



Fig. 1. Fiberoptic bronchoscopy showed neoplastic hypervascularized lesion of the posterior tracheal wall.

Antiplatelet therapy was discontinued, and the patient was treated with aminocaproic acid, prophylactic antibiotherapy with amoxicillin and clavulanic acid and anticoagulant doses of low molecular weight heparin. He was discharged on remission of hemoptysis.

As this was an elderly patient with relapsed and disseminated disease, the chosen treatment was chemotherapy with chlorambucil and prednisolone, and local therapy (with bronchoscopy or radiotherapy) if he didn't respond. He has so far completed 8 cycles of chemotherapy and remains asymptomatic. Follow-up chest CT showed complete resolution of the tracheal mass.

Although tracheal MALT lymphoma is extremely rare, it is associated with favorable prognosis and long term survival. Several different therapeutic options have been shown to be effective in this disease (surgical resection, radiotherapy, bronchoscopic therapy, chemotherapy, immunotherapy (rituximab) and

immunochemotherapy). Given its rarity, there is insufficient data to compare the different options available.

In the case of disseminated disease, the treatment guidelines for non-gastric lymphoma recommend chemotherapy alone or in combination with immunotherapy. Local radiotherapy should be used only in localized stages or in palliation of local symptomatic disease.^{4,5}

Given the prognosis and survival of this disease, this is an important differential diagnosis in tracheal lesions.^{2,3} According to the *Pubmed* database, 20 cases have been reported worldwide; this is the first case described in Portugal.

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References

1. Thieblemont C, de la Fouchardière A, Coiffier B. Nongastric mucosa-associated lymphoid tissue lymphomas. *Clin Lymphoma*. 2003;3:212–24. <http://dx.doi.org/10.3816/CLM.2003.n.002> [accessed 30.07.15].
2. Magliari MER, de Aquino RTR, Gonçalves ALL, Marioni F, Bernardi FDC, Brasi S, et al. Linfoma do tecido linfóide associado à mucosa de traqueia: relato de caso. *Sao Paulo Med J*. 2012;130:126–9 [accessed 30.07.15].
3. Kang JY, Park HJ, Lee KY, Lee SY, Kim SJ, Park SH, et al. Extranodal marginal zone lymphoma occurring along the trachea and central airway. *Yonsei Med J*. 2008;49:860–3 [accessed 30.07.15].
4. National Comprehensive Cancer Network Clinical Practice Guidelines in Oncology: Non-Hodgkin's Lymphomas. Version 1; 2016. p. 1211–8. <http://dx.doi.org/10.1016/B978-1-4377-1604-7.00191-3> [accessed 1.02.16].
5. Dreyling M, Thieblemont C, Gallamini A, Arcaini L, Campo E, Hermine O, et al. ESMO Consensus Guidelines: marginal zone lymphoma, mantle cell lymphoma, peripheral T-cell lymphoma. *Ann Oncol*. 2013;24:857–77 [accessed 01.02.15].

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Pulmonary Artery Perforation After Chest Tube Insertion[☆]



Perforación de la arteria pulmonar tras la inserción de un drenaje torácico

To the Editor:

Insertion of chest tubes into the pleural space is standard therapy for a variety of pleural abnormalities, and is generally considered to be a safe procedure.¹ Major thoracic vessel injury is rare, but nevertheless has been previously reported in the literature.^{2–4}

We present the case of a 78-year-old male who was admitted to his local hospital with complaints of thoracic pain and dyspnea after accidentally falling. His past medical history was relevant for a mechanical aortic valve prosthesis implanted 27 years previously, and he was on current treatment with acenocoumarol.

At the time of presentation, a chest X-ray revealed a right sided pleural effusion. A 20 F trocar-type chest tube was inserted at the 5th intercostal space in the anterior axillary line. Upon placement of the chest tube more than 1000 mL of blood was withdrawn and the patient became severely hypotensive, the chest tube was immediately clamped and a chest X-ray revealed a right massive pleural effusion. The patient was then transferred to our hospital with suspicion of intercostal artery laceration. On arrival, a chest CT scan was performed showing the chest tube inside the main pulmonary artery through the right pulmonary artery (Fig. 1). The patient was immediately transferred to the operating room with the thoracostomy tube clamped. A right antero-lateral thoracotomy was performed through the 4th intercostal space. Pleural adhesions were found and adhesiolysis was performed with cauterization and blunt dissection.

The tube was noted to perforate the right upper lobe, and after following the trajectory the entrance point was noted to be through one of the inferior branches of the right pulmonary artery. The main pulmonary artery was encircled with a vessel loop and the pulmonary circulation was temporally interrupted, the thoracostomy tube was successfully retrieved and the orifice was sutured with monofilament sutures. The vessel loop was released,

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Fig. 1. CT scan reconstruction showing the chest tube inside the main pulmonary artery through the right pulmonary artery. (A) Axial. (B) Coronal.

and after confirmation of bleeding control, sutures were placed at the entrance of the lung parenchyma.

New chest tubes were placed and the patient was transferred to the ICU. Following the intervention, chest X-rays showed bilateral infiltrates compatible with ARDS, and over the next few days the

patient developed multiorgan failure. Finally, the patient died on the seventh postoperative day.

Several complications have been reported following chest tube insertion, including lung and diaphragm lacerations, intercostals artery bleeding and perforation of intraabdominal organs.¹ Damage to cardiac structures has also been reported, such as right atrium perforation described by Meisel, Ram and Priel.⁵

As previously reported,² a chest X-ray showing the tip of the catheter passing across the midline and the withdrawal of fresh blood should raise the suspicion of pulmonary artery perforation, as was the case in our patient.

It has been described that pleural adhesions, as also found in this case, could play a role upon misplacing the thoracostomy tube, probably by leading to perforating the lung parenchyma or lacerating vascular structures.³

For the management of pulmonary artery perforation, different approaches have been described^{2–4} including the progressive withdrawal of the chest tube during several days with no surgical intervention. However, it is accepted that the best option is to keep the tube clamped when there is suspicion of a great vessel rupture until the patient arrives to the operating room. It has been reported that the retrieval of the chest tube prior to arrival to the operating room may lead to a fatal outcome.⁵

Finally, chest tube insertion is a procedure that saves lives and is commonly performed in everyday clinical practice. However, as in any medical/surgical procedure, complications may occur. In order to achieve the best treatment, it is important to quickly recognize them and to choose the most suitable treatment for each patient. In the case we present we believe that the immediate surgical approach may be the best choice.

References

1. Miller KS, Sahn SA. Chest tubes. Indications, technique, management and complications. *Chest*. 1987;91:258–64.
2. Sundaramurthy SR, Moshinsky RA, Smith JA. Non-operative management of tube thoracostomy induced pulmonary artery injury. *Interact Cardiovasc Thorac Surg*. 2009;9:759–60.
3. Takanami I. Pulmonary artery perforation by a tube thoracostomy. *Interact Cardiovasc Thorac Surg*. 2005;4:473–4.
4. Rombola CA, Tomatis SB, Honguero Martinez AF, León Atance P. Parapneumonic pleural effusion. Accidental insertion of a chest tube into right pulmonary artery. *Eur J Cardiothorac Surg*. 2008;34:903.
5. Meisel S, Ram Z, Priel I, Nass D, Lieberman P. Another complication of thoracostomy – perforation of the right atrium. *Chest*. 1990;98:772–3.

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