The Role of the Otolaryngologist in the Pediatric Head and Neck Burn Population, a Retrospective Analysis

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ABSTRACT

Educational Objective: At the conclusion of this presentation, the participants should be aware of the common clinical presentations seen in the pediatric head and neck burn patients as well understand our role as otolaryngologists in their care.

Objectives: To characterize our institution's pediatric head and neck burn population and to ascertain the role of the otolaryngologist in the care of these children.

Study Design: A retrospective analysis.

Methods: Chart review of 101 consecutive pediatric burn patients from 2012-2014 at a tertiary care center.

Results: 17 children out of the 101 that presented to the burn service had at least second degree perioral, facial, anterior neck, or chest burns, with a mean age of 9.1 years old. 65% of the patients had flame injuries and 35% had scald injuries. Two patients required intubation for airway distress. The otolaryngology service was consulted for airway assessment in only 4 children on admission. All the flexible fiberoptic nasopharyngolaryngoscopic exams revealed no evidence of airway obstruction or inflammation except for one patient who was already intubated by emergency staff after ingesting scalding liquid. All of the patients that required intubation for impending airway obstruction had already had their airway secured without an otolaryngol- ogy consultation. However, we were consulted for one child with inhalational injury for myringotomies prior to hyperbaric oxygen therapy.

Conclusions: In our experience, the principal burn health care providers in a tertiary hospital were well equipped to assess and secure the airway of children. The role of the otolaryngologist, in terms of assessment of the air- way never resulted in an escalation of airway interventions. However, in one intubated patient, our assessment did result in a more cautious extubation plan. Thus, as otolaryngologists, our role appears to be more valuable in secondary airway assessment.

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INTRODUCTION

Burns result in cellular damage due to:
-Heat/Cold
-Chemical exposure
-Electrical current and ionizing radiation

The head and neck comprises only 10% of the total body surface area

However, severe third degree burns in these areas can be life threatening

Depending on mechanism, initial evaluation mandates an appropriate suspicion for co-existing inhalation injury

The majority of upper airway obstructive cases in children with head and neck burns are the result of:
- Ingestion of caustic material (45%)
-Direct flame injury (33%)
-Scald injury (21%)

The goal of this study was to the assess the role of the otolaryngologist in evaluating and treating this group of patients

Study Design

Retrospective chart review

101 consecutive pediatric burn patients from 2012-2014 were analyzed

Medical records were electronically reviewed by two separate researchers from a single Level I Trauma Center

Results

Mean age of 9.1 years old

17 children out of the 101 had at least second degree:

- Perioral
- Facial
- Anterior neck
- Chest burns

15 month old girl after a scald injury to the chest and face, no intra-oral lesion were noted at initial eval

Pictures of the anterior neck and chest after emergent intubation in the emergency room

65% of the patients had flame injuries

35% had scald injuries

Two patients required intubation for airway distress

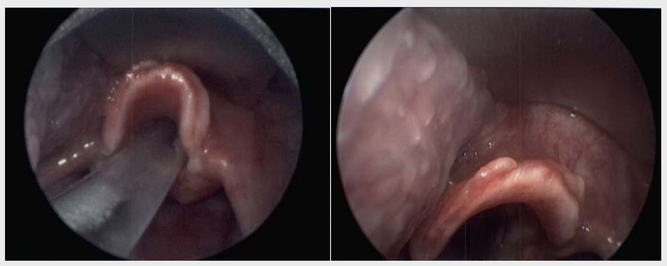
The otolaryngology service was consulted for airway assessment in only 4 children on admission. All had flexible fiberoptic NPL examinations

Telescopic laryngoscopy showing supraglottic eschar and edema

DISCUSSION

Pediatric patients, especially those that are preverbal present a particular challenge in terms of quickly diagnosing airway obstruction after a scald type burn injury

Whether these patients actually ingest the causative agent or a "airway stream" injury bypasses the oral and oropharyngeal airway causing direct damage to the supraglottis/glottis is still up to debate.



Two week follow up after debridement of of supraglottic eschar in the operating room

Other possibilities including direct transmission of thermal energy from the anterior neck burn to the upper airway have also been discussed in the literature.

The role of the otolaryngologist, in terms of assessment of the airway never resulted in an escalation of airway interventions.

However, in one intubated patient, our assessment did result in a more cautious extubation plan. Thus, as otolaryngologists, our role appears to be more valuable in secondary airway assessment.