

CLINICAL IMAGE

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A midway to disaster: Concealed pneumomediastinum after endobronchial catheter intubation

Ying-Tzu Li, Po-Yuan Shih, Ya-Jung Cheng

CASE REPORT

A 58-year-old woman with non-small cell lung cancer accepted right-sided video-thoracoscopic wedge resection surgery. A left-sided 35 French/Ch Mallinckrodt™ double lumen endobronchial tube (DLT) with stylet was inserted smoothly, and confirmed by auscultation and fiberoptic bronchoscopy. Mild hypotension (BP: 85/60 mmHg) was found while turning her left decubitus without changes on ventilation pressure. After artificial pneumothorax, pneumomediastinum with concealed numerous widespread air bubbles was noted immediately by thoracoscopic view directed to apical chest wall (Figure 1). The blood pressure returned to normal once the mediastinum was opened to release the air. A shallow “V-shaped” laceration (arrow heads) was noted in the carina (C) by repeated bronchoscopic examination (Figure 2). The DLT was extubated smoothly after the video-assisted thoracic surgery (VATS) right middle lobe wedge resection. The following X-ray two hours later showed significant pneumomediastinum and “left” pneumothorax (Figure 3). The patient was admitted to intensive care unit for one night without any discomfort, and was discharged five days after the surgery.

DISCUSSION

Double lumen endobronchial tube is a common instrument in thoracic surgeries. The estimated incidence

of tracheobronchial rupture was reported approximately 0.3%, and was higher in women [1, 2]. Previous reports demonstrated that most common ruptured sites are

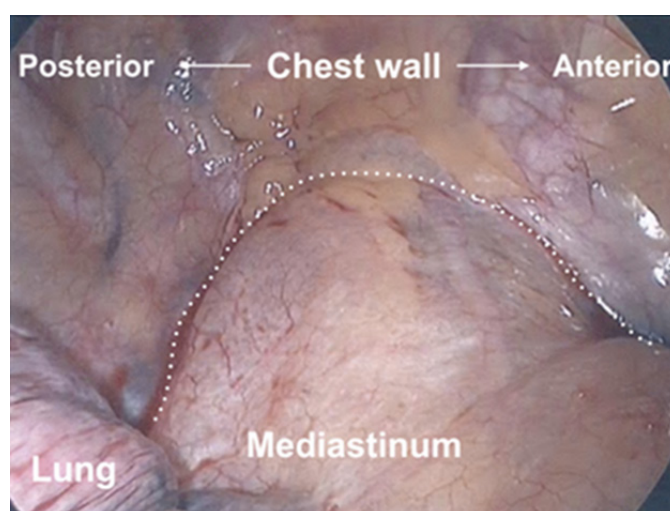


Figure 1: A bulging concealed pneumomediastinum was shown in thoracoscopic view.

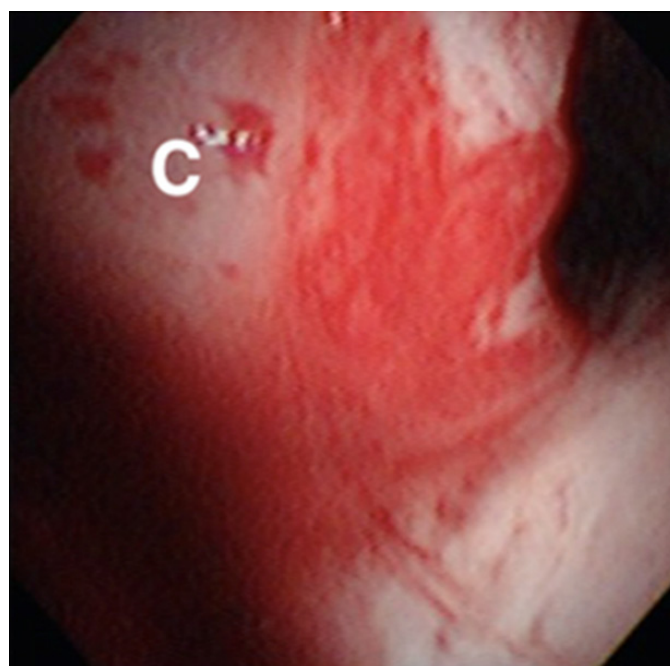


Figure 2: A shallow V shape laceration on the carina (C) in bronchoscopic view.

