Primary Mature Cystic Teratoma of the Lung: A Case Report

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ABSTRACT

Background: *Primary teratomas of the lung are extremely rare neoplasms. They are thought to originate from derivatives of the third pharyngeal pouch. They generally present with non-specific symptoms including chest pain, cough, hemoptysis, bronchiectasis and pneumonia.*
Case Report: *A 38 year old farmer who presented with a week's history of cough and haemoptysis. He had no other significant clinical and social history. On examination: findings were essentially within normal limits except for a slightly dull percussion note on the left upper zone with decreased air entry. Chest X-ray showed a honey comb appearance on the left upper lobe of the lung. Chest CT scan (mediastinal window) showed multiple mediastinal lymphadenopathy; lung window showed a mass destroying the left upper and middle (lingular) lobe. A working diagnosis of destroyed left upper lung lobe secondary to? pulmonary tuberculosis to rule out bronchogenic carcinoma was made. He was prepared for and had left posterior lateral thoracotomy with left upper lobectomy. The resected lung tissue was sent to the Histopathology laboratory, which revealed mature cystic teratoma following microscopic examination of hematoxylin and eosin stained sections of formalin fixed paraffin embedded tissue blocks.*
Conclusion: *Extra-gonadal germ cell tumors should be a differential diagnosis of lesions of the mediastinum, to aid timely diagnosis and management.*

Key words: Primary, Teratoma, Mature cystic, Lung

BACKGROUND

Primary teratomas of the lung are extremely rare neoplasms.[1,2,3] They are thought to originate from derivatives of the third pharyngeal pouch.[1,2] Teratomas consisting of tissues derived from more than one germ cell line.[1,2]Criteria for pulmonary origin are exclusion of a gonadal or other extra-gonadal primary site and origin entirely within the lung.[1,2,3]

The majority of cases occur in the second to fourth decades (range 10 months to 68 years) with a slight female preponderance.[1,2] Teratomas are more common in the upper lobes, principally on the left side.[2]

CASE REPORT

A 38 year old farmer who presented with a week's history of chest pain,cough and haemoptysis. He had no other significant clinical and social history. On examination: findings were essentially within normal limits except for a slightly dull percussion note on the left upper zone with decreased air entry. Chest X-ray showed a honey comb appearance on the left upper lobe of the lung (Fig 1). Chest CT scan (mediastinal window) showed multiple mediastinal lymphadenopathy; lung window showed a mass destroying the left upper and middle (lingular) lobe(Fig 2).

A working diagnosis of destroyed left upper lung lobe secondary to? Pulmonary tuberculosis to rule out bronchogenic carcinoma was made. He was prepared for and had left posterior lateral thoracotomy with left upper lobectomy. The resected lung tissue was sent to the Histopathology laboratory. The lobectomy specimen weighed 250gm with well circumscribed masses around the medial aspect of the lungs measuring 7 x 10 cm in dimension; cut surface show multilocular cystic spaces with some cysts filled with yellow-white keratinous materials. Histology of the tissue revealed features of a mature cystic teratoma.

Fig. 1: Chest X-ray showing honey comb appearance on the left upper lobe of the lung.

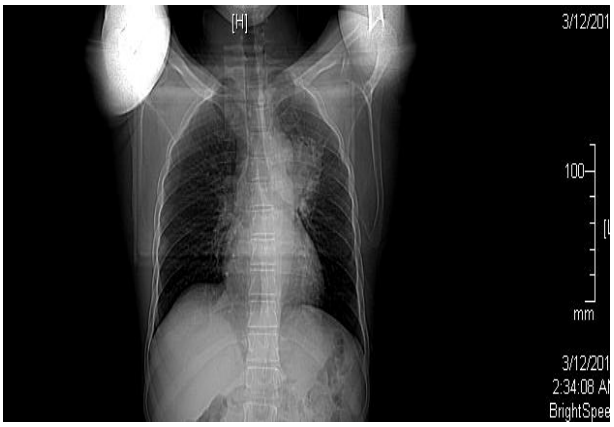


Fig 2 CT-Scanmultiple mediastinal lymphadenopathy and a mass destroying the left upper lobe

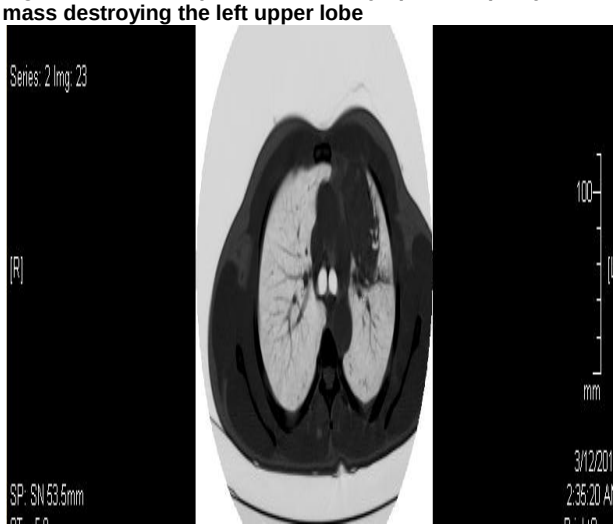


Fig 3. Resected lung tissue showing well circumscribed masses around the medial aspect measuring 7 x 10 cm in dimension; cut surface shows multilocular cystic spaces, some of which are filled with yellow-white semi solid materials.

