Giant Pseudoaneurysm of the Left Atrium after Pneumonectomy

Michael Westhoff^{a, b} Ursula Kreppein^a

^aHemer Lung Clinic, Hemer, Germany; ^bUniversity Witten-Herdecke, Witten, Germany

A 68-year-old female with squamous cell carcinoma of the middle lobe and infiltration of the right lung veins (sT3G3N1) underwent pneumonectomy with lymphadenectomy and intrapericardial ligation of the lung veins (R0 resection). After prolonged weaning, she left the hospital with nocturnal invasive ventilation via tracheostomy.

Nine months later, she developed clinical deterioration with nausea and vomiting, leading to a stay in another hospital, where a pyelonephritis was diagnosed and treated with antibiotics. Since that time, the patient had dyspnoea and tachypnoea, which resulted in increasing use of invasive ventilation also in the daytime. This led to readmission. The blood gas analysis showed a pH of 7.54, a pCO₂ of 31.5 mm Hg and a pO₂ of 94.9 mm Hg under invasive mechanical ventilation with additional oxygen flow of 2 L/min. The inspiratory pressures were reduced, leading to a better tolerance of the mechanical ventilation and a normalization of the blood gases.

A chest X-ray showed an opacified right hemithorax (Fig. 1). The contrast-enhanced CT scan of the thorax with coronal (Fig. 2a), sagittal (Fig. 2b) and axial scans (Fig. 2c) revealed a giant (9.4 × 6.6 × 7.1 cm) hyperdense structure, which nearly filled the right hemithorax and communicated with the left atrium. The colour Doppler

echocardiography (Fig. 2d) showed a giant aneurysm which originated from the left atrium at the point of the ligated lung veins. Surprisingly, the patient was asymptomatic haemodynamically. A relation between the pseudoaneurysm and the deteriorated respiratory situation could not be found. The patient received further palliative care because of hepatic and paravertebral metastatic disease.

Fig. 1. Chest X-ray with a homogenous opacification of the right hemithorax after pneumonectomy.

Fig. 2. Contrast-enhanced CT scan with coronal (a), sagittal (b) and axial (c) plane showing a giant ($9.4 \times 6.6 \times 7.1$ cm) pseudoaneurysm of the left atrium extending into the right hemithorax. Colour echocardiography (d) corresponding to the sagittal plane of the CT scan and visualizing blood flow from the left atrium into the pseudoaneurysm.

Comparable pseudoaneurysms have not been reported. There are only a few reports about pseudoaneurysms of the left atrium after commissurotomy [1] and ascending aorta replacement. Others concern posttraumatic pseudoaneurysms of the right atrium. Further pseudoaneurysms can be found in the intervalvular fossa between the mitral and aortic valve. They mostly occur after valve surgery or endocarditis and may communicate with or compress the atrium [2].

Therapeutic decisions in such pseudoaneurysms after lung surgery depend on the clinical and oncologic status of the patient. If restaging does not show any tumour recurrence, or if residual tumour can be treated with a good life expectancy, a resection should be discussed with the cardio-thoracic surgeons. In case of resection, the defect will be closed by a Dacron or pericardial patch. Otherwise, palliative care seems to be appropriate. Anticoagulant therapy may increase the risk of bleeding. In patients with atrial fibrillation, the risk of bleeding has to be weighed with the risk of arterial embolism. Therefore, an early decision on resectability is advisable, especially if the

CT scan shows a huge pseudoaneurysm. A further increase in diameter will increase the wall tension and the risk of rupture. In conclusion, pseudoaneurysms of the left atrium are rare, especially after lung resection, and may be asymptomatic. In tumour aftercare following pneumonectomy, they can be overseen if only routine X-rays are scheduled. Therapeutic decisions have to consider the individual and oncological situation of the patient.

References

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