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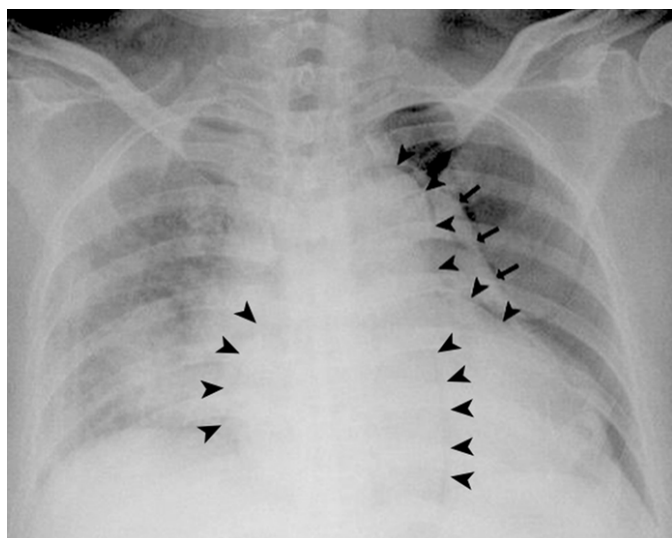


Figure 3: Arrowheads indicate the lines of pneumomediastinum and arrows indicate the visceral pleura of left lung.

distal trachea and posterior membranous wall of main bronchi [3].

Small, negligible laceration by a smooth endobronchial catheter intubation with routine fiberoptic bronchoscope could lead unpreventable injury. Without signs of tension pneumothorax, severe, concealed pneumomediastinum could be fatal by undetected cardiac tamponade effect. In this case, unexplained hypotension is the only clinical symptom. In clinical practice, accidental tracheobronchial injuries following endobronchial catheter insertion remain unpreventable. An unexplained intraoperative hypotension may be a surrogate for a tracheobronchial injury and it may be the midway with a concealed pneumomediastinum heading to disaster tension pneumothorax. Transthoracic or transesophageal echography (TTE or TEE), if available, may provide a quick diagnosis and a guide of releasing for unstable hemodynamics. A glance on mediastinum by video in VATS operations also provides early diagnosis and management. A postoperative X-ray is strongly recommended, because a small laceration in carina may lead to contralateral pneumothorax as well.

CONCLUSION

Accidental tracheobronchial injuries following endobronchial catheter insertion is unpreventable. We presented this case with unexplained hypotension and images to demonstrate a concealed pneumomediastinum as a midway to disaster tension pneumothorax.

Keywords: Pneumothorax, Thoracoscopy/VATS, Tracheal carina, Tracheal injury

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Author Contributions

Ying-Tzu Li – Acquisition of data, Analysis of data, Drafting the work, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Po-Yuan Shih – Conception of the work, Design of the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Ya-Jung Cheng – Conception of the work, Design of the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

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Written informed consent was obtained from the patient for publication of this article.

Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

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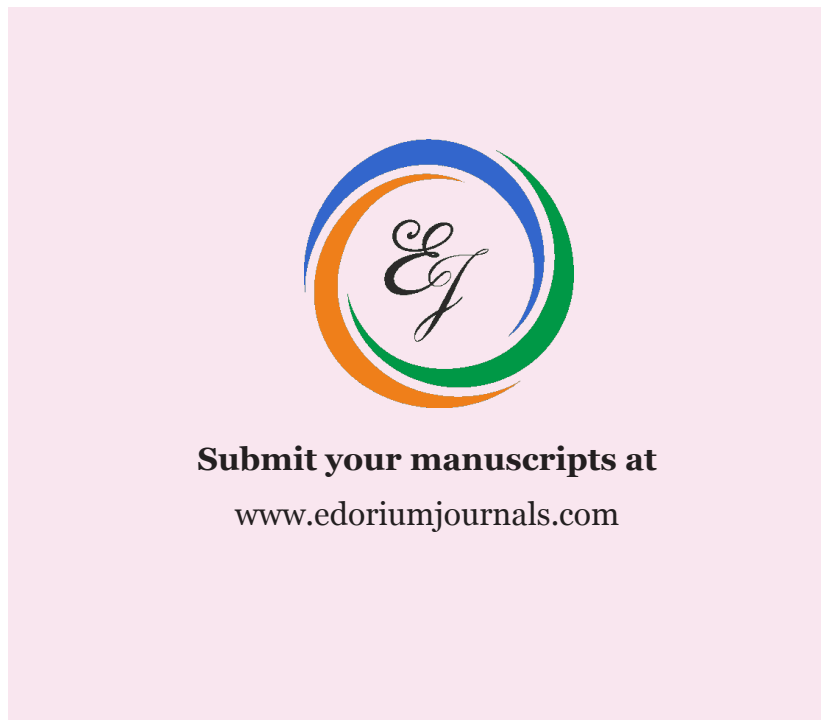
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