Case report - Thoracic oncologic

Giant solitary fibrous tumor of the pleura

Ana Triviño*, Fernando Cozar, Miguel Congregado, Jesus Loscertales
Department of General Thoracic Surgery, Virgen Macarena University Hospital, Seville, Spain
Received 30 October 2010; received in revised form 14 January 2011; accepted 8 February 2011

Abstract

Fibrous tumors of the pleura are rare, accounting for <5% of all pleural neoplasms. Although over 80% of pleural fibrous tumors have a benign course, local recurrence postsurgery and occasional malignant transformation have been reported; complete excision of the tumor together with postsurgery follow-up of all patients is therefore recommended. We report on a solitary fibrous tumor of the pleura measuring 30 cm and weighing 3560 g.

Keywords: Chest wall; Pleura

1. Introduction

The solitary fibrous tumor of the pleura (SFTP) is a rare primary neoplasm arising from mesenchymal tissue underlying the mesothelial layer of the pleura. The most common form is the diffuse tumor or mesothelioma, accounting for 75%–90% of pleural fibrous neoplasms [1, 2]. Most patients are asymptomatic, and the lesion is often discovered as a chance finding on chest radiographs [3]. As the tumor tends to go undetected for some time, it may grow quite large, causing clinical symptoms of compression (e.g., dyspnea and cough) in some patients. We report here on a SFTP measuring 30×18×20 cm and weighing 3560 g, arising from lung parenchyma lined by visceral pleura, with no point of origin in the parietal pleura.

2. Clinical observation

A 60-year-old female non-smoker with no relevant previous history was referred to this hospital with exertional dyspnea of one year’s standing. Chest radiography revealed a large tumor mass in the right hemithorax (Fig. 1a).

Computed tomography (CT) revealed a tumor mass measuring 30×15×20 cm, possibly arising from the diaphragmatic pleura and displaying considerable contact with the visceral pleural surface; mediastinal structures were displaced, CT density was heterogeneous, and there was evidence of focal necrosis, cystic degeneration and gross calcifications measuring around 1 cm, and extending to the right renal fossa (Fig. 1b).

Medial sternotomy revealed a large tumor mass, growing from the middle-lobe pulmonary parenchyma and displaying inflammatory adhesions at various points on the diaphragm.

Since this surgical approach did not allow visualization, dissection and extraction of the tumor, a transverse sternotomy and thoracotomy was performed through the fifth intercostal space, allowing the tumor to be visualized and dissected. The pedicle, attached to the middle lobe, displayed thick-walled vessels, especially veins (Fig. 2a). The tumor was extracted with some difficulty due to its size, despite the large incision.

At gross examination, the tumor appeared as a well-encapsulated nodular mass weighing 3560 g and measuring 30 cm. Cut sections had a whorled, fibrous, fascicular appearance (Fig. 2b). At immunohistochemical analysis, tumor tissue was positive for CD34, vimentin and BCL-2, and negative for desmin, actin, EMA, S-100, CD45 and CD 117. On the basis of these findings, the lesion was diagnosed as a mesenchymal neoplasm, and probably a fibrous tumor of the pleura.

Following postoperative accumulation of pleural fluid at a rate of 500 ml/day, a chest drain was implanted for six days. The patient was discharged on day 7.

3. Discussion

Solitary fibrous tumors account for <5% of all pleural neoplasms [4]. They may appear at any age, though they are more frequent in the sixth to seventh decades of life, and occur equally in both sexes. They commonly present as a smaller tumor (<10 cm), discovered incidentally in a chest radiograph or CT-scan in an asymptomatic patient. Larger tumors may prompt dyspnea, chest pain, asthenia and dry cough, due to occupation of space [5].

Solitary fibrous tumors more commonly originate in visceral rather than parietal pleura; Cardillo et al. [4] report respective incidences of 87.28% and 12.72%. The present tumor arose from the visceral pleura lining the middle lobe.

Although malignant cases have been reported [6], localized form of fibrous tumor follows a benign course in over...
80% of patients. The benign tumor is usually pedunculated, arises from the visceral pleura, displays relatively low cellularity and few mitoses, and measures <10 cm, although huge benign tumors have been reported, virtually filling the entire hemithorax [7], as was the case here. The malignant form, by contrast, is usually non-pedunculated, arises from the parietal, mediastinal, or diaphragmatic pleura, is larger than 10 cm, and tends to display increased cellularity, pleomorphism, necrosis and frequent mitoses. Our patient had a large mesenchymal tumor measuring 30 cm and weighing 3560 g. Here, the tumor was well-defined, showed few areas of increased cellularity and displayed no evidence of necrosis, nuclear pleomorphism or significant mitotic activity.

Histopathologically, in view of spindly cells, the differential diagnoses included a desmoplastic spindle cell mesothelioma; a monophasic synovial sarcoma; fibromatosis, a leiomyoma; a malignant peripheral nerve sheath tumor; a fibrosarcoma and a malignant fibrous histiocytoma [8]. In our case, those differential diagnoses were successfully excluded by the immunohistochemical findings of positivity for CD34, and negativity for S-100, cytokeratins, and desmin.

Complete surgical resection of fibrous tumors of the pleura is usually curative, but local recurrences have been reported years after surgery. Although the reason for these recurrences is unclear, they may be due to incomplete resection [3–6]. For tumors arising from the visceral pleura, wedge resection may be performed for complete excision. For those of the parietal pleura, an extrapleural resection may be carried out without any chest wall resection.

References

eComment: Preoperative embolization for giant thoracic masses

Authors: Alessandro Palleschi, Department of Surgery, IRCCS Ospedale Maggiore Policlinico, University of Milan, Italy; Ugo Cioffi, Matilde De Simone, Luigi Santambrogio
doi:10.1510/icvts.2010.259804A

We read with interest the recent clinical case reported by Trivinío et al. on giant solitary fibrous tumor of the pleura [1]. In our experience, the finding of a solitary fibrous tumor (SFT) of the pleura is usually incidental, except those that cause symptoms related to their size or location. We published a clinical case of a patient with syncopal episodes when coughing, due to SFT proximity to the phrenic nerve [2]. At surgery, we found only parietal pleural adhesions. The tumor originated from a single point on the visceral pleura of the lingula. In our opinion, the resection of lung parenchyma underneath the visceral pleural origin of the SFT, as reported by Trivinío et al. is advisable.

In the preoperative management of thoracic masses, we usually complete the evaluation of patients with PET and trans-parietal biopsy. Moreover, in cases of bulky lesions such as that reported by the authors, we believe angiography to be important, and eventually an arterial embolization. The identification of the vascular pedicles could be useful in the surgical management of large tumors, preventing uncontrolled bleeding related to poor vision of the operative field. We would like to know whether the authors would agree with our preoperative planning for the management of large thoracic masses such as that presented in their interesting and challenging case.

References
