

Lobar Torsion after Pulmonary Resection; Report of Two Cases

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Lobar torsion is a rare complication after pulmonary resection. We report a case of right middle lobe torsion following a right upper lobectomy, and left lower lobe torsion following a left upper lobectomy. Careful postoperative clinical observation, chest radiography, fiberoptic bronchoscopy (FOB), and computed tomography (CT) are crucial for precise diagnosis of lobar torsion following pulmonary resection. Both patients underwent re-thoracotomy; a middle lobectomy and completion pneumonectomy were performed. In the clinical management of lobar torsion urgent diagnosis and conclusive surgical resection is needed to avoid mortality and morbidity. (Ann Thorac Cardiovasc Surg 2006; 12: 63–5)

Key words: lobar torsion, pulmonary resection, re-thoracotomy

Introduction

Pulmonary torsion is a rare complication in thoracic surgery. Its etiology appears to be threefold: after pulmonary resections, secondary to trauma, and spontaneously with some intrathoracic anomalies.^{1,2)}

Early progressive lobar opacity without signs of atelectasis on conventional chest radiograph is indicative of this serious complication. Computed tomography (CT) and bronchoscopy are of diagnostic value. Exploratory thoracotomy must be performed without delay. The injured parenchyma should be sacrificed unless the diagnosis is obtained very early.^{1,3)} The rarity of the condition, and possible catastrophe when the diagnosis is late and the favorable outcome with timely exploratory thoracotomy led us to report these two cases.

Case 1

A 60-year-old male patient had adenocarcinoma of the right

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upper lobe, and the tumour had invaded the superior segment of the lower lobe. Preoperatively he was staged as T2N0, and on postoperative pathology reporting the stage of the patient did not change (T2N0). The patient underwent right upper lobectomy together with 6th segmentectomy. On early postoperative radiographs apical widening and non-homogeneous consolidation appeared at the upper zone. Considering the atelectasis was due to secretion retention repeated nasotracheal aspirations were performed for bronchial toilet but no result was achieved. In the repeated radiographs, it was observed that consolidation was widening and thickening in the location that fits middle lobe (Figs. 1A, B). Although the clinical status of the patient was normal, direct posterior-anterior (PA) chest radiographs and CT of thorax raised the possibility of middle lobe torsion (Fig. 1C). Rigid bronchoscopy revealed middle lobe luminal stenosis with the appearance of a fish mouth; so re-thoracotomy was performed. At exploration the bronchovascular pedicle of the middle lobe was torsioned by 180°, and the middle lobe was hardened and swollen. Middle lobectomy was performed. The patient was discharged on the 16th postoperative day. Histopathologic examination revealed congestion of the middle lobe and thrombus formation in the middle lobe vein supporting lobar torsion.

Case 2

A 60-year-old male patient had epidermoid carcinoma of

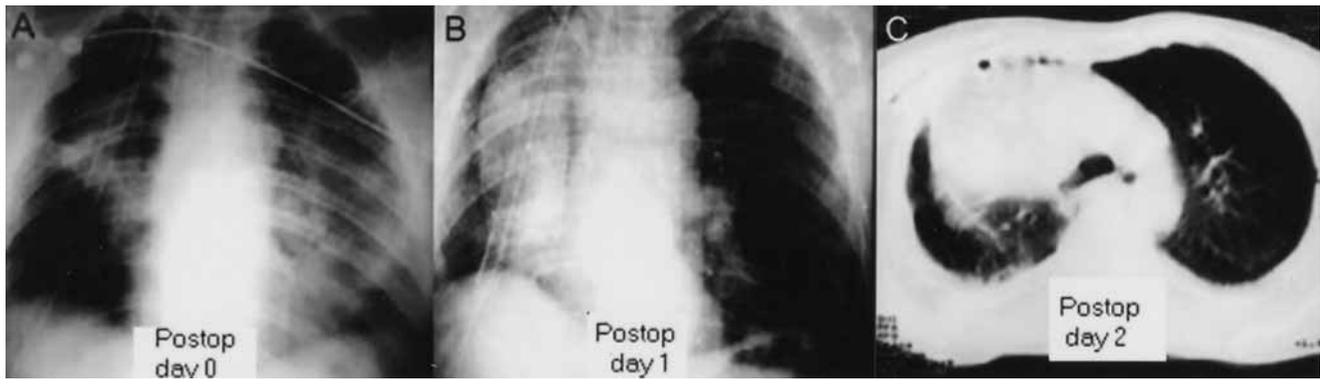


Fig. 1. Case 1.

Middle lobe torsion.

A: AP radiograph 1 hour after the operation.

B: PA radiograph 24 hours after the operation.

C: An image of thorax CT 48 hours after the operation.

the left upper lobe invading the superior segment of the lower lobe. Preoperatively he was staged as T2N0, but the postoperative histopathologic examination reported metastatic lymph nodes at station 12 (T2N1). The patient underwent left upper lobectomy together with superior segment wedge resection. The patient was doing well at the early postoperative period. At 20 hours postoperatively the patient complained of sudden dyspnea. Arterial oxygen saturation decreased from 92% to 80% and PaO₂ from 68 mm Hg to 45 mmHg. Two hours later fiberoptic bronchoscopy (FOB) revealed that left main bronchus lumen was narrowed and there was 120° clock-wise rotation. Thorax CT showed a 90° angulation between the left main bronchus and lower lobe bronchus. The integrity and continuity of the left pulmonary artery were also disturbed (Fig. 2). Rigid bronchoscopy revealed that the left main bronchus was rotated and narrowed like a fish mouth. Re-thoracotomy was decided. At exploration the lower lobe was found to be 120° torsioned. Completion pneumonectomy was performed. The postoperative period was uneventful and he was discharged on the 13th day. Histopathologic examination revealed early ischemic changes, atelectasis, and intra-alveolar erythrocytes in the parenchyma.

Discussion

Lobar torsion after pulmonary resection has an incidence of 0.089%.³⁾ Although it is reported to occur in the middle lobe no lobe is spared, even two-lobe (middle and lower

lobes) torsion cases were reported.³⁾ In our clinic, lobar torsion rate following pulmonary resection was calculated to be 0.26%.

The predisposing factors in development of lobar torsion include the existence of a free and longer vascular pedicle especially accompanying “complete” fissure, a free pulmonary ligament, pneumothorax, pleural effusion and the existence of a non-ventilated lobe.¹⁾ In our second case the pulmonary veins drained from the left atrium as a single trunk. Over-liberation of the pulmonary ligament and the mediastinum to explore the veins, and large thoracic volume due to emphysema, and an active remaining lobe were the predisposing factors in this case.

The clinical picture may show differences in presentation of lobar torsion: silent at the beginning as in the situation with middle lobe torsion in this report. On the contrary, there are some cases deteriorating immediately as in our left lower lobe torsion case. In case of diagnostic delay systemic toxicity due to gangrene, purulent or bloody drainage and prolonged air leak may develop.¹⁾

Classic radiological findings in lobar torsion are of a rounded opacity developing in the remaining lobe and becoming denser.²⁾ The consolidated lobe, usually expands progressively, but sometimes, it may be normal or smaller than normal. In the CT gas image enlargement of the pulmonary veins indicates that there is pulmonary venous congestion and infarct in that lung region. Pulmonary angiography can assist to confirm the diagnosis.^{1,3)} In our case, thorax CT showed hilar displacement in a direction inappropriate for that lobe.

