

Mesothelioma presenting with pneumothorax and interlobar tumour

G.P.M. Mannes, A.S.H. Gouw*, H.H. Berendsen, A-J. Verhoeff, P.E. Postmus

Mesothelioma presenting with pneumothorax and interlobar tumour. G.P.M. Mannes, A.S.H. Gouw, H.H. Berendsen, A-J. Verhoeff, P.E. Postmus.

ABSTRACT: A patient presented with a pneumothorax, a parahilar mass and a pleural effusion on the left side. Histology proved that this was caused by a malignant mesothelioma, epithelial type. The pneumothorax persisted, even after chest drainage and pleurodesis with talc powder and tetracycline.

Eur Respir J., 1991, 4, 120-121.

Dept of Pulmonary Diseases and * Dept of Pathology, University Hospital Groningen, The Netherlands.

Correspondence: G.P.M. Mannes, Dept of Pulmonary Diseases, University Hospital, Oostersingel 59, 9700 RB Groningen, The Netherlands.

Keywords: Mesothelioma; pleural effusion; pneumothorax.

Received: October 5, 1989; accepted after revision August 21, 1990.

Case report

For four months a 60 yr old male complained of a dry cough, tiredness, mild pain in his left hemithorax and a weight loss of 3 kg. Later, he experienced mild fever. There was no haemoptysis, hoarseness or dyspnoea. He was a 30 pack year smoker, but had stopped smoking 4 mths earlier. He worked as an administrator. In the past he had been working on a coaster and in the chemical industry.

His medical history revealed an appendectomy. On examination we saw a healthy man without dyspnoea. Temperature 37.2°C. There was some dullness over the lower part of the left hemithorax, with normal breath sounds. No other abnormalities were found.

Laboratory investigations showed an erythrocyte sedimentation rate (ESR) of 87 mm·l⁻¹·h⁻¹. The leucocyte count was 13.2 × 10⁹·l⁻¹ with a normal differentiation. Haemoglobin (Hb) 130 g·l⁻¹. Platelets 477 × 10⁹·l⁻¹. Alkaline phosphatase 138 U·l⁻¹ (reference value 13-120). The other findings were normal.

Because of these complaints a posteroanterior (PA) chest-roentgenogram was taken. This showed a parahilar mass, a pneumothorax, a small mass against the left lateral chest wall, and a pleural effusion on the left side (fig. 1). At fluoroscopy the mass seemed to pulsate; on the lateral chest radiograph the mass appeared to be located in the major fissure (fig. 2). At bronchoscopy the carina of the apical segment of the left lower lobe was somewhat thickened, but biopsies revealed normal bronchial epithelium.

Computerized tomographic (CT)-scan of the thorax showed a mass, probably located in the interlobium. It reached from the left hilum to the mediastinum and the density was compatible with solid tissue or blood

(Hounsfield unit 23±12). The mass on the lateral left pleura was a tumour of 2.5 cm diameter, with the density of solid tumour. In the mediastinum a lymph node of 2 cm diameter was seen. The pneumothorax and pleural effusion were confirmed. The aorta was normal, without connection with the described mass.

At thoracoscopy on the left side, 400 cc yellow fluid was removed. Inspection of the interlobar fissure was impossible due to adhesions. Biopsies were taken from a granulating tumour of about 2 cm diameter on the parietal pleura in the posterior axillary-line with smaller granulations around it. Histology of these biopsies showed a malignant mesothelioma, epithelial type (fig. 3).

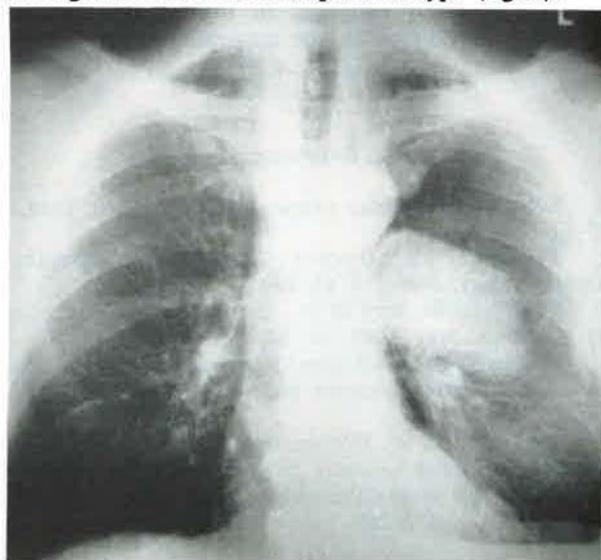


Fig. 1. - Chest PA roentgenogram: a large mass in connection with the left hilum with a small pneumothorax, a small mass in connection with the lateral chest wall, and a small pleural effusion. PA: posteroanterior.