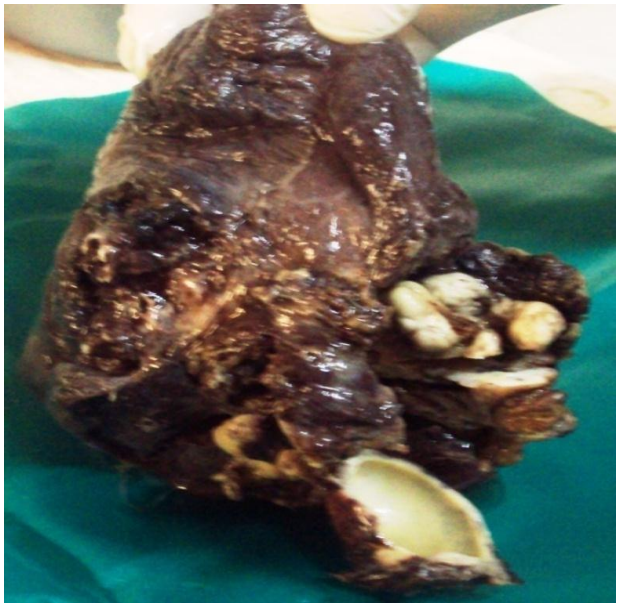
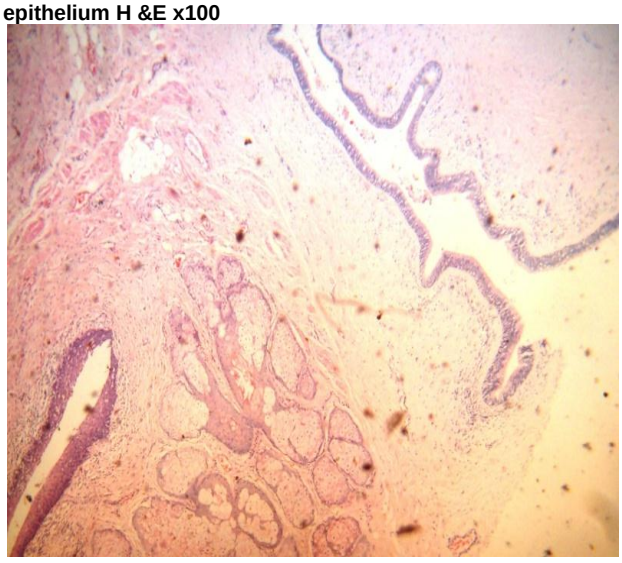


Fig 4. Section shows a pilosebaceous unit and bronchial epithelium H &E x100



DISCUSSION

Patients lung teratoma present most often generally, with non-specific symptoms including chest pain, cough, haemoptysis, bronchiectasis, pneumonia and pyothorax. [1,2,4] The index case presented with above non-specific symptoms;

expectoration of hair (trichoptysis) is the most specific symptom.[4]Typically cystic masses and often focal calcification are detected on imaging.[1, 4] Chest X-ray for the indexcase showed a honey comb appearance on the left upper lobe of the lung while Chest CT scan (mediastinal window) showed multiple mediastinal lymphadenopathy; lung window showed a mass destroying the left upper and middle (lingular) lobe this in keeping with findings in other studies[1,2,4] The majority of cases occur in the second to fourth decades (range 10 months to 68 years) with a slight female preponderance.[1,2] The index case is in the fourth decade is a male. Teratomas are more common in the upper lobes, principally on the left side.[2] the location is in keeping the findings in the index case.

Tumours range from 2.8-30 cm in diameter as in this index case. They are generally well circumscribed masses, cystic and multiloculated, but may rarely be predominantly solid, which tends to be immature. Some cyst are filled with yellow-white keratinous materials and cartilage are recognisable. Cysts are often in continuity with the bronchi and may have an endobronchial component.[1, 2] The index case has well circumscribed masses around the medial aspect of the lungs measuring 7 x 10 cm in dimension with the cut surface showing multilocular cystic spaces some of which are filled with yellow-white semi solid materials.

Mesodermal ectodermal and endodermal elements are seen in varying proportions. Most pulmonary teratomas are composed of mature, often cystic somatic tissue, although malignant or immature elements may occur. Mature teratomas of the lung generally take the form of squamous-lined cysts similar to those of the ovary.[1,2,4,5,6] In the index case, mature somatic tissue are noted in the form of skin and skin adnexae.

Surgery is the treatment of choice with all mature teratomas being cured with this approach.[1,2] Complete surgical resection may be complicated if the tumour has ruptured with bronchopleural fistula and a marked fibro-inflammatory reaction. Resection of malignant teratomas has also led to prolonged disease remission, although most cases were unresectable and died within 6 months of diagnosis.[1,2,4,7]The index case had surgical resection of the whole tumour and is currently free of symptoms.

Immunoreactivity depend on the tissue type present. Placental-like alkaline phosphatases (PLAP), alpha fetoprotein (αFP) and Human chorionic Gonadotropin (hCG), may be useful in cases with malignant foci to evaluate the present of malignant germ cell tumour constituent. In the index case there were no suspicious malignant foci noted in all the microscopic slide and serum alpha fetoprotein was within the normal limits. PLAP and hCG were not available at the centre.

Differential diagnosis: Metastatic teratoma requires exclusion via thorough clinical investigation. Teratomas treated by chemotherapy often comprise wholly mature elements in their metastases.[6,7] Carcinosarcomas, pleuropulmonary blastomas and pulmonary blastomas do not recapitulate specific organ structures.[1,2]

CONCLUSION

Extra-gonadal germ cell tumors should be considered in the differential diagnosis of lesions of the mediastinum, to aid timely diagnosis and management.

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