



Intravascular tumour embolism from chondrosarcoma

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A 48-year-old woman with a history of sternal chondrosarcoma that had been completely resected 3 years previously presented with a 7-month history of cough and progressive dyspnoea. On admission she had blood oxygen saturation of 88%.

Pulmonary CT angiography showed a large tumour embolus in the main pulmonary artery bifurcation that extended into the left pulmonary artery and all the left lobar and segmental arterial branches and caused a large left lower lobe parenchymal consolidation (figure). Percutaneous transthoracic biopsy of the consolidation showed metastatic chondrosarcoma. She underwent a left pneumonectomy. Macroscopic examination of the resected lung (figure) showed a translucent myxoid tissue filling the pulmonary arteries in an arboreal pattern. Microscopic analysis confirmed that the metastatic chondrosarcoma was confined to the vasculature, even inside the parenchymal consolidation. The patient died 4 months later from respiratory insufficiency from right-sided pleural and pulmonary infection associated with rapid metastatic spread to the right lung.

Pulmonary intravascular tumour embolism is often underdiagnosed at imaging; it is reported in 4–30% of all patients with malignancy on post-mortem examination. It is most common in cancers of the kidney, liver, breast, and lung. Chondrosarcomas are the third most common primary bone malignancy. They often metastasise to the

lung parenchyma, but intravascular pulmonary tumour embolism has rarely been reported in chondrosarcoma. Distribution depends on the size of the initial tumour embolus. Small tumour emboli initially lodge distally and propagate towards the centre, gradually affecting larger pulmonary vessels, whereas larger tumour aggregates that embolise in more proximal vessels spread both centrally and peripherally. The clinical signs of pulmonary tumour embolism are variable, and often mimic those of acute or chronic pulmonary thromboembolism; unlike thromboemboli, tumour emboli typically continue to grow despite anticoagulation.

Pulmonary tumour embolism can show various patterns on chest CT (figure). It can present with a tree-in-bud pattern—a pattern that is more commonly seen in other diseases such as bronchiolar inflammation or infection—when small tumour emboli cause filling and dilatation of the small peripheral centrilobular pulmonary arteries, occasionally leading to a pulmonary infarct. The most characteristic appearance of tumour embolism is enlargement of more central beaded pulmonary arteries, caused by larger tumour emboli. Extensive dissemination can also result in parenchymal consolidation, a cause that should be considered in a patient with a known malignancy.

Contributors

A-SC, DH, and BG cared for the patient. All authors contributed to writing of the report. Written consent to publication was obtained.

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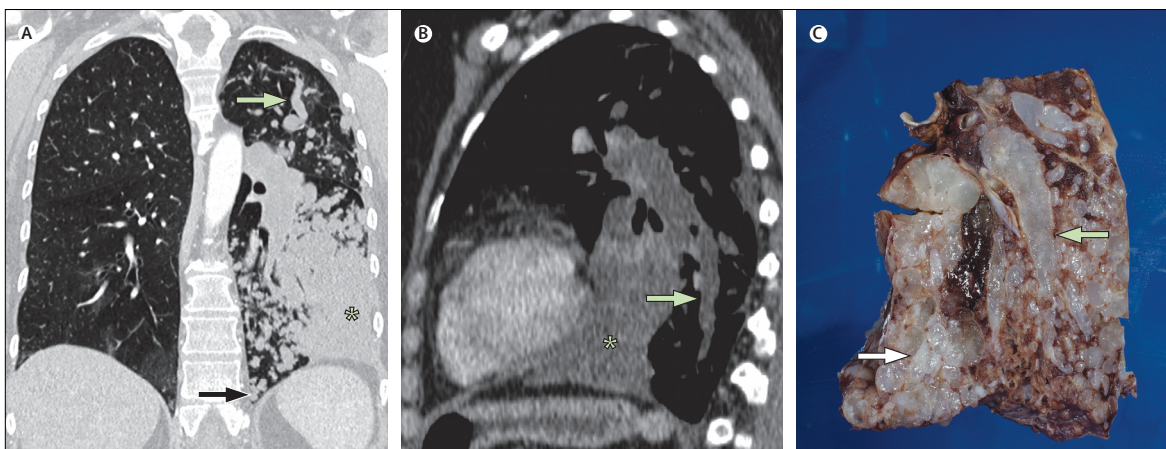


Figure: Pulmonary intravascular tumour embolism from chondrosarcoma

(A) Coronal and (B) sagittal chest CT showing different patterns of pulmonary intravascular tumour embolism, including tree-in-bud (black arrow), dilated and beaded pulmonary arteries (green arrows), and parenchymal consolidation (asterisk). (C) Macroscopic sample showing metastatic chondrosarcoma in the central vessels (green arrow) and peripheral vessels (white arrow).