

## CASE FOR DIAGNOSIS

### A patient with fatigue and subfebrile temperature

G.J.M. Herder\*, E.F. Smit\*, P.J. Borgstein<sup>#</sup>, P.E. Postmus\*

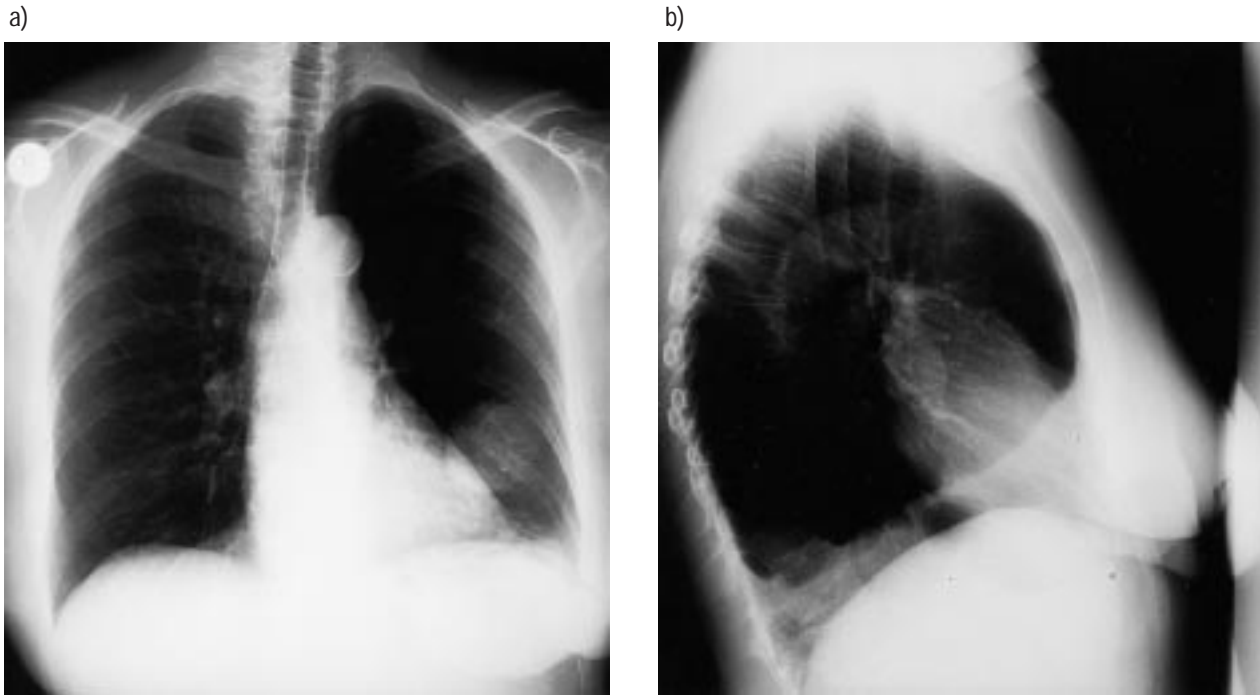


Fig. 1. – a) Posteroanterior chest radiograph. b) Lateral chest radiograph.

#### Case report

A 76-yr-old nonsmoking female was referred for evaluation of complaints of subfebrile temperature and fatigue for 4 weeks. A few days before the visit she developed pain in the back of the left hemithorax and a tickling cough when breathing deeply. Two months earlier she had experienced a period of nonproductive cough, which resolved after medical treatment. There were no other pulmonary symptoms. Past medical history revealed venous thrombosis with pulmonary embolism after a curettage, rheumatoid arthritis and pneumonia.

On physical examination she appeared healthy with a pulse of 80 beats·min<sup>-1</sup>, blood pressure of 170/90 mmHg and a normal temperature. Apart from dullness over the basal part of the left hemithorax with normal breath sounds, physical examination was normal. Except for an erythrocyte sedimentation rate of 79 mm, laboratory tests were within normal limits.

\*Dept of Pulmonary Medicine, and <sup>#</sup>Dept of Surgical Oncology, University Hospital Vrije Universiteit Amsterdam, Amsterdam, the Netherlands.

Correspondence: P.E. Postmus, Department of Pulmonary Medicine, University Hospital Vrije Universiteit Amsterdam, P.O. Box 7057, 1001 HV, Amsterdam, The Netherlands. Fax: 31 204444328.

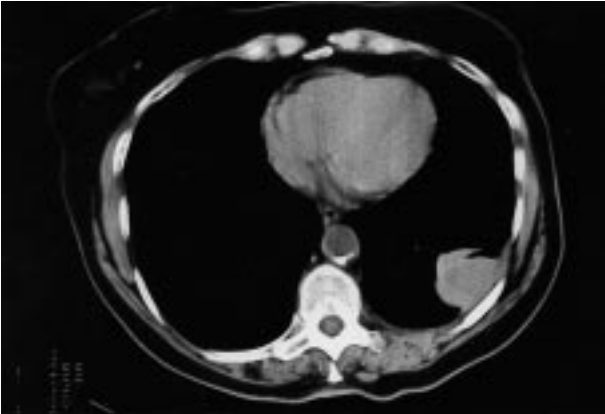


Fig. 2. – Posteroanterior chest radiograph 1 month after initial consultation.

