Case Report

Pulmonary hamartoma: Case report and brief review of literature

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ABSTRACT

Pulmonary hamartoma are benign, well-circumscribed single nodule in the lung parenchyma. They are composed of an abnormal mixture of epithelial and mesenchymal elements. Patients are usually asymptomatic and discovered by chance. We report a case of 65-year-old male patient who presented with cough with hemoptysis, dyspnea, and chest pain. Lumpectomy was done, which revealed histological features of chondroid hamartoma.

Key words: Benign tumor, hamartoma, mesenchymoma

INTRODUCTION

Pulmonary hamartoma (PH) also known as mesenchymoma was first described in 1904 by Albrecht.[1] In 1934, Goldsworthy applied this term to benign tumors located in the lung that were composed predominantly of a combination of fat and cartilage. They are usually found in adult males with a peak incidence in the fifth decade of life.[2] There is a slight male preponderance, the male:female ratio being 2:1 to 3:1. They are usually detected incidentally on chest radiograph as an incidental coin lesion. PHs are usually well-defined, solitary pulmonary nodules. It can occur in any part of the lungs, but are more often found in the periphery and rarely in the hilar parts. We report a case of 65-year-old male patient who underwent lumpectomy for dyspnea and chest pain, and the histological findings revealed chondroid hamartoma.

CASE REPORT

A 65-year-old male patient presented with cough with occasional hemoptysis, chest pain, and dyspnea on and off since 2 months. On admission, physical examination and laboratory investigations were normal. There was no history of fever or weight loss. Plain chest radiograph revealed a solitary nodular opacity in 5 cm × 5 cm in the right middle lung. Patient underwent computed tomography chest which revealed a mass of 7 cm × 5 cm in the right middle lung with central calcification and a provisional diagnosis of hamartoma was suggested. Owing to large size of the tumor and symptomatic patient, the tumor was excised and send for histopathological examination.

We received a globular gray brown soft tissue piece measuring 6 cm × 5 cm [Figure 1]. Centre of the tumor was hard to cut. On microscopic examination, tumor was comprised intimate mixture of lobules of cartilage, adipose tissue, and muscle bundles separated by slit-like spaces [Figure 2], which were lined by cuboidal to ciliated columnar epithelium. At places, placental transmogrification was there (epithelium forming chorionic villi-like pattern) [Figure 3]. Cartilaginous lobules showed areas of ossification and bone formation. Inflammatory cell infiltrate and lymphoid aggregates were seen in the stroma. A diagnosis of chondroid hamartoma was made on histopathology.

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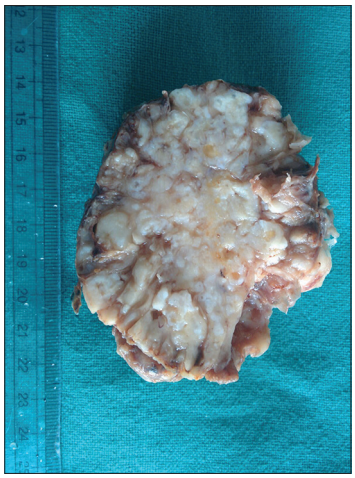

Figure 1: 6 cm × 5 cm globular gray brown soft tissue piece

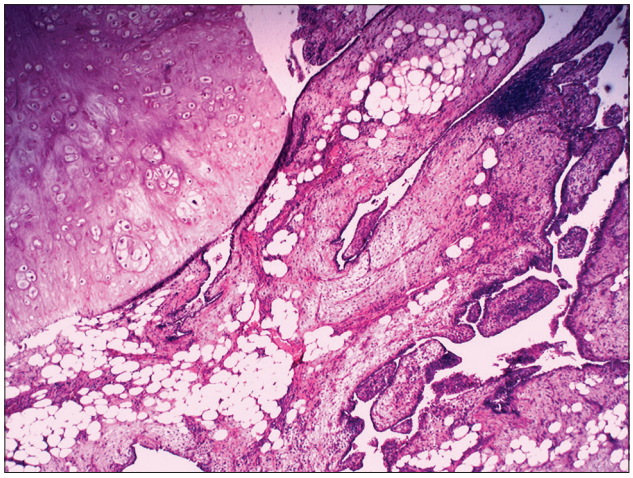

Figure 2: M/E shows intimate mixture of lobules of cartilage, adipose tissue, and muscle bundles separated by slit-like spaces, lined by cuboidal to ciliated columnar epithelium. Placental transmogrification also seen (H and E, ×100)

