

**Visual Case Discussion****Pneumomediastinum, pneumoperitoneum and pneumoscrotum following perforation of the pyriform sinus**

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A 45-year-old male known case of asthma, was brought to the emergency department with resistant seizure and respiratory distress. After rapid sequence tracheal intubation, the patient underwent mechanical ventilation. We noticed a high inspiratory pressure alarm and subcutaneous emphysema in the left side of the chest. The patient was removed from the ventilator and a chest tube was inserted. A thoracic and abdominopelvic computed tomography (CT) revealed air in the

mediastinum, peritoneum, retroperitoneum, and scrotum (Fig. 1 A, B, C). Neck CT scan showed the source of air leak that was a tear in the left pyriform sinus (Fig. 2). Pyriform sinus perforation is a rare complication of endotracheal intubation.¹ In this patient, the airway pressure was high and pushed the mediastinal air along fascial planes and through the foramina of Morgagni and Bochdalek in the diaphragm and caused pneumoperitoneum and retroperitoneal air.

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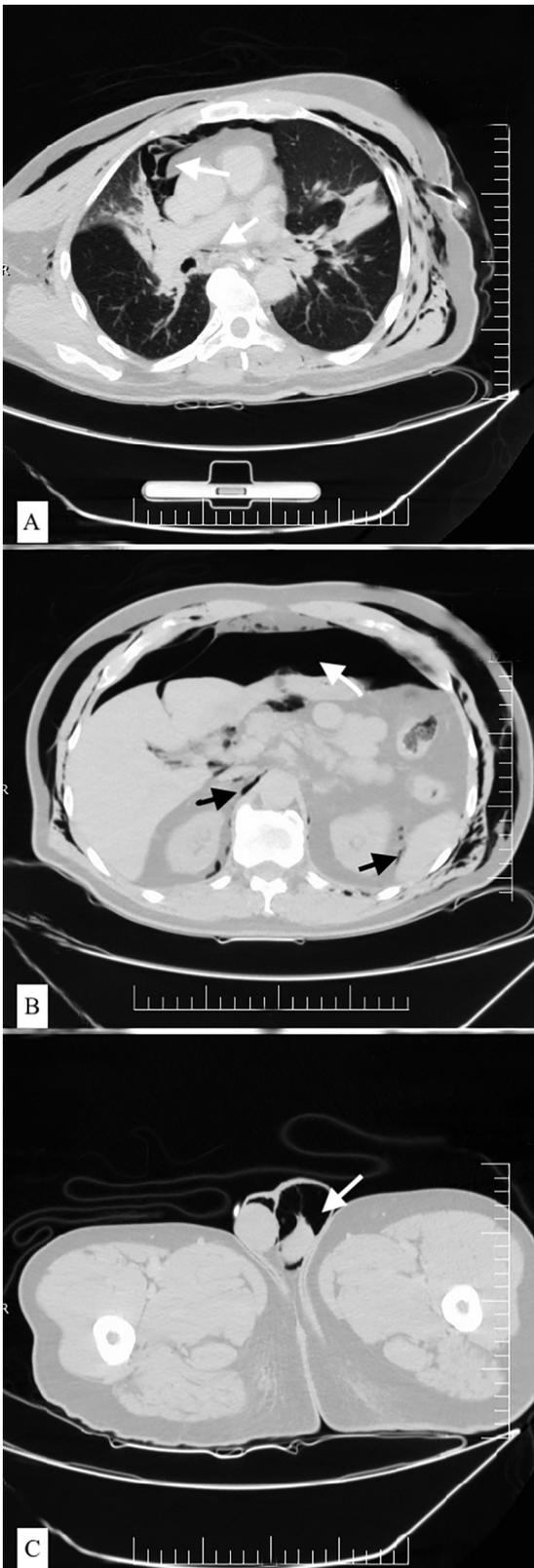


Fig. 1. Pneumomediastinum (white arrow) A, pneumoperitoneum (white arrow) and retroperitoneal air (black arrow) B, pneumoscotum C.



Fig. 2. Axial neck CT shows a tear in the left pyriform sinus (white circle).

Supplementary material

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.visj.2019.100558.

Reference

1. Tai-Shion Lee, John S. Jordan. Pyriform sinus perforation secondary to traumatic intubation in a difficult airway patient. *J Clin Anesth.* 1994;6(2):152-155 [https://doi.org/10.1016/0952-8180\(94\)90017-5](https://doi.org/10.1016/0952-8180(94)90017-5).

Questions

1. Where is the most common site of perforation in a traumatic intubation?
 - a. Epigelotis
 - b. Pyriform sinus
 - c. Valleculae
 - d. Soft palate
2. What is the most common cause of pyriform sinus perforation?
 - a. Iatrogenic
 - b. Infection
 - c. Congenital disorders
 - d. Vomiting

Answers

1. Pyriform sinus. Explanation: Pyriform sinus is the most common site of soft tissue perforation due to traumatic intubation.
2. Iatrogenic. Explanation: The commonest cause of pyriform sinus perforation is iatrogenic, usually secondary to instrumentation. Reference: Ozer Makay MD., Gokhan Icoz MD., Serdar Akyildiz MD. Pyriform sinus perforation secondary to nasogastric tube insertion, *ANZ journal of surgery*, 2008(78),7:624-624. <https://doi.org/10.1111/j.1445-2197.2008.04594.x>.