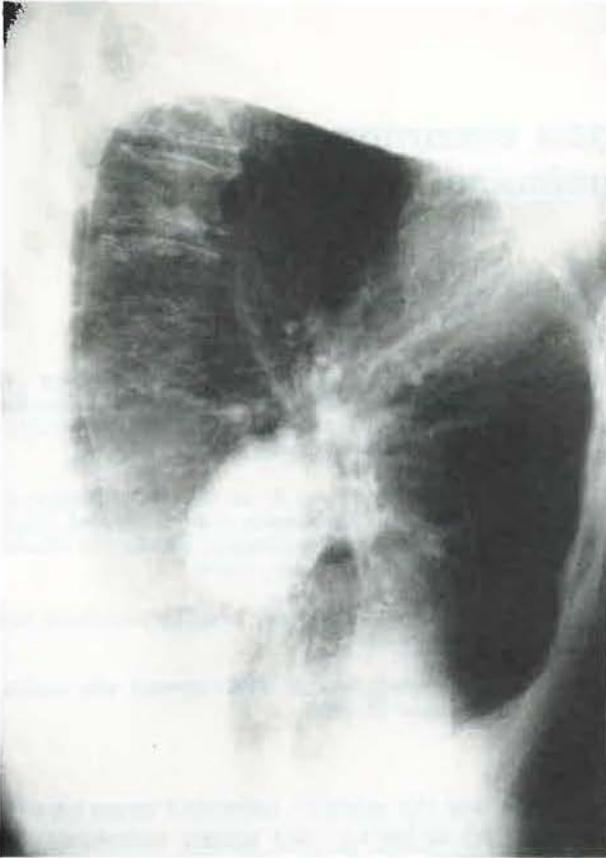


Fig. 2. - Lateral chest roentgenogram: the large mass is probably located in the major fissure posterior of the hilum. There is a small pneumothorax with a pleural effusion.

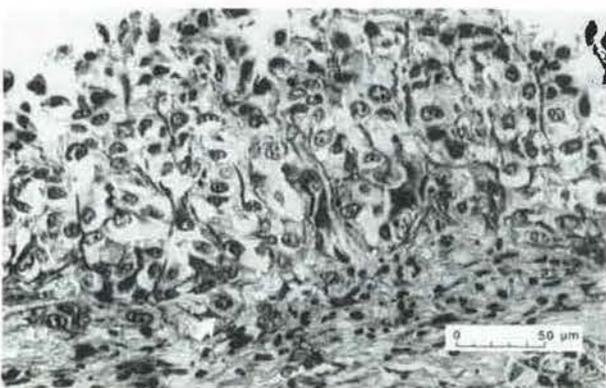


Fig. 3. - Histology of the tumour of the left parietal pleura: strands of malignant mesothelial cells with mitosis (arrow), infiltrating pleural stroma (periodic-acid-Schiff stain (PAS), after diastase digestion, 500x).

Discussion

Spontaneous pneumothorax is not often associated with a pulmonary neoplasm. WRIGHT [1] estimated the incidence of pneumothorax in patients with primary bronchial or pulmonary tumours, at less than 0.05%.

In metastases, especially from sarcoma, the incidence of pneumothorax is somewhat higher. LAW *et al.* [2] found three cases of spontaneous pneumothorax in malignant mesothelioma, involving 2% of their population of malignant mesothelioma. The exact mechanism of the pneumothorax is not clear. Both smaller and larger tumours may be associated with a spontaneous pneumothorax. It may be caused by a rupture of necrotic tumour nodules [3]. Another explanation could be intermittent obstruction of the bronchus in the periphery of the lung due to a ball-like valve action of these tumour nodules, leading to over-distension of that part of the lung with the formation of subpleural blebs or bullae [4].

Usually, chest drainage with suction is not successful in these pneumothoraces and the lung fails to re-expand [2]. Also, in our patient the pneumothorax persisted, even after an attempt for pleurodesis with talc powder and later with tetracycline.

An interlobar pleural tumour is not rare [5-7], and interlobar mesothelioma has been described. On a normal chest roentgenogram this is often hard to distinguish from an interlobar fluid encapsulation. In this patient the density on CT was compatible with a solid tumour. The explanation for the persistent pneumothorax is probably invasion of the mesothelioma into the parenchyma of the lung.

References

1. Wright FW. - Spontaneous pneumothorax and pulmonary malignant disease, a syndrome sometimes associated with cavitating tumours. *Clin Radiol*, 1976, 27, 211-222.
2. Law MR, Hodson ME, Turner-Warwick M. - Malignant mesothelioma of the pleura: clinical aspects and symptomatic treatment. *Eur J Respir Dis*, 1984, 65, 162-168.
3. Thornton TF, Bigelow RR. - Pneumothorax due to metastatic sarcoma. *Arch Pathol*, 1944, 37, 334-336.
4. Lodmell EA, Cepps SC. - Spontaneous pneumothorax associated with metastatic sarcoma. *Radiology*, 1949, 52, 88-93.
5. Felson B. - In: *Chest Rontgenology*. Saunders, Philadelphia, 1973, pp. 374-375.
6. Grabenwöger F, Bardach G, Pinterits F, Dock W. - Primäre maligne Tumoren der Pleura. *Röntgen-Bl*, 1986, 39, 167-172.
7. Antmen KH, Corson JM. - Benign and malignant pleural mesothelioma. *Clin Chest Med*, 1985, 6, 1, 127-140.

Observation clinique. Mésothéliome se présentant comme un pneumothorax et une tumeur interlobaire. G.P.M. Mannes, A.S.H. Gouw, H.H. Berendsen, A.J. Verhoeff, P.E. Postmus.
 RÉSUMÉ: Observation d'un sujet atteint de pneumothorax, de masse para-hilaire et d'épanchement pleural du côté gauche. L'examen histologique démontre qu'il s'agit d'un mésothéliome malin de type épithélial. Le pneumothorax a persisté, même après drainage et pleurodèse au talc et à la tetracycline.
Eur Respir J., 1991, 4, 120-121.