.

Results

	Pre-seminar	Post-seminar
Resident Physicians	89.5%	-
Attending Physicians	10.5%	-
ACLS Certified	100.0%	-
ATLS Certified	100.0%	-
Prior intubation experience	100.0%	-
Knew difference between tracheostomy & laryngectomy	100.0%	100.0%
Knew where to give supplemental oxygen to a trach patient	90.0%	100.0%
Knew whether trach patients could potentially be orotracheally intubated	90.0%	100.0%
Knew method of ventilation for trach patient	95.0%	95.0%
Knew where to give supplemental oxygen to a laryngectomy patient	90.0%	100.0%
Knew that you could not intubate a laryngectomy patient	86.0%	95.0%
Knew a tracheostomy tube could be placed in a laryngectomy stoma	63.0%	100.0%
Felt they had adequate training in ENT airways	13.6%	47.4%
Thought educational session was beneficial to education	-	100.0%
Would be interested in further ENT-directed educational sessions	-	100.0%

Table 1. Respondent demographics with self-reported pre- and post-seminar survey results

Key Findings

- 63% of respondents were aware that laryngectomy patients could have a trach tube in their laryngectomy stoma before the seminar as compared to 100% following the seminar.
- 100% of respondents reported that you could potentially orotracheally intubate a tracheostomy patient following the seminar compared to 90% before the seminar.
- 10% of respondents would give supplemental oxygen via a facemask to a laryngectomy patient before the seminar compared to 0% after the seminar.
- 14% reported orotracheal intubation of a laryngectomy patient as a potential life-saving measure compared to 5% after the seminar.

Discussion

- Emergency medicine providers demonstrated understanding of how to manage tracheostomies as compared to laryngectomies in the acute setting.
- It is possible that with knowledge gained from this seminar, an emergency provider will understand the difference between a tracheostomy and a laryngectomy stoma and thereby be able to provide the means to quickly and reliably establish an airway when it is needed most.
- Given how well this seminar was received, it has been suggested that otolaryngology residents provide similar interactive seminars on common otolaryngologic emergencies such as epistaxis, facial trauma and airway foreign bodies.
- The role of the resident physician as the teacher in this role cannot be underestimated:
 - The level of familiarity between the teaching resident physician and the resident physician audience encourages a dialogue which thereby fosters understanding. This is different from a rigid lecture from one of the leaders in the field, which has its own set of advantages and disadvantages.
 - Multiple studies have demonstrated that residents report teaching improves their own clinical knowledge and is enjoyable.³ We believe that it is beneficial for both parties.
 - The ACGME recognizes the importance of this by requiring residents to be trained about teaching.⁴

Conclusions

Emergency medicine providers may not have a firm understanding of the differences between otolaryngologic airways. At an academic institution, a resident physician may serve as a well-received and effective teacher for describing this difference and similar educational seminars should be considered for other topics.

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