

## CASE STUDY

# Localized fibrous pleural tumour of the interlobular pleura

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*Localized fibrous pleural tumour of the interlobular pleura. C.M. Sanguinetti, F. Marchesani, R. Ranaldi, R. Pela, L. Cecarini. ©ERS Journals Ltd 1996.*

**ABSTRACT:** Localized fibrous tumours of the pleura (LFTP) are rare, generally benign and asymptomatic neoplasms, which originate from the pleural layers. We report on the case of a 67 year old woman who had a 1.5 cm diameter pulmonary nodule in the right upper lobe, which had been found by chance.

Video-assisted thoracoscopy (VAT) was used to excise the nodule. The diagnosis of localized fibrous tumour of the interlobar pleura was made on microscopic evaluation.

After 17 months, the patient is well and her chest radiographic image is normal. *Eur Respir J., 1996, 9, 1094–1096.*

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Localized fibrous tumours of the pleura (LFTP) are rare neoplasms that generally arise from the visceral layer and project into the pleural cavity [1]. Although benign variants are more frequent, malignant forms have been described. In most cases, they are asymptomatic and discovered by chance on chest radiograph images taken for other reasons.

We report on a case of benign LFT of the interlobar pleura, in which the tumour was recognized arising from the pleura and was removed with video-assisted thoracoscopy (VAT).

### Case report

A 67 year old, white, nonsmoking, asymptomatic woman came to our department for evaluation of a pulmonary nodule (1.5 cm diameter), which had been discovered by chance in the right upper lobe on a chest radiography performed during a general check-up for hypertension, which was being well-controlled by nifedipine. Upon admission, her physical examination, pulmonary function tests, blood chemical values, and electrocardiographic activity (ECG) were all normal.

Computed tomography (CT) of the chest confirmed the presence of a pulmonary nodule, which had a smooth, round appearance with no evidence of calcifications; the mediastinum was not involved (fig. 1). No previous chest radiograph was available for comparison with the current one. Brain and abdominal CT and mammography were normal.

The nodule was not visible on bronchoscopy (Olympus BF TD20) due to its peripheral location. It was, therefore, sampled with fluoroscopically-guided fine needle aspiration (FNA) of the lung and the cytological examination showed only normal alveolar and bronchiolar cells. The patient was then sent to a thoracic surgeon for VAT

to remove the lesion. During exploration, the tumour was found just under the visceral pleura of the right upper lobe and was easily removed thoracoscopically.

Macroscopically, the tumour was a 1.5 cm diameter nodule, with a rounded, bosselated surface. Its parenchyma was greyish-white, without haemorrhage or necrosis; and areas with a whorled pattern were evident. Microscopically, fibrous areas of moderate cellularity were observed, with loosely arranged spindle-shaped or oval cells scattered haphazardly among strands of collagen. In other areas, the cells were closely packed and sometimes appeared to have anastomosing or interdigitating fascicles (fig. 2a). These areas of increased cellularity displayed a small number of mitotic figures and also some nuclear pleomorphism (fig. 2c and d). On the pulmonary side of the tumour, the edge was covered by a layer of respiratory type epithelium with cleftlike spaces protruding into the neoplastic mass. These invaginations produced a coarse papillary pattern and, when cut transversely, appeared as tubules. Goblet cell hyperplasia of

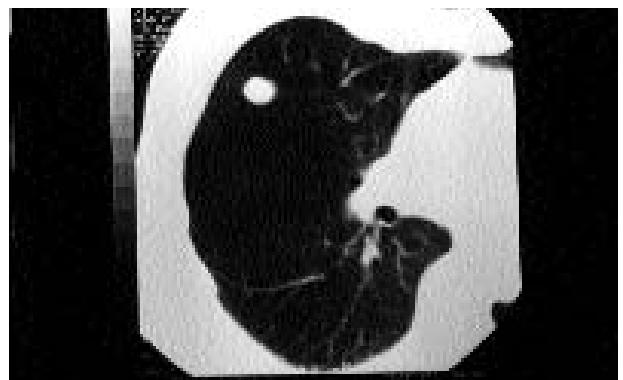


Fig. 1. – Computed tomographic (CT) image of the chest. The nodule is noted to have smooth edges, round shape, and homogeneous density without calcification.

