

## Enigmatic Contralateral Hemothorax after Left Thoracotomy

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**Intrathoracic hemorrhage following surgical intervention that needs rethoracotomy has a low rate in the daily practice of thoracic surgery. Hemothorax in the contralateral site is definitely unexpected after thoracotomy. We present a case of contralateral hematoma after left posterolateral thoracotomy as a rare and enigmatic complication. (Ann Thorac Cardiovasc Surg 2009; 15: 336–338)**

**Key words:** contralateral hemothorax, rethoracotomy

### Introduction

Bleeding necessitating thoracotomy has been reportedly seen in 0.1%–3% of patients following thoracic surgery.<sup>1)</sup> The source of hemorrhage is usually the chest wall or mediastinal structures. The prevention of rethoracotomy can be speculated to be a meticulous search for potential bleeding during thoracotomy. However, contralateral hemothorax is definitely unexpected after thoracotomy. Herein we present a case with enigmatic contralateral hemothorax developing after a nonresectional thoracotomy.

### Case

Our patient was a 48-year-old man with a squamous cell carcinoma in the lower lobe of the left lung (Fig. 1). He also had cervical mediastinoscopy for mediastinal staging investigated for any distant organ metastases. Laboratory data of the patient (including prothrombin time [PT] = 12.1, activated partial thromboplastin time [aPTT] or

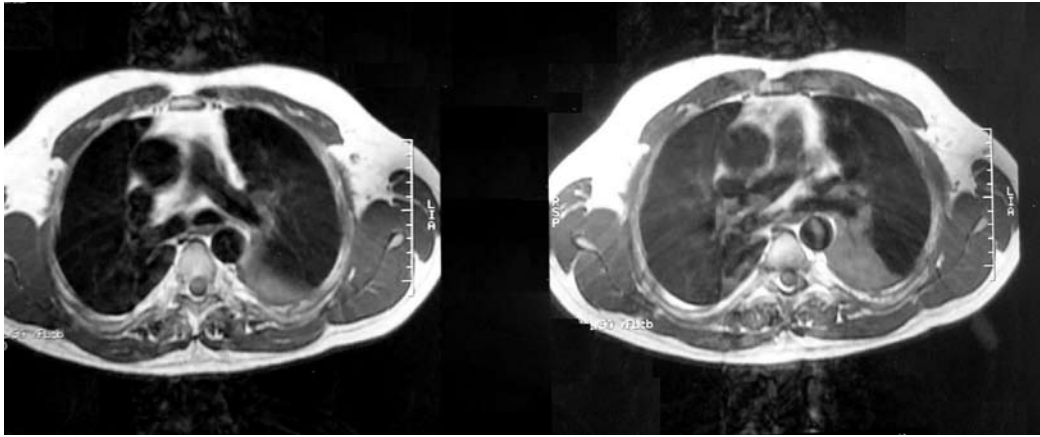
APTT] = 23.4) were in normal ranges, and a pathological examination of the mediastinal lymph nodes revealed no mediastinal metastasis; thus the patient was planned for surgical resection, and a subsequent left posteroanterior thoracotomy was performed. At exploration, a mediastinal invasion of the tumor preventing pulmonary resection and a subcarinal lymph node metastasis were noted. For these reasons, the patient was deemed inoperable, and the thoracotomy. Postoperatively, the patient was followed up in the intensive care unit (ICU). Upon arrival at ICU, a chest X-ray was taken, which showed normal. On the 12th hour in the ICU, the patient's blood pressure decreased to 100/70 mmHg, and the heart rate increased to 100 beats/min. Even though there was no hemorrhaging from the existing chest tubes on the left, we took another chest X-ray and found contralateral opacity on the right (Fig. 2). The peripheral blood saturation was 98% in room air. Computed tomography (CT) of the thorax revealed a dense lesion with a density of hematoma occupying nearly half of the right hemithorax (Fig. 3). The patient promptly underwent right thoracic exploration via the right thoracotomy, at which time a large hematoma was found in the right hemithorax. Despite careful exploration, no source of bleeding was located. There was no insertion of an epidural tube or other apparatus by the anesthesiologist that would have been a reason for hemorrhaging. The patient recovered uneventfully after the rethoracotomy, and there was no light pleural drainage after exploration. He was discharged home on the third postoperative day and was referred to an oncological institution.

