Peer reviewed article

Non-Hodgkin's lymphoma of the pleural cavity: late complication of artificial pneumothorax for the treatment of pulmonary tuberculosis

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A 74-year-old male was treated by right-sided pneumothorax over a period of seven years for pulmonary tuberculosis 43 years ago. He presented now with chest pain, dyspnoea, low grade fever, and weight loss arising within a few weeks. The patient had stopped smoking 25 years ago. Chest X-ray showed a mass in the right apex. CT revealed a pleural tumour of 9 × 6.5 × 7 cm localised to the dorsal upper and apical lower lobe of the right lung. A periosteal reaction of the dorsal 4th rib was interpreted as chest wall invasion. There were coarse calcifications lining the visceral pleura. Lymph nodes were not enlarged. A clinical diagnosis of peripheral lung cancer was made. A left upper lobectomy was performed, revealing a firm, tan-white pleural tumour, sharply demarcated from the adjacent lung parenchyma. Microscopically the tumour consisted of anaplastic cells with abundant eosinophilic cytoplasm. The tumour cells were positive for CD45, CD43, CD30 and EBV (EBER) but negative for other B-, T-, or NK-markers. MIB-1 proliferation fraction was 50%. Southern blot analysis of the IgH gene showed B-cell clonality and confirmed the diagnosis of pyothorax-associated large B-cell lymphoma. Involvement of peribronchial lymph nodes was not seen.

Malignant lymphomas arising in the lung or pleura represent only 0.3% of all non-Hodgkin's lymphomas and most reports of an association with long-standing chronic tuberculous pyothorax are from Japan. Case-controls suggest that therapeutic artificial pneumothorax for pulmonary tuberculosis or tuberculous pleuritis, leading to chronic non-healing inflammation of the pleura, results in a significantly increased risk of developing pleura-based lymphoma. This patient revealed no other lymphoma manifestion. Limited by his cardiac history, systemic chemotherapy with Cyclophosphamide, Etoposide and Prednisone was initiated.

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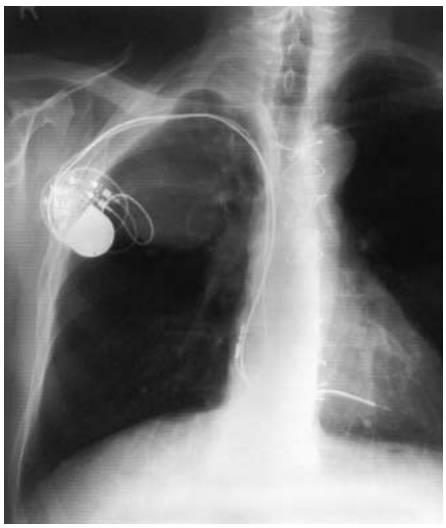

Figure 1

Chest X-ray showing a large mass in the right upper hemithorax. The lateral pleuro-pulmonary interface is obscured by a pacemaker device. Lateral view, however, showed clearly the pleural origin of the mass (image not shown).

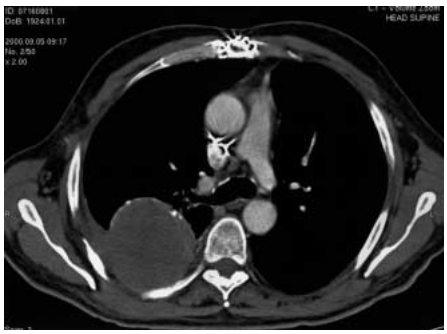

Figure 2

Axial post-contrast CT image showing the pleural mass in the right dorsal upper hemithorax. Note the coarse calcifications lining the visceral pleura. The slightly irregular anterior surface of the rib was interpreted as a sign of chest wall involvement.

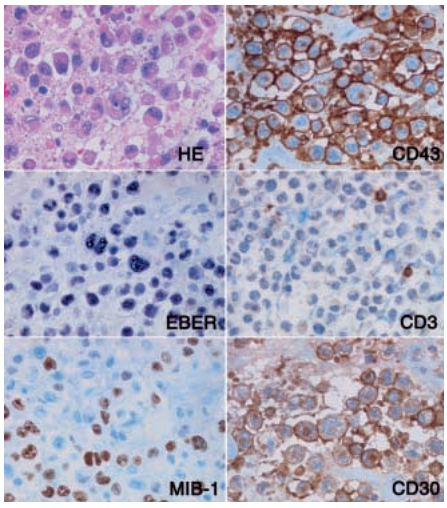

Figure 3

Photomicrographs of the intrathoracic tumour (original magnification 400×): haematoxylin and eosin staining (H&E) showing anaplastic cytological features; positivity for CD43 and CD30, negativity for CD3 and detection of an intermediate MIB-1 proliferation fraction by immunohistochemistry, consistent with plasmablastic differentiation; positive staining of nuclei of neoplastic cells in EBV in situ hybridisation for EBER, characteristic of pyothorax associated large B cell lymphoma.

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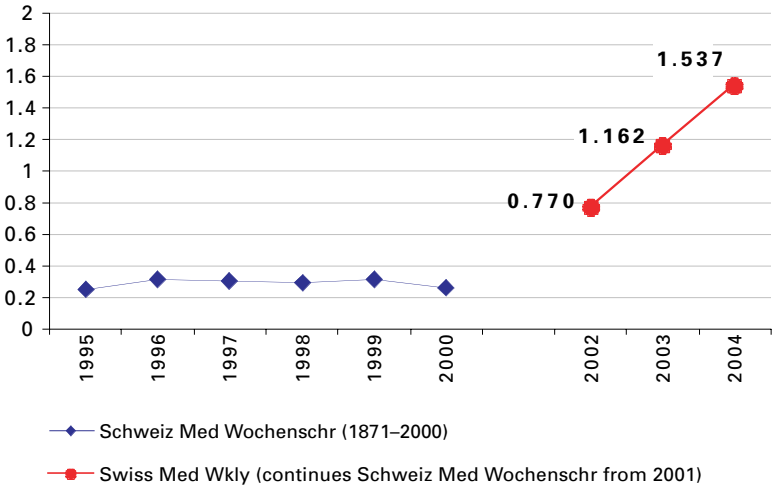

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