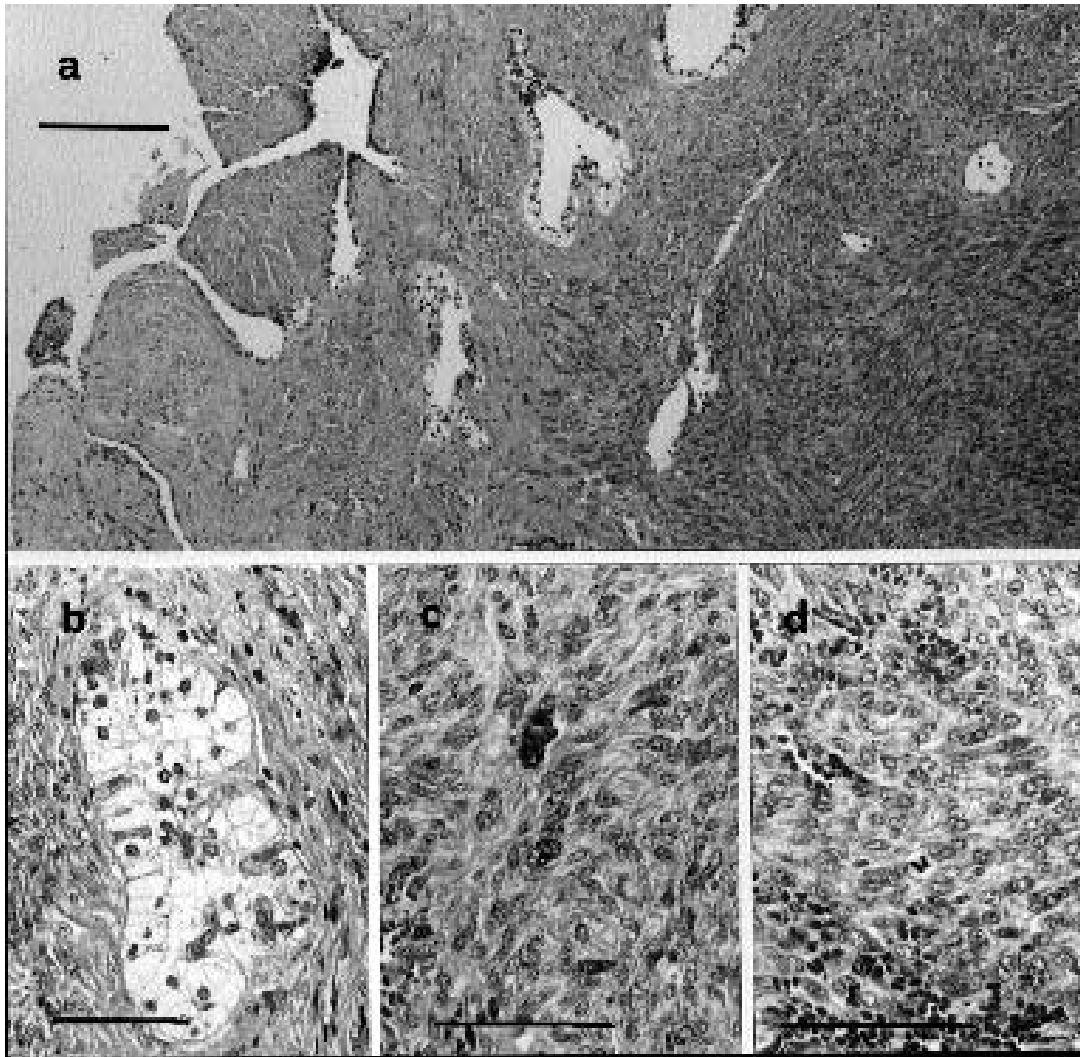


Fig. 2. — a) On the left, the tumour surface adjacent to the lung shows broad papillary formations composed of a fibrous core and covered by bronchiolar epithelium. On the right, an area of increased cellularity is evident. (Haematoxylin and eosin (H & E) stain; Internal scale bar = 200  $\mu$ m). b) An invagination of the bronchiolar epithelium is cut transversely, appearing as a tubule. The epithelium shows goblet cell hyperplasia. (H & E stain; Internal scale bar = 80  $\mu$ m). c) The areas of increased cellularity display moderate nuclear pleomorphism. (H & E stain; Internal scale bar = 80  $\mu$ m). d) A few mitotic figures are seen. (H & E stain; Internal scale bar = 80  $\mu$ m).

the epithelium was frequently observed (fig. 2b). The histopathological diagnosis was benign localized fibrous tumour of the pleura.

Seventeen months after the removal of the LFTP, the patient is well and her chest radiographic image is normal.

### Discussion

About 400 cases of LFTP have been reported so far [1]. Whilst generally benign, these tumours sometimes show local aggressiveness [2]. A submesothelial origin seems most likely for the benign variants [3]. Benign variants of LFTP are more frequent in females and in the sixth or seventh decade of life.

From a histological point of view, these tumours may be, or appear to be, biphasic because they are able to envelop the bronchiolar epithelium [4, 5], as in our patient. It may be very difficult to ascertain the biological behaviour of LFTP based on histological findings, because the benign and malignant variants often share the same pathological features; *i.e.* pleomorphism, mitosis, high cellularity,

haemorrhage and necrosis are common. Also, the malignant LFTP can be easily resected in most instances, because they are pedunculated or well-circumscribed. The size of the tumour can only roughly suggest its nature, since malignant variants, in general, are bigger than 10 cm in diameter [1]. LFTP are associated with hypoglycaemia in 2% of the benign variants and in 14% of the malignant [1].