The chest radiograph (fig. 1) was interpreted as showing mild pleural effusion and a partial relaxation of the left hemidiaphragm. Pleurocentesis revealed an exudate, of which culture and cytology were negative. On fibre-optic bronchoscopy no endobronchial abnormalities were seen.

One month later she was admitted for further analysis. A new chest radiograph (fig. 2) was obtained. A chest computed tomography (CT) scan (fig. 3) demonstrated a

a)



b)



Fig. 3. – a) Computed tomography (CT) of the chest. b) CT of the chest, parenchymal window.

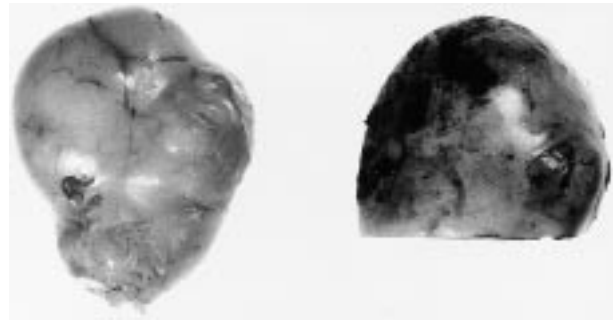


Fig. 4. – Surgical specimen, the smooth pedunculated tumour.

3 × 4 cm homogenous solid subpleural mass in the lower dorsal region of the left hemithorax exhibiting the density of soft tissue. Transthoracic fine needle aspiration of the lesion demonstrated bronchial epithelial cells with no signs of malignancy, there is a probability that the material did not come from the tumour itself. A definite diagnosis could not be established, although there were no signs of malignancy. In light of the results obtained in the above mentioned examinations, no further investigations were performed as the patient had no serious complaints. After 5 months a repeated chest radiograph showed a slight increase in size of the lesion in the left lower lobe, which was confirmed by CT. A thoracoscopic resection of the mass was therefore performed. The smooth pedunculated tumour was easily dissected from the attachment to the parietal pleura. Its diameter was 8 cm, see figure 4. The histology is shown in figure 5.

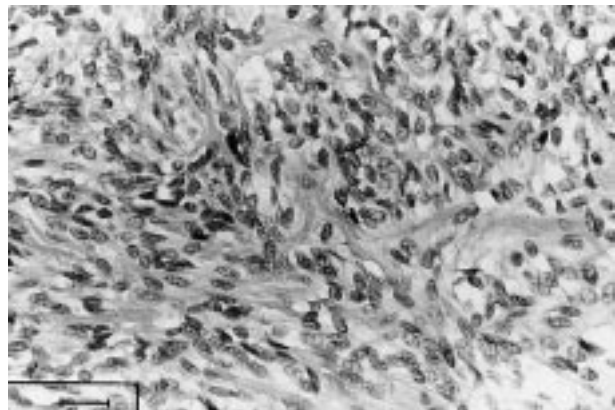


Fig. 5. – Histological picture of the tumour. (Haematoxylin and eosin, Internal scale bar=31.25 µm.)

**BEFORE TURNING THE PAGE, INTERPRET THE PLAIN CHEST RADIOGRAPHS AND THE COMPUTED TOMOGRAPHY AND PHOTOMICROGRAPH, AND SUGGEST DIAGNOSIS, ALTERNATIVE DIAGNOSIS AND TREATMENT.**

## Interpretations

### Chest radiographs

The posteroanterior and lateral chest radiograph (fig. 1) showed pleural effusion and a partial relaxation of the left hemidiaphragm. One month later the posteroanterior chest radiograph (fig. 2) demonstrated a round lesion in the left lower lobe which seems to be connected with the diaphragm, the pleural effusion had disappeared. The right hilum seemed to be enlarged. In comparison to the first chest radiograph this radiograph was better inspired. Retrospectively it is possible to interpret the partial relaxation of the left hemidiaphragm (fig. 1) as being the upper border of the tumour.

### Computed tomography

The CT scan (fig. 3) showed a 3 × 4 cm homogenous solid subpleural mass in the lower dorsal region of the left hemithorax exhibiting the density of soft tissue. There was no sign of invasion into the chest wall or of rib destruction. There were no calcifications or enlarged lymph nodes. The right hilum was interpreted as normal.

