Peripheral intrapulmonary lipoma in a 26-year-old woman – a case report

Anna M. Moran[1], Bo Jian[1], Htun Min[1], Taine Pechet[2], Franz Fogt[1]

[1]Department of Pathology and Laboratory Medicine, University of Pennsylvania Health System, Penn Presbyterian Medical Center, Philadelphia, PA
[2]Department of Thoracic Surgery, University of Pennsylvania Health System, Penn Presbyterian Medical Center, Philadelphia, PA

Rare in occurrence, the following case of intrapulmonary lipoma is only the fifth known case in a female patient reported in the literature. Importantly, the incorporation of this lesion into the differential diagnosis during frozen section of a predominantly adipocytic lesion limited the extent of surgical intervention and provided the patient with an optimal standard of care.

Key words: peripheral intrapulmonary lipoma, pulmonary lipoma.

Introduction

Lipomas represent the most common soft tissue (mesenchymal) tumours in humans and even though common, most are reported in men. These lesions are rare in the first two decades of life and become apparent in patients 40-60 years of age. Two types of solitary lipoma can be distinguished, superficial lipomas and deep lipomas, which are rare in comparison. In the lung, most lipomas are seen as endobronchial lesions with exceptionally rare occurrence in the peripheral lung. Within the last one hundred years since 1911, few peripheral intrapulmonary lipomas have been described in the literature in both males and females aged 38-71. This is the first reported case to highlight the occurrence of a peripheral intrapulmonary lipoma in a patient in the second decade of life and only the fifth female case in the literature.

Case report

Clinical data

A 26-year-old female presented with some components of dyspnoea and lung dysfunction. Chest CT scans showed a complex mass involving the medial aspect of the right lower lobe with encapsulation and components of fat and lung demonstrated by fat density and a cystic region along the posterior lateral aspect. The patient did not have any other soft tissue masses elsewhere identified following clinical examination. Intraoperative frozen section showed a lipomatous lesion with no necrosis, no increased mitosis, pleomorphism or increased cellularity, favouring a benign entity. The patient underwent a right lower lobe medial basilar surgical segmentectomy which showed the mass to be completely free of the mediastinum, inseparable from the lower lobe and emanating from the segmental lung. At the time of surgery, the tumour was freely mobile relative to the pericardium and no parietal pleural lesions were noted.

Pathological findings

Grossly, the right lobe segmentectomy measured 11.0 × 8.0 × 2.0 cm and consisted predominantly of yellow lobulated fatty tissue.

Histologically, sections showed mature adipose tissue within pulmonary parenchyma and focally interdigitating into pulmonary tissue. Focal single widened alveolar septa with presence of adipocytes within the interstitium were intermixed with the lesion. The fatty lesion was surrounded by thin connective tissue and fragments of unremarkable lung parenchyma. On higher magnification, the lesion was composed of lob-

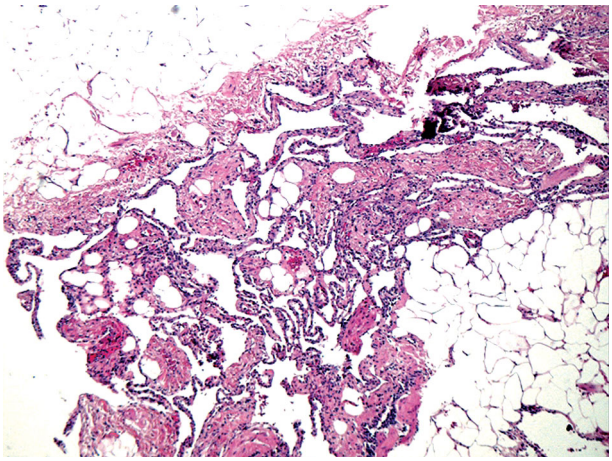

Fig. 1. Peripheral intrapulmonary lipoma: mature adipose tissue within peripheral pulmonary parenchyma. HE