Most tumours of this type arise from the visceral pleura, whilst less frequently they originate from the fissural surface [6]. In this case, the differential diagnosis with a solitary intrapulmonary nodule may be difficult. A chest CT has proved to be effective at localizing a solitary pulmonary lesion, and revealing the relationships with the surrounding structures [7]. In our patient, the CT, after the injection of contrast medium, demonstrated a solid, homogeneous nodule, with a clear, smooth outline, in the anterior segment of the right upper lobe, with no calcification.

The percutaneous FNA of the lung under biplanar fluoroscopic guidance produced inconclusive results in our

patient. The value of this procedure for the diagnosis of LFTP is under debate. In fact, according to some authors [8], FNA can yield characteristic morphological elements, such as fusiform cells and collagen stroma, whilst for other authors [7] the technique is inadequate for this purpose. The best results are probably obtained using cutting needles, which allow a better sampling for histological examination. However, since excision is the treatment of choice and surgery will be recommended regardless of the result, it seems reasonable to wonder whether a pre-operative FNA is really necessary in this particular clinical setting.

Surgical removal is the treatment of choice for LFTP, generally by wedge resection of lung tissue or by more extensive pulmonary excision when needed. The pleural origin of the lesion was ascertained by video-assisted thoracoscopy in our patient and the tumour was removed by the same technique. VAT has become popular in the last few years due to its cost-effectiveness and lower rate of postoperative morbidity compared to thoracotomy. It has recently been used to remove benign tumours from the pleural layer [9], and, moreover, to ascertain the nature of undefined pulmonary nodules and remove them [10]. The main advantage of this technique is that it is as effective as open surgical procedures in the diagnosis of solitary pulmonary nodules, whilst it is safer and causes less discomfort to the patient [11]. Furthermore, video-assisted thoracic surgery requires a shorter postoperative stay. In fact, our patient tolerated this manoeuvre very well and was discharged from hospital 4 days after the examination.

Our patient can be considered cured because, although possible, recurrences of benign localized fibrous tumours of the pleura are very rare [12].

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