

REVIEW ARTICLE

Awake Fiberoptic-Guided Intubation in Suspected Esophageal Perforation: A Proactive Airway Strategy

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ABSTRACT

Esophageal perforation is a rare but potentially life-threatening condition associated with significant morbidity and mortality, particularly when diagnosis is delayed. Airway management in such patients presents unique challenges due to the risk of aspiration, mediastinal contamination, and airway compromise. We report the case of a 28-year-old male presenting with dysphagia who underwent upper gastrointestinal endoscopy. Anticipating a high aspiration risk, airway management was secured using awake fiberoptic-guided nasotracheal intubation. This approach allowed preservation of spontaneous ventilation, airway reflexes, and continuous visualisation. The procedure was uneventful, and the patient remained stable. This case highlights the importance of anticipatory airway planning and supports awake fiberoptic intubation as a proactive strategy in physiologically difficult airway scenarios.

KEYWORDS

- Esophageal perforation • Difficult airway • Awake fiberoptic intubation
- Airway management • Gastrointestinal endoscopy

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INTRODUCTION

Esophageal perforation is an uncommon but serious clinical condition characterized by full-thickness disruption of the esophageal wall, leading to leakage of contents into the mediastinum. It is associated with high morbidity and mortality, especially when diagnosis is delayed beyond 24 hours.^{1,2} The most common cause is iatrogenic injury during endoscopic procedures, although spontaneous rupture and trauma are also recognised etiologies.³

From an anesthesiology perspective, these patients present a significant airway challenge. The risk of regurgitation and aspiration, combined with potential mediastinal contamination, necessitates a carefully planned airway strategy. Conventional induction of general anaesthesia may abolish protective airway reflexes and increase the risk of aspiration. Awake fiberoptic intubation is widely regarded as the gold standard for anticipated difficult airway management, as it allows maintenance of spontaneous ventilation and airway reflexes while enabling continuous visualisation.^{4,5}

CASE PRESENTATION

A 28-year-old male weighing 72 kg presented with throat discomfort and progressively worsening dysphagia over several days. There was no history of trauma, foreign body ingestion, or significant comorbid illness. The patient was scheduled for upper gastrointestinal endoscopy.

On examination, the patient was conscious, cooperative, and hemodynamically stable. Vital

parameters were within normal limits. Airway assessment did not reveal any predictors of difficult intubation. However, considering the suspected esophageal pathology and high aspiration risk, a decision was made to secure the airway before endoscopy.

After obtaining informed consent, standard American Society of Anesthesiologists monitoring was instituted. Premedication with intramuscular glycopyrrolate 0.2 mg was administered 30 minutes before the procedure to reduce airway secretions.

Airway anaesthesia was achieved using a multimodal technique. Nebulization with 4% lignocaine (4 mL; 160 mg) was followed by oropharyngeal topicalization using 10% lignocaine spray (approximately 20 mg). Nasal preparation was performed using xylometazoline drops to facilitate passage and minimise bleeding.

Bilateral superior laryngeal nerve blocks were performed using 2 mL of 2% lignocaine on each side. A transtracheal injection of 2 mL of 4% lignocaine was administered via the cricothyroid membrane. The total dose of lignocaine remained within recommended safe limits.

Awake fiberoptic-guided nasotracheal intubation was performed using a flexible bronchoscope preloaded with a 7.5-mm cuffed armoured endotracheal tube (Figure 1). The bronchoscope was introduced through the left nostril, and the epiglottis, vocal cords, and tracheal rings were clearly visualised. The endotracheal tube was successfully intubated into the trachea. Correct placement was confirmed by capnography and bilateral chest auscultation.



Figure 1: Fiberoptic bronchoscope introduced through the nasal passage during awake fiberoptic-guided endotracheal intubation

Following airway securement, upper gastrointestinal endoscopy was performed. Endoscopic examination revealed a linear mucosal defect measuring approximately 1.5–2 cm in the proximal esophagus, located about

10 cm from the incisors, with overlying blood clots and surrounding edema suggestive of esophageal perforation (Figure 2). The stomach and duodenum appeared normal.