### Pathology

Macroscopic examination showed a round lesion 8 cm in diameter with a whirled greyish-white parenchyma (fig. 4). Histology showed spindle shaped cells with long nuclei, chromatin at the borders and small nucleoli. The cytoplasm is granulated and showed a good developed rough endoplasmic reticulum, a lot of mitochondria and a few cytoplasmic filaments with locally dense-bodies. Long microvilli and a central dense core rootlet were observed. Intracellularly there was a lot of collagen (fig. 5). Histological examination revealed a solitary fibrous tumour of the pleura (benign mesothelioma).

**Diagnosis: "Solitary fibrous tumour of the pleura (benign mesothelioma)"**

### Clinical course

The patient underwent thoracoscopic resection of the tumour, which was completely resected, without any complications. The patient recovered uneventfully and did not demonstrate any recurrent disease within 4 yrs follow-up.

### Discussion

Benign fibrous mesothelioma of the pleura is a rare neoplasm [1]. The first reported primary pleura tumour was in 1767 by Lietaud [2]. In 1870 Wagner provided the first detailed microscopic description [2]. In 1931 Klemperer and Rabin differentiated pleural neoplasm in diffuse and localized forms [3]. The benign mesothelioma is also referred to as solitary fibrous tumour, fibrous mesothelioma, localized mesothelioma or subpleural fibroma. Benign fibrous mesothelioma mainly involves the pleura and the peritoneum and occasionally the pericardium or

the tunica vaginalis of the testis [4]. There is a slightly higher incidence in females than in males, with an equal distribution between the right and left hemithorax [5]. The tumour is more often related to the visceral than parietal pleura [1]. Association with exposure to asbestos has never been observed [1, 4, 6–8].

Usually there are no symptoms [4, 9] but when present these are highly variable and unspecific. They can include: cough, chest pain, dyspnoea, haemoptysis, pulmonary osteoarthropathy, fever, chills, night sweats, weakness, weight loss, pleural effusion and obstruction of the superior caval vein. Electrocardiography abnormalities and symptomatic hypoglycaemia have been reported [1, 5, 6, 9–11]. Symptoms are generally not related to tumour size [1, 4]. Preoperative differentiation between the benign and malignant types is extremely difficult. CT-scan, angiography, bronchoscopy and needle biopsy may be useful, but for a definitive diagnosis thoracoscopy and tissue examination are necessary [1, 8, 11, 12].

The treatment of choice is complete surgical resection [1, 8, 10–12]. Clinical reports indicate a good prognosis after treatment. Surgical resection cures ~90% of these patients, but recurrent disease occurs in the remaining 10% [5].

**Keywords:** Benign mesothelioma, benign tumour, fibrous mesothelioma, localized mesothelioma, solitary fibrous tumour, subpleural mesothelioma

### References

1. Light RW. Pleural diseases. 2nd Edn. Philadelphia-London, Lea & Febiger, 1990; pp. 117–127.
2. Kucuksu N, Thomas W, Ezdinli EZ. Chemotherapy of malignant diffuse mesothelioma. *Cancer* 1976; 37: 1265–1274.
3. Klemperer P, Coleman BR. Primary neoplasms of the pleura. A report of five cases. *Am J Ind Med* 1992; 22: 1–31.
4. Morelli MM, Di Giacomo M, Di Marzo L, Scucchi L, Cavallaro A. Benign fibrous mesothelioma: report of a case. *Anticancer Res.* 1995; 15: 2877–2882.
5. Briselli M, Mark EJ, Dickersin GR. Solitary fibrous tumors of the pleura: eight new cases and review of 360 cases in the literature. *Cancer* 1981; 47: 2678–2689.
6. Vorpahl U, Buhr J, Bohle RM, Berghauer KH, Henneking K. Das lokalisierte benigne pleuramesothelion. *Langenbecks Arch Chir* 1994; 379: 307–309.
7. Dalton WT, Zolliker AS, McCaughey WT, Jacques J, Kannerstein M. Localized primary tumors of the pleura: an analysis of 40 cases. *Cancer* 1979; 44: 1465–1475.
8. England DM, Hochholzer L, McCarthy MJ. Localized benign and malignant fibrous tumors of the pleura. A clinicopathologic review of 223 cases [published erratum appears in *Am J Surg Pathol* 1991; 15: 818]. *Am J Surg Pathol* 1989; 13: 640–658.
9. Shabanah FH, Sayegh SF. Solitary (localized) pleural mesothelioma. Report of two cases and review of the literature. *Chest* 1971; 60: 558–563.
10. Yousem SA, Flynn SD. Intrapulmonary localized fibrous tumor. Intraparenchymal so-called localized fibrous meso-thelioma. *Am J Clin Pathol* 1988; 89: 365–369.
11. Wanebo HJ, Martini N, Melamed MR, Hilaris B, Beattie EJJ. Pleural mesothelioma. *Cancer* 1976; 38: 2481–2488.
12. Antman KH. Clinical presentation and natural history of benign and malignant mesothelioma. *Semin Oncol* 1981; 8: 313–320.