

Citation

Esmail S, Posner KL, Stephens LS, Domino KB. Esophageal Injuries: A Closed Claims Analysis. *Anesthesiology*, A1081, 2012.

Abstract

Background

Airway injuries are a well-known complication of general anesthesia (GA) and a significant source of morbidity for patients.¹ In a review of claims for airway injuries in the American Society of Anesthesiologists (ASA) Closed Claims database from over 10 years ago, esophageal perforation was one of the most frequent sites of injury, often associated with difficult intubation.² Furthermore, esophageal injuries carried both the highest morbidity and payment to the plaintiff compared to claims for other sites of airway injury prior to 1995.² The current study updates patterns related to esophageal rupture in all airway injury claims from 1995 to 2010 in the Closed Claims database.

Methods

After IRB approval, we searched the ASA Closed Claims Project database of 9536 claims for airway injuries that occurred in 1995 or later. We reviewed causes and factors associated with esophageal perforation in detail. All payments were CPI-adjusted to 2011 dollars and compared to other airway injury claims using the Mann Whitney U Test with $p < 0.05$ for statistical significance. Fisher's exact test was used to compare outcomes between esophageal injuries and other airway injuries.

Results

Esophageal perforation occurred in 24% (54 of 224) of airway injuries and was the most common site of airway injury from 1995 to 2010. Other common sites of airway injury included vocal cord or laryngeal injury, tracheal tear or tracheostomy, and pharyngeal injury (Figure). The mechanism of esophageal injury was attributed to two major causes: difficult intubation (41%) or esophageal equipment (35%), such as a transesophageal echocardiography (TEE) probe or an esophageal dilator/anvil for gastric surgery. In 43% of esophageal perforations, patients had pre-existing esophageal pathology, e.g. gastroesophageal reflux or hiatal hernia. In 6% of esophageal rupture claims, the patient had received chronic systemic steroid therapy.

Death resulted in 19% of cases of esophageal perforation, similar to the previous analysis (19%) prior to 1995.² Payment was made to the plaintiff in 52% of esophageal injury claims, no different than other airway claims (46%, $p = 0.866$). Median payment for esophageal injury was \$210,000 (range \$38,100 to \$2,156,250), significantly higher than payments in other airway injury claims (median \$117,900; range \$1,430 to \$8,540,000, $p = 0.016$).

Conclusions

This study identified an emerging cause of esophageal injuries resulting from the increased use

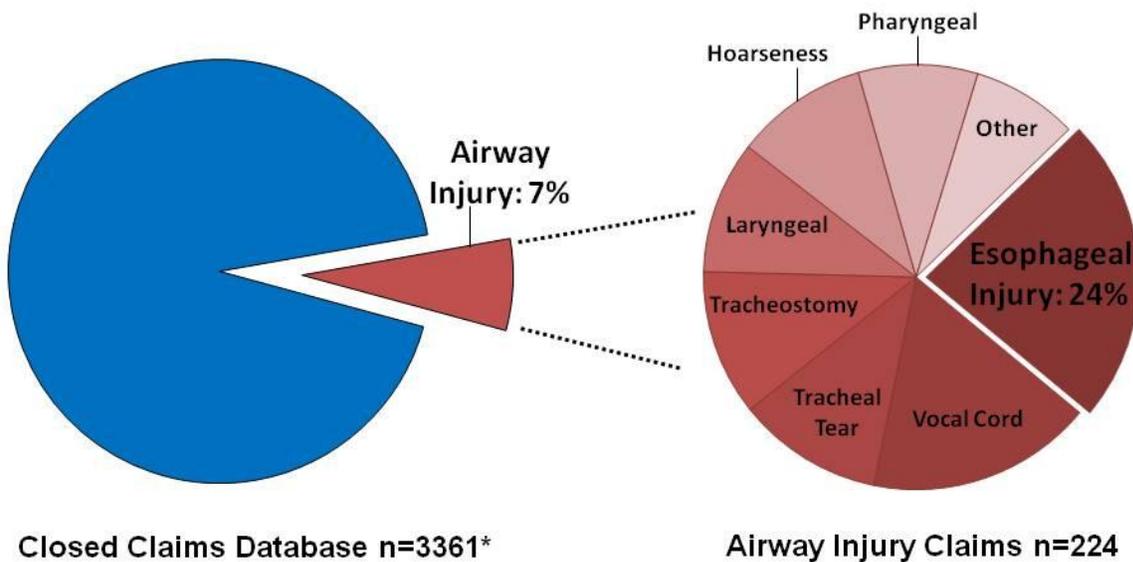
of esophageal devices, such as TEE and the trans-oral anvil for minimally invasive gastric surgery. Esophageal perforation continues to be a severe complication with high mortality. Patients in whom esophageal instrumentation is used and patients who have underlying pathology of the esophagus may be more prone to esophageal perforation. Caution is advised when caring for these patients in the perioperative period.

References

1. Cummings Otolaryngology - Head and Neck Surgery, 5th ed. Flint et al. (eds) 2010; pgs 933-42.
2. Domino et al. Anesthesiology 1999; 91:1703-11.

Figure 1

Airway Injuries: 1995 or Later



*chronic pain management excluded