Unexpected pleural finding after a fall

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A previously healthy 41-year-old man was admitted to the emergency room of Legnago Hospital in a town close to Verona, Italy, in August, 2017, due to an accidental fall and tibial fracture. Pre-surgical testing was unremarkable except for a large pleural opacity in the right upper lobe at chest x-ray. He was a nonsmoker without any occupational exposure to dust, fumes, or vapours. To better characterise the pleural lesion, a contrast-enhanced whole-body CT scan was done. It confirmed a large (8·5×3×8 cm) well-defined pleural lesion without surrounding atelectasis or pleural effusion. The mass showed heterogeneous contrast enhancement due to a solid central portion and peripheral cystic and necrotic areas. No calcifications, extra-pleural fat infiltration, enlarged lymph nodes, or rib erosions were detected, suggesting a non-aggressive behaviour. However, ^{18}F-FDG-PET/CT was done, and showed intense uptake (SUV_{max} 7·9; figure, A), suggesting an aggressive malignancy instead. The patient underwent surgical resection of the tumour at Padova hospital (Padova, Italy).

The resected specimen was a nodular mass with a central solid area and peripheral multicystic components. Based on its gross appearance and overall histological features of epithelioid aspects (figure, B; positive immunostaining for cytokeratin cocktails MNF116 and AE1/AE3 and mesothelial markers calretinin, D2-40, and WT1) a final diagnosis of localised malignant mesothelioma was made.

The surgical resection was completely successful, with margins free from tumour cells at histology. Thus, the treating oncologist decided to not prescribe any chemotherapy and instead applied a strict follow-up regimen with CT scans every 4 months. The scans did not show any sign of local recurrence or metastatic spread, even at the last whole-body scan (1 year and 3 months after the diagnosis).

Localised malignant mesothelioma is extremely rare and little is known about its biological behaviour and prognosis. The role of asbestos exposure in the development of this disease is still controversial. Although localised malignant mesothelioma shares ultra-structural and immunohistochemical features with diffuse malignant mesothelioma, it is usually a solitary well-defined tumour without any pleural spread. On CT scan, small localised malignant mesotheliomas appear as circumscribed, homogeneous nodular pleural lesions, whereas larger tumours are heterogeneous with irregular contrast enhancement because of necrosis and hemorrhage. Nevertheless, when local invasion and pleural effusion are absent, as was the case in this patient, the differential diagnosis between localised malignant mesothelioma and benign or low-grade lesions can be extremely challenging at CT. Although ^{18}FDG-PET/CT might contribute substantially to the diagnosis, histology and immunohistochemistry remain the gold standard for precise characterisation.

Contributors
CG drafted the manuscript. ASF collected the images. FF collected the pathological specimen. AB summarised the surgical and clinical history. FC and FR revised the manuscript and finalised the editing of the figure. Written informed consent to publication was obtained.

Declaration of interests
We declare no competing interests.

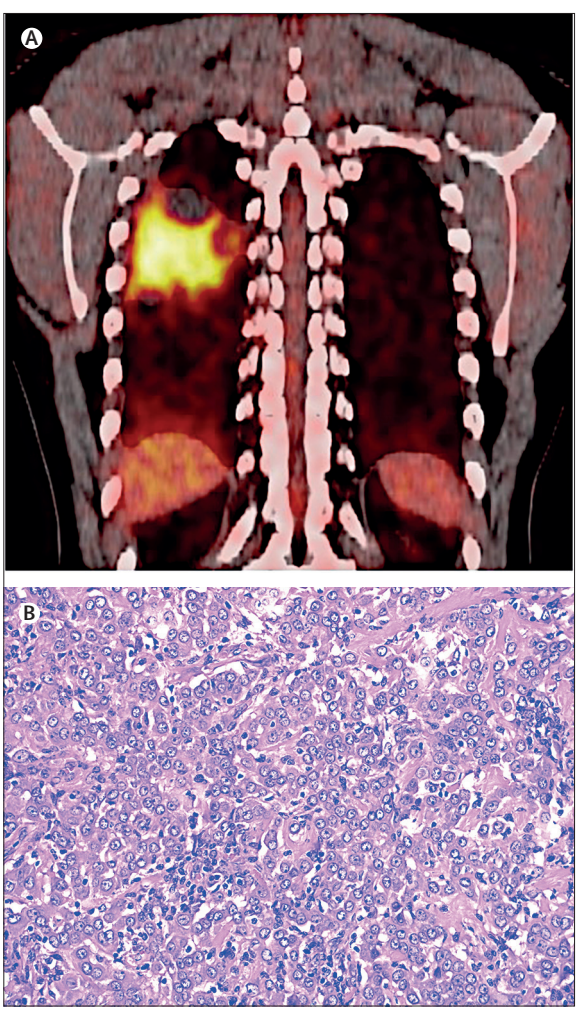

Figure: **Localised malignant mesothelioma**
(A) Coronal ^{18}F-FDG-PET/CT demonstrating the strong uptake of the pleural lesion. (B) The neoplastic cells showed epithelioid features with eosinophilic cytoplasm and prominent nucleoli (hematoxylin and eosin, original magnification ×200).

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