

Active bleeding from intercostal artery pseudoaneurysm after a percutaneous tube thoracostomy drainage procedure: diagnosis with CT angiography and treatment with transarterial coil embolisation

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DESCRIPTION

Intercostal artery (ICA) pseudoaneurysm related to tube thoracostomy drainage procedure is not commonly encountered.¹ But when haemothoraces develops due to pseudoaneurysms, they could be timely detected by CT with CT angiography (CTA) and treated via transarterial embolisation with mini coils.^{2,3} We report the case of a 9-year-old female child with medulloblastoma involving her brain and spine who was admitted for scheduled chemotherapy. She developed progressive dyspnoea (with oxygen saturation 80%) and a right pleural effusion was noted. Subsequently, a right-sided thoracentesis with pigtail catheter insertion was performed. After thoracentesis, her respiratory pattern improved with decreased fluid drained from the pigtail catheter and thus the pigtail was removed. However, her shortness of breath with decreased breath sounds over the right lung fields recurred the next day. Repeat thoracentesis revealed bloody fluid. CT with CTA showed right haemothorax with active bleeding from the right seventh intercostal space into the thoracic cavity (figure 1). Thoracic aortography and right seventh intercostal arteriography showed a tubular lesion with contrast filling suspicious for a



Figure 1 CT with CT angiography showed right haemothorax with active bleeding from the right seventh intercostal space into the thoracic cavity.



Figure 2 Thoracic aortography (A) and right seventh intercostal arteriography (B) showed a tubular lesion with contrast filling suspicious for a right intercostal artery pseudoaneurysm.

right ICA pseudoaneurysm (figure 2). Transarterial embolisation was performed via the distal portion of right seventh ICA with two Vortx (3 mm×2.5 mm Vortx-18 mini coils (Boston Scientific, Massachusetts, USA)) deployed to obliterate the arterial rupture site



Figure 3 Transarterial embolisation was performed via the distal portion of right seventh intercostal artery with two Vortx (3 mm×2.5 mm Vortx-18 mini-coils (Boston Scientific; Massachusetts, USA)) deployed to obliterate the arterial rupture site and the associated pseudoaneurysm. Follow-up intercostal arteriography revealed no further contrast extravasation or opacification of the pseudoaneurysm.



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Learning points

- ▶ Intercostal artery pseudoaneurysm related to tube thoracostomy drainage procedure is not commonly encountered but carries a high risk of morbidity and even to circulatory shock and death when ruptured.
- ▶ CT with CT angiography provides prompt diagnosis and transarterial embolisation with mini coils is considered as an effective therapeutic option to correct ruptured intercostal artery pseudoaneurysm inducing haemodynamic instability.
- ▶ Prevention of this complication relies on the familiarity of the operator with anatomic features and proper tube thoracostomy placement technique accomplished by dissecting and placing the tube above the superior border of the rib to avoid injury to the neurovascular bundle.

and the associated pseudoaneurysm. Follow-up intercostal arteriography revealed no further contrast extravasation or opacification of the pseudoaneurysm (figure 3).

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REFERENCES

- 1 Kwiatt M, Tarbox A, Seamon MJ, *et al.* Thoracostomy tubes: a comprehensive review of complications and related topics. *Int J Crit Illn Inj Sci* 2014;4:143–55.
- 2 Sekino S, Takagi H, Kubota H, *et al.* Intercostal artery pseudoaneurysm due to stab wound. *J Vasc Surg* 2005;42:352–6.
- 3 Diego F, Marta B, Antonio LR, *et al.* Ruptured intercostal artery pseudoaneurysm in a patient with blunt thoracic trauma: diagnosis and management. *BMJ Case Rep* 2014;2014.

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