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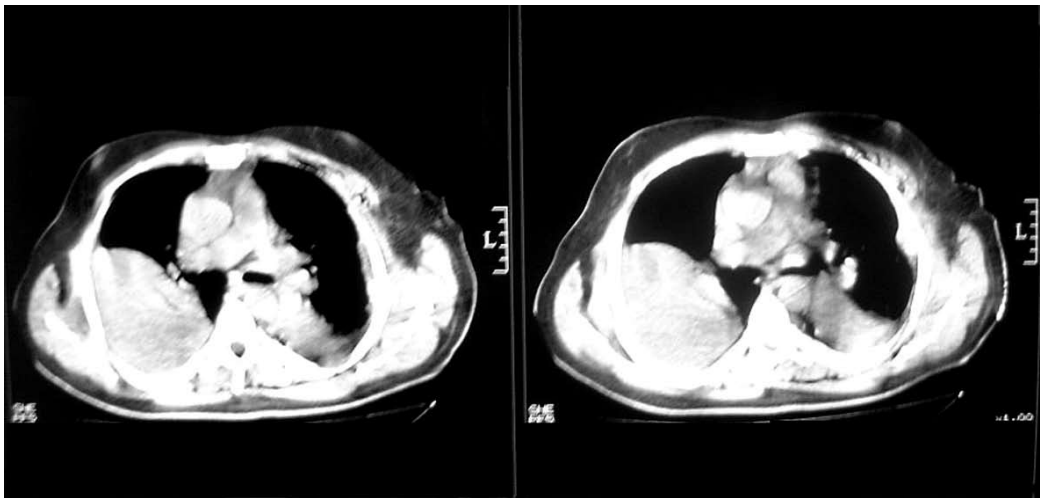
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**Fig. 1.** Magnetic resonance imaging showing the mass lesion adjacent to the descending aorta on the left hemithorax and normal lung and pleural structures on the right hemithorax.



**Fig. 2.** Contralateral opacity in the right hemithorax was diagnosed at the posteroanterior chest radiograph 12 hours following operation.



**Fig. 3.** A postoperative computed tomography (CT) scan of the thorax revealed a dense lesion with a density of hematoma occupying nearly half of the right thoracic cavity.

## Discussion

Most cases of hemothorax are related to open or closed chest trauma or procedures as central lines, thoracentesis, pleural biopsy, or catheterization. Spontaneous hemothorax is much less common, and its causes include malignancies, vascular ruptures (aortic dissection, arteriovenous malformations (AVMs), endometriosis, pulmonary infarctions, adhesions with pneumothorax, and hematologic abnormalities, such as hemophilia.<sup>2)</sup> Postoperative hemothorax and hematoma are rare but expected postoperative complications after thoracic surgery.<sup>1)</sup> Most of the data about spontaneous hemothorax, for several reasons, are in the form of case reports and case series.<sup>2-5)</sup> However, a contralateral hemothorax is extremely rare, and only three manuscripts reported this rare phenomenon.<sup>1,6)</sup> Of these, two reported contralateral hemothorax following subclavian vein catheterization.<sup>1,7)</sup> Although in our case a subclavian catheter was inserted, we were unable to confirm the source of hemorrhage as catheter insertion. Also, the hematoma was located near the right lower lobe, and the apex of the right hemothorax was completely clear. Rashid and colleagues reported a patient with contralateral hemothorax by a chest tube causing mediastinal perforation.<sup>3)</sup> However, even though we carefully examined the subcarinal and paracardiac areas as a potential mediastinal perforation, there was no sign of transmediastinal injury and/or hemorrhage. In fact, during the right thoracotomy we strongly suspected the subcarinal region, since the subcarinal lymph node was sampled during the left thoracotomy; however, the right side of this region was intact and hemorrhage free. The chest CT revealed no subcarinal

widening (Fig. 2). Because minimal opacity was seen around the left lower lobe, we suspected only that an obscured transmediastinal passage had been created accidentally during left hemithoracic exploration. Despite all speculations, the real cause of contralateral hemorrhaging remains unexplained.

As a result, contralateral bleeding can occur very infrequently after thoracotomy, and the possibility of this phenomenon must be kept in mind. However, the mechanism of action is unknown and warrants further case studies.

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