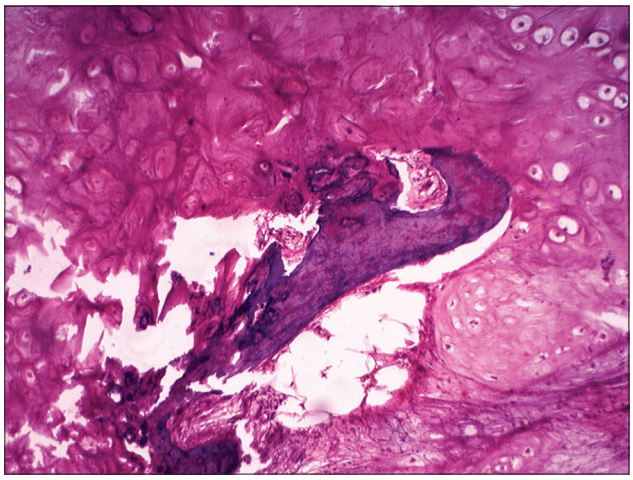

Figure 3: M/E shows cartilaginous lobules with areas of ossification and bone formation (H and E, ×400)

DISCUSSION

Chondroid hamartoma are regarded as hamartomas because they consist of a disorganized proliferation of various connective and epithelial tissues normally found in the lung. Hamartoma are the most common form of benign lung tumors with an incidence of between 0.025–0.32% according to different necropsy studies.[3] Hamartomas are more common in males than females, the incidence being 2-3:1. Most hamartomas are discovered during adulthood with a peak incidence in the fifth to sixth decade. They are usually asymptomatic and only occasionally cause symptoms, such as obstruction of bronchus causing atelectasis, pneumonitis, cough, expectoration, and chest pain. Our patient was symptomatic having cough, hemoptysis, chest pain, and dyspnea. Cytogenetic analysis of PHs show an abnormal karyotype and reveal recombination between chromosomal bands 6p21 and 14q24, thus supporting the opinion that hamartoma of the lung is a true neoplasm.[3]

Over 90% of the tumors are peripheral, and 10% or less are endobronchial.

The peripheral tumors constitute 7–14% of radiographic, solitary pulmonary nodules.[4] Peripheral nodules are asymptomatic; endobronchial lesions are frequently associated with symptoms or signs of obstruction.

The majority of PHs show slow annual growth. However, it is also important to recognize that some hamartomas might increase rapidly in size and show malignant alteration.[5]

Bronchoscopically, the lesions are smooth, fleshy, pedunculated mass that may be tan to pink. The lesions are often polypoid, either sessile or with a thin pedicle. Radiographic findings include soft tissue masses within the central airways. Secondary signs include lung hyperinflation, recurrent pneumonia, collapse, and bronchiectasis due to airway obstruction. On CT scan, these lesions are described as rounded soft tissue masses that frequently exhibit calcification and fat density for adipose tissue.[6]

Most measure 1–3 cm in diameter, but they range up to 9 cm. Grossly, they are lobulated and the predominant tissue is cartilage, which may calcify or undergo osseous change. They are sharply circumscribed, but lack in capsule and shell out easily at operation, after which there is little risk of recurrence.

Histologically, the mesenchymal components of the endobronchial hamartomas are highly varied. The tumor

consists of lobules of cartilage, fat, fibromyxoid tissue, and sometimes smooth muscle and bone that are separated by clefts lined by non-neoplastic respiratory epithelium.[5] Parenchymal tumors tend to have more epithelial clefts than do endobronchial tumors. Endobronchial lesions tend to have more fat. Sometimes, PH is seen associated with the peculiar change known as placental transmogrification, characterized by the formation of placental villus-like formation in the lung parenchyma.[7]

Immunohistochemically, some of the spindle cells of this lesion have features of myoepithelial cells, such as positivity for actin and S-100 protein. There is also common expression of estrogen receptor, progesterone receptor, and androgen receptor (the latter only in males), most of it in the myoepithelial-like cells.

It can be associated with Carney's triad, which is a rare combination of three unusual neoplasms that affects young women. The patients are generally in the second or third decade, the youngest recorded being a girl aged 9 years. The condition is not familial. The three tumors are extra-adrenal paraganglioma (chemodectomas), gastric epithelioid leiomyosarcomas (gastrointestinal stromal tumor), and pulmonary chondromas.

The treatment of hamartoma is usually in the form of conservative surgery, lung sparing, or bronchoplastic surgery: Wedge resection or enucleation of peripheral lesions and sleeve resection of endobronchial lesions.

CONCLUSION

We have presented a case with a PH requiring differentiation from lung cancer due to a relatively large size and respiratory symptoms in the patient. Hamartomas generally show relatively slow annual growth, but rapid enlargement occurs in some cases.[5] The diagnosis should be kept in mind in patients with solitary pulmonary nodule as the treatment of hamartoma is usually in the form of conservative surgery.

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Conflicts of interest

There are no conflicts of interest.

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