Trauma endoscopy: endoscopic closure of an esophageal perforation caused by knife stabbing

A young woman was admitted to the emergency room after being assaulted with a knife, resulting in a deep cervical wound. On examination, she had subcutaneous emphysema in the neck and air leakage from her trachea. Because of a compromised airway, she underwent endotracheal intubation. Computed tomography angiography (CTA) revealed a tracheal perforation, but no clear esophageal defect (Fig. 1).

At surgical exploration, the trachea appeared to be perforated on both the anterior and posterior walls. The trachea was surgically repaired and a right-sided tension pneumothorax was treated with a chest tube. Because of the injury to the posterior wall of the trachea, there was a suspicion of esophageal perforation, which was not visible during surgical exploration. To explore the esophagus further, an additional surgical exposure would have been needed and therefore a diagnostic gastroscopy was performed during surgery.

Gastroscopy showed both longitudinal entry and exit wounds in the proximal esophagus (Fig. 2a). It was decided that endoscopic closure should be feasible and subsequently, both perforations were closed using a total of six standard through-the-scope clips (Resolution 360 Clip Take Control; Boston Scientific, Marlborough, Massachusetts, USA) (Fig. 2b; Video 1). Next day, a barium swallow was performed, which showed no leakage of contrast (Fig. 3).

After further recovery, the patient was discharged in good clinical condition. At follow-up after 3 months, the patient had made a good recovery and a repeat barium swallow showed no leakage of contrast, with two clips still in place.

To our knowledge, this is the first case describing endoscopic closure of a stab wound. Endoscopic closures are frequently performed for iatrogenic perforations or perforations caused by foreign objects. Over-the-scope clips, through-the-scope clips, and covered self-expandable metal stents are frequently used. These developments have resulted in a change in the treatment paradigm from major surgery to endoscopic closure and conservative treatment [1, 2].

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Video 1 Endoscopic closure of a traumatic endoscopic perforation caused by knife stabbing. First the exit wound is closed with two through-the-scope clips, then the contralateral entry wound is closed by four clips.

Fig. 1 Emergency computed tomography scan showing free air at the level of the larynx.

Fig. 2 Endoscopic views showing: a both the entry and exit wounds; b the two wounds after endoscopic closure with six clips.

Fig. 3 Barium swallow showing no leakage of contrast.
Competing interests

None

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▶ Fig. 3 Radiological images showing: a the six endoscopic clips in position 1 day after closure; b the passage of oral contrast without leakage.

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