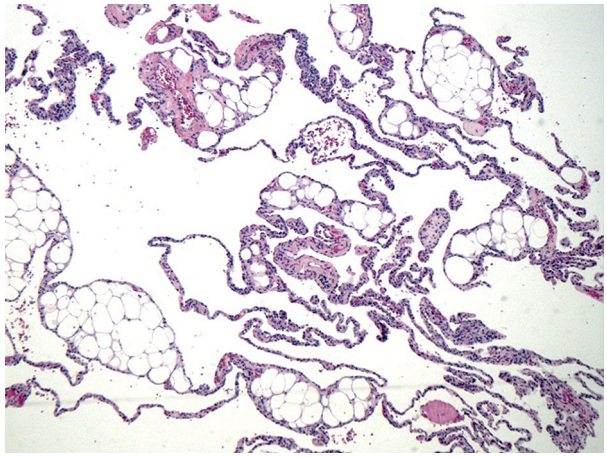

Fig. 2. Peripheral intrapulmonary lipoma: widened alveolar septa with presence of adipocytes within the interstitium. HE

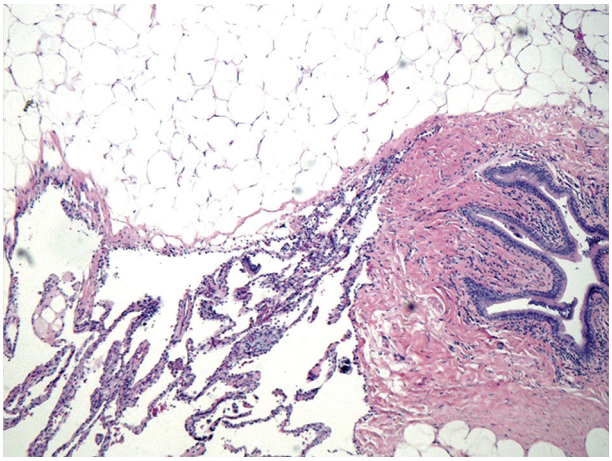

Fig. 3. Peripheral intrapulmonary lipoma: lipomatous lesion surrounded by thin connective tissue and fragments of unremarkable lung parenchyma. HE

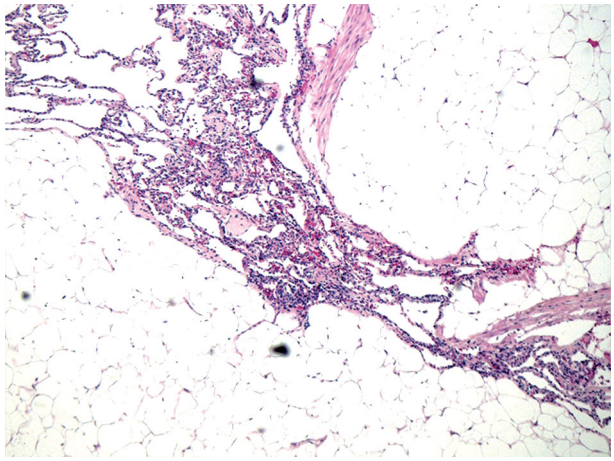

Fig. 4. Peripheral intrapulmonary lipoma: lobulated groups of mature adipocytes with bland nuclei and lipid-filled cytoplasm. HE

