Port-site recurrence following video-assisted thoracoscopic surgery

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Abstract. Video-assisted thoracoscopic surgery (VATS) is an established modality in the management of pleural diseases. We report a case of port-site recurrence following management of malignant pleural effusion in an elderly patient with extensive pleural metastasis from adenocarcinoma of the lung. Although her shortness of breath was relieved following VAT decortication and talc insufflation, at 3 months she was found to have a 2.5-cm subcutaneous nodule at the camera port site which on biopsy was confirmed to be metastatic in nature. Even though the nodule was asymptomatic and the patient prognosis was not affected, it is important that both the surgeon and future patients should be aware of this potential complication.

Key words: Video-assisted thoracoscopic surgery — Malignant pleural effusion — Port-site recurrence

Thoracoscopic management of pleural disease dated back to almost the turn of the century [5] and recent advances in video camera technology have further extended its application to the management of intrathoracic malignancy [7, 8]. Thoracoscopic talc insufflation [4] and decortication [21] have been shown to be effective treatment for intractable malignant pleural effusion. Although these and other VATS procedures are technically feasible and effective, they are not without complications. Reports on specific VATS-related complications are few [6, 20], including three anecdotes on chest-wall recurrence following resection of pulmonary malignancies [2, 15, 18]. We report a case of port-site recurrence following VATS in the management of malignant pleural effusion.

Case report

A 62-year-old Chinese female presented with a short history of cough and shortness of breath on minimal exertion. She was in previous good health and there was no history of smoking, tuberculosis, or other respiratory diseases. Physical examination showed an elderly patient in no acute distress except for a very mild shortness of breath at rest. There was no palpable lymphadenopathy and chest examination was consistent with a large right pleural effusion. Chest X-ray confirmed the effusion with mild mediastinal shift (Fig. 1). Large-volume thoracentesis showed an exudate with negative cytology for malignancy. Blind pleural biopsy showed nonspecific inflammation. At this point, she was referred to the Cardiothoracic Unit as a case of cryptogenic pleural effusion. Video-assisted thoracoscopic surgery (VATS) was offered.

Under general anesthesia with selective one-lung ventilation, the patient was placed in full left lateral decubitus position with the table flexed at 30° just below the level of the nipple to open up the right intercostal spaces [19]. A 1.5-cm incision was made in the sixth intercostal space, posterior axillary line. A 10.5-mm metal port (Thoracoport, Snowden & Pencer, U.S.A.) was placed followed by a 10-mm single-puncture telescope (K. Storz, Germany). Large amount of straw-colored fluid was aspirated and on exploration, there were extensive pleural deposits in the visceral and parietal pleura. There was a thick pleural layer encasing a large part of the lower lobe and obscuring the diaphragm. Multiple pleural biopsies were taken and frozen section showed moderately differentiated adenocarcinoma. The decision was made to perform limited decortication to free up the lower lobe. This was achieved utilizing a second port in the sixth intercostal space at the anterior axillary line. Instrument palpation revealed an indurated mass in the lower lobe consistent with primary lung cancer. After draining all the loculated fluid, 4 g of purified talc (Halewood Chemicals, Middlesex, U.K.) was insufflated into the chest under thoracoscopic guidance. The upper lung was reinflated. A 28-Fr chest tube was placed and layered closure of the wounds completed the operation.

Postoperatively, the patient experienced little discomfort. The chest drain was removed on postoperative day 2 when the daily output was less than 50 ml. She was discharged on postoperative day 3 in good condition. Her dyspnea was much improved and her exercise tolerance increased from one to four flights of stairs. At 3 months, however, she was noticed to have a 2.5-cm subcutaneous nodule beneath the camera port site (Fig. 2). The nodule did not cause any symptoms and fine-needle aspiration biopsy confirmed metastatic adenocarcinoma. The implication of this was explained to the patient and her family, and since the nodule did not cause symptoms, a decision was reached to only observe the patient. In the last follow-up at 4 months, there was little sign of pleural-fluid reaccumulation.

Discussion

Several issues arise when minimal-access surgery is applied to manage malignancy. These include ade-
Fig. 1. Chest X-ray showing a massive right pleural effusion with mediastinal shift.
Fig. 2. View of the right chest showing a 2.5 cm metastatic subcutaneous nodule located deep to the posterior port incision scar.

The treatment options for chest-wall metastases include observation, local irradiation, or local wide excision. The choice of treatment depends on the general condition of the patient as well as the tumor biology and natural history. For chest-wall recurrence following pulmonary resection with a curative intent, local resection is a reasonable option. However, in our case of malignant pleural effusion, simple observation is preferred, since the patient has limited life expectancy and the recurrence is asymptomatic.

Fortunately, port-site recurrence is not a common event. Our unit has performed 164 VAT procedures in the management of intrathoracic malignancy in the last 2½ years [22]. Diagnostic procedures include excisional biopsy (32) and staging (40) for diagnosis. Therapeutic procedures were wedge resection of lung metastases (20), wedge excisions of primary lung cancer in patients who cannot tolerate a formal lobectomy (9), lobectomies (13), pneumonectomy (1), talc insufflations (18), decortications for malignant pleural effusions (5), and pericardial windows for malignant pericardial effusions (8)—so far, this case represents the only episode of port-site recurrence. How one can best minimize port-site recurrence is unsure although gentle tissue handling during dissection and proper wound protection are likely to be important factors. Whether the use of a tumoricidal agent [14] can minimize port-site recurrence remains to be investigated. Patients with extensive pleural metastasis may be at high risk for port-site recurrence (as in this case). Both the surgeon and the patient should be aware of this potential complication.

References