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Penetrating neck injury causing arterial pseudoaneurysm, rapidly enlarging neck hematoma, and airway compromise



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Visual case discussion

A young male was admitted to the Emergency Department after sustaining a stab wound to the right neck. Initial survey showed a 2 cm laceration in the right neck, with some oozing and bubbling of blood at the entry wound in the right neck. No other injuries were identified. A CT angiogram of the neck was performed, which showed a pseudoaneurysm of the proximal right external carotid artery (ECA), with active

extravasation into a retropharyngeal neck hematoma. There was partial effacement of the airway by the hematoma.

The patient was intubated and transported to the operating room for surgical exploration. Lacerations of the right proximal ECA and right internal jugular vein were found, both of which were repaired. There were no further episodes of bleeding postoperatively, and the patient was successfully extubated one day after surgery (Figs. 1–3).

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Fig. 1. Axial image from CT Angiogram of the neck shows a small pseudoaneurysm (arrow) anterior to the distal right common carotid artery, just before the bifurcation. There is also a hematoma in the retropharyngeal soft tissues contiguous with the pseudoaneurysm, narrowing the hypopharyngeal airway (arrowhead).

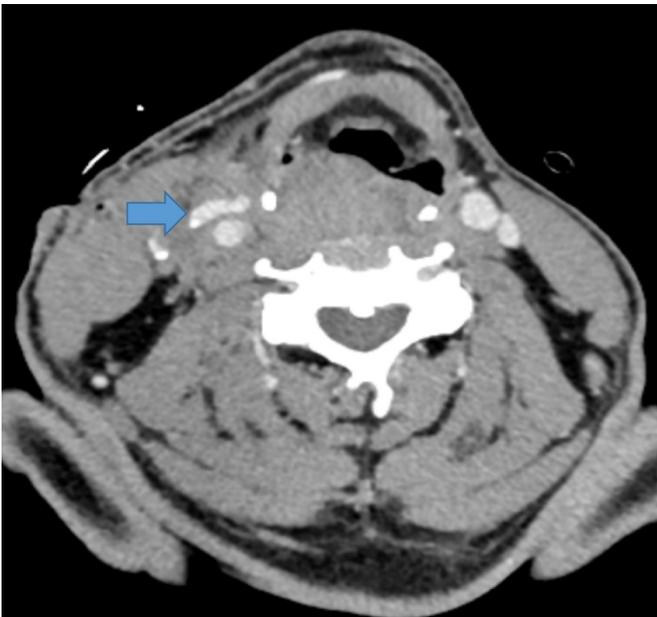


Fig. 2. Delayed images of the neck 60 s after the initial scan CTA shows a change in the morphology of the pseudoaneurysm (arrow), in keeping with active extravasation.

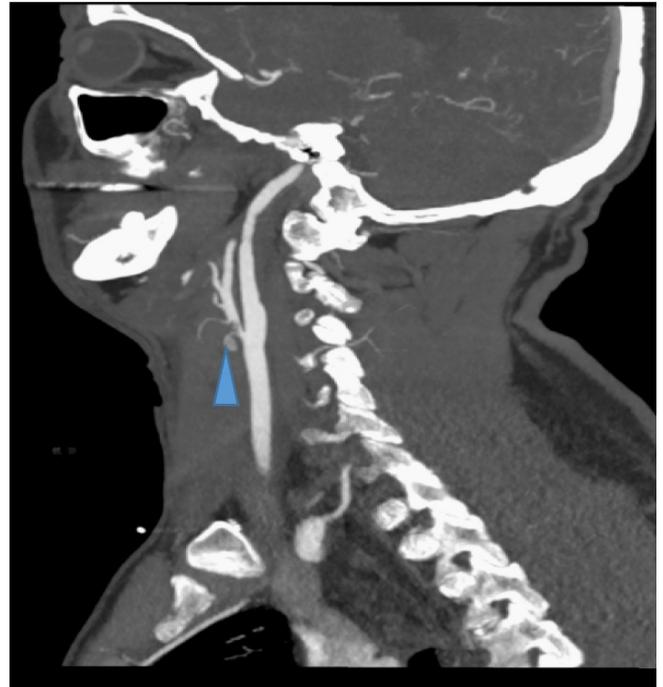


Fig. 3. Sagittal plane maximum intensity projection images from the CTA of the neck show the small pseudoaneurysm arising from the proximal external carotid artery (arrowhead).

Visual case questions

- In a patient with an expanding neck hematoma, primary consideration should be given to which of the following?
 - Identifying the source of bleeding
 - Assessing and securing the airway
 - Bedside surgical exploration
 - Obtaining complete blood count and transfusing as needed
 - Obtaining coagulation profile and reversing anticoagulant effect
- What is the most feared complication from unrecognized penetrating esophageal injury?
 - Stricture
 - Dysphagia
 - Mediastinitis
 - Pneumomediastinum
 - Hemoptysis

Answers

- Discussion: B: Assessing and securing the airway. In any patient with an expanding neck mass or hematoma, primary consideration should be given to assessing and maintaining the airway. Loss of the airway and asphyxiation can be sudden and potentially fatal in these situations. Intubation should be performed by an experienced provider, as distortion of the airway by mass effect may present difficulties during intubation.
- Discussion: C: Mediastinitis. Mediastinitis is the most feared complication of penetrating injury involving the esophagus. Delayed diagnosis and treatment can result in significant morbidity and mortality. Whenever esophageal injury is suspected after penetrating injury, urgent evaluation with endoscopy and barium esophagography should be performed to exclude injury.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.visj.2019.100658](https://doi.org/10.1016/j.visj.2019.100658).