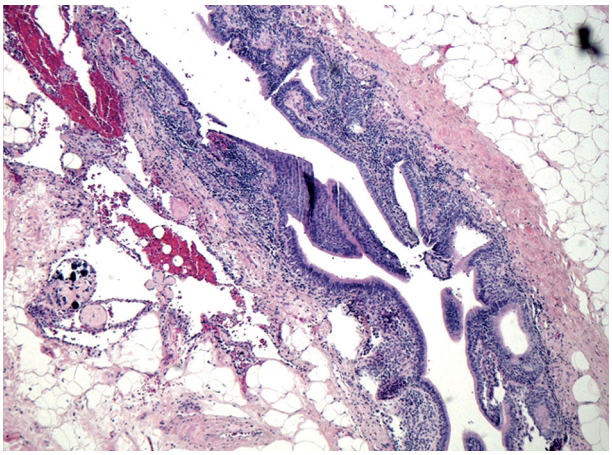

Fig. 5. Peripheral intrapulmonary lipoma: entrapped terminal bronchi. HE

ulated groups of mature adipocytes with bland nuclei and lipid-filled cytoplasm. Intervening areas of hypocellular fibrous bands, regions with sparse blood vessels and entrapped terminal bronchi were seen. Very rare minute microscopic calcifications were noted. The lesion did not show any markedly atypical cells, increased cellularity, thick-walled blood vessels, spindle cell areas, cartilaginous or osseous metaplasia, smooth muscle elements, myxoid changes, or features of infarction, necrosis or haemorrhage (Figs. 1-5).

Discussion

In general, lipomas are the most common soft tissue lesions encountered in pathology, usually discovered in patients 40-60 years of age, either superficial or deep [1] and known to occur rarely in the lung, with an incidence of bronchial lipoma only at 0.1% among all pulmonary tumours and an even more rare occurrence in the parenchyma of the peripheral lung, with only 14 cases recorded in the literature, including this case [2-7].

Of the 13 previously reported cases, 9 cases were reported in men and 4 cases in women aged 38-71 years (males 44-71 years; females 38-62 years) with sizes ranging from 1 to 7 cm. This case was unique in that it was in a female in her second decade of life,

whereas lipomas typically occur in the age range of 40-60 years, with the youngest age among previously reported peripheral intrapulmonary lipoma cases being that of a 38-year-old female patient.

Treatment of these lesions has ranged from radiological identification after 12 years of existence of the lesion initially undiagnosed on a CXR [3] to enucleation and lobectomy.

Histologically, the tumours resemble lipomas in other locations, with the caveat that superficial lipomas are commonly well circumscribed and demarcated by a thin capsule, whereas deep lipomas tend to be less well circumscribed and can be contoured dependant on the space they occupy. Lipomas of the deeper structures vary much more in shape, but they also tend to be well delineated from the surrounding tissues by a thin capsule [1].

The current case demonstrated presence of a thin capsule with entrapped and surrounding lung parenchyma, features more typical of a deep seated lesion.

Other lipomatous lesions of the lung considered in the differential diagnosis were a thymolipoma, lipomatous hamartoma, liposarcoma, and angiomyolipoma with adipocytic overgrowth. The lesion was HMB-45 immunohistochemical stain negative. There was no connection to the mediastinum or any thymic tissue, and no cartilaginous, osseous metaplasia or glandular elements were present. No definitive features of malignancy or features of a liposarcoma, including lipoblasts, were seen.

Lipomas in the peripheral lung have a benign nature and variable clinical course. Patients can be either asymptomatic or present with symptoms of fever, sputum production, cough, dyspnoea, haemoptysis, chest pain, wheezing or right arm paraesthesia. Peripheral intrapulmonary lipomas may be underdiagnosed, with only 14 cases (including the present case) reported in the literature in the past 100 years.

Yet, with a greater awareness of the existence of peripheral intrapulmonary lipoma, the possible additional reporting of cases in the literature and more common incorporation of this lesion into textbooks, we may be more adept clinically at providing less invasive modalities of treatment. A consideration for pathology is to provide a diagnostic work-up by frozen section as in this case for the initial diagnosis of these lesions in correlation with radiographic findings and ultimately spare patients vital lung function by enucleation, wedge resection or segmentectomy rather than lobectomy, which will provide for a more optimal standard of care.

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Address for correspondence

Anna M. Moran MD
Assistant Professor
Department of Pathology and Laboratory Medicine
University of Pennsylvania Health System
Penn Presbyterian Medical Center
51 North 39th Street
Suite W-542
Philadelphia, PA 19104
tel. 0-01-215-662-8548
fax: 0-01-215-662-1694
e-mail: anna.moran@uphs.upenn.edu