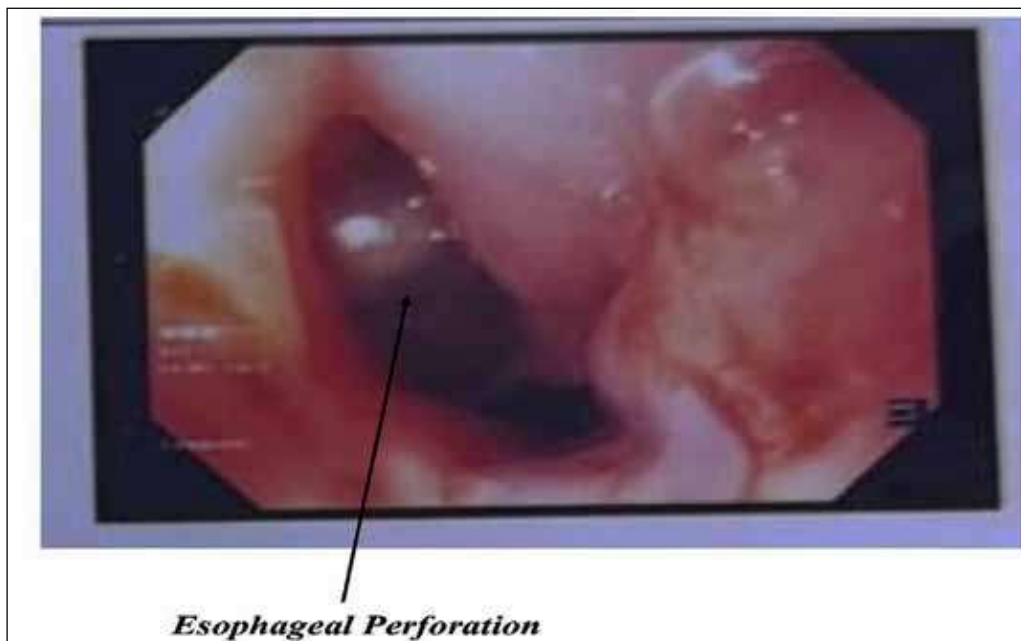


Figure 2: Upper gastrointestinal endoscopic image showing a linear mucosal defect with overlying blood clot in the proximal esophagus suggestive of esophageal perforation

The patient remained hemodynamically stable throughout the procedure, with no airway-related complications.

DISCUSSION

Esophageal perforation is a surgical emergency associated with significant morbidity and mortality, particularly when diagnosis is delayed.^{1,2} From an anaesthetic perspective, the primary concern is the risk of aspiration and further contamination during airway management. Induction of general anaesthesia before securing the airway may result in loss of protective reflexes, increasing the likelihood of regurgitation and aspiration. Additionally, positive pressure ventilation may exacerbate mediastinal air leak through the perforation site.⁵

In this case, awake fiberoptic-guided intubation was deliberately chosen to mitigate these risks. This technique allows preservation of spontaneous ventilation, maintenance of airway reflexes, and continuous visualisation of airway structures, making it particularly suitable for patients with high aspiration risk.^{4,6}

An important concept highlighted by this

case is the distinction between anatomical and physiological difficult airway. Although the airway was anatomically normal, the physiological risk of aspiration necessitated an awake approach. This reinforces the growing recognition of the “physiological difficult airway,” where the risk arises from underlying pathology rather than airway anatomy.

The use of a multimodal airway anaesthesia technique, combining nebulization, topicalization, and regional nerve blocks, ensured optimal patient comfort and intubating conditions. Preemptive airway control before endoscopy represents a proactive strategy that minimises complications associated with sedation and airway loss.

CONCLUSION

Esophageal perforation is a rare but potentially fatal condition requiring prompt diagnosis and careful airway management. Awake fiberoptic-guided intubation provides a safe and effective method of securing the airway in patients with high aspiration risk, even in the absence of anatomical difficulty. This case

emphasises the importance of anticipatory planning and supports awake intubation as a proactive strategy in physiologically difficult airway scenarios.

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