

Case report**Benign Mature Cystic Teratoma Masquerading as Recurrent Pneumonia in a Young Adult**Azhar AH¹ (✉), Ziyadi G², Rashidi A³, Rahman MNG¹¹Department of Surgery, ²Cardiothoracic Unit, ³Department of Emergency Medicine, School of Medical Sciences, Health Campus Universiti Sains Malaysia, Kelantan, Malaysia**Abstract**

Mediastinal mature cystic teratomas are rare germ cell tumors most commonly found in the anterior mediastinum, and constitute about 3-12% of all mediastinal tumors. They grow slowly and are usually diagnosed incidentally. This is a rare presentation of a young lady with mediastinal mature cystic teratoma (dermoid cyst) presenting with chronic cough and haemoptysis.

Keywords: Mediastinal mass, Mature Cystic Teratoma, Chronic Cough**Correspondence:**

Dr. Azhar bin Amir Hamzah, Department of Surgery, School of Medical Sciences, Health Campus, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia. Tel: +609-7664542, Email: drazhar786@hotmail.com

Date of submission: Dec 27, 2011

Date of acceptance: Feb 25 2012

Introduction

Recurrent pneumonia has been defined as at least two episodes of pneumonia in one year or more than three at any time, with radiographic clearing between episodes (1). The causes of recurrent pneumonia include endobronchial obstruction, extrinsic compression of airways and structural abnormalities, metabolic and immunologic dysfunctions.

Vigilant thorough investigations looking for the specific cause of recurrent pneumonia is extremely important because the morbidity and mortality are substantial and the best prognosis is associated with early recognition and sometimes it may require surgical resection.

We hereby, report a rare case of benign mature cystic teratoma in an adolescence who suffered from recurrent pneumonia for a year. A description of her presentation and management, along with a review of literature, is being presented.

Case Report

A 20-year-old female college student presented to the Emergency Department with a complaint of coughing out large amount of blood prior to admission. She had been coughing for a year. During the initial onset, the cough was dry and non productive. Lately, the sputum became yellowish to greenish in color. She had sputum streaked with blood occasionally. She often visited the district hospital and private clinic with the above problems and they treated her as clinical bronchopneumonia. She denied any specific investigations to find the cause of her problem during the hospital or clinic visits. She received many types of antibiotic and cough syrup. Her symptoms did not recover completely.

For the past two months, she had intermittent low-grade fever. She denied night sweats, loss of weight and loss of appetite. She had no history of contact with tuberculosis patients. She experienced breathlessness while performing moderate physical

activities a month ago. She denied having any chest pain, wheezing, palpitations, orthopnoea, paroxysmal nocturnal dyspnoea or ankle oedema.

On general examination, she was dyspnoeic, tachypnoeic and flushed. Her respiratory rate, pulse rate, oral temperature, blood pressure and oxygen saturation under room air was 22/min, 124/min, 38.0°C, 106/72 mmHg and 96% respectively. She was not anaemic, jaundiced or cyanosed. Her jugular venous pressure was not raised. No palpable lymph nodes and no ankle oedema.

Chest examination revealed reduced air entry over the upper and middle zone of the left lung. Scattered rhonchi was audible and bronchial breathing was heard over the same area. Trachea was located centrally. Cardiovascular and abdominal examination was unremarkable.

Chest radiograph showed homogenous opacity over the left upper and middle lung field with minimal left pleural effusion. (Fig. 1)

Blood investigation results revealed mild leucocytosis (WBC: $12.3 \times 10^3/uL$), mild anaemia (Hb: 10.7g/dL) and normal platelet count ($270 \times 10^3/uL$). Her ESR was 22 mm/hr. Blood urea and serum electrolytes, liver function test, arterial blood gases and Electrocardiogram (ECG) were normal. Sputum Acid Fast bacilli (AFB) and culture was normal for three consecutive days. A diagnosis of lobar pneumonia was made based on the clinical features and chest radiograph findings.

Bronchoscopy showed the lumen of the left main bronchus was narrowed secondary to the external



Figure 1: Chest radiograph showed homogenous opacity over the left upper and middle lung field with minimal left pleural effusion.

compression. Bronchial fluid analysis did not revealed malignant cells. Urgent computed tomography (CT) of thorax showed well defined and large rounded infected multilocular cystic lesion with peripheral rim enhancement over the left anterior and middle mediastinum measuring 11.4cm x 9.1 cm x 9.4 cm (Fig. 2). There was no communication between the mass and adjacent mediastinal structures.

The radiological impression was benign teratoid tumour or cavernous lymphangioma. Other differential diagnoses include pericardial cyst, thymic cyst or bronchogenic cyst. Needle biopsy under CT guidance was commenced. The histopathological examination (HPE) showed fibrocartilagenous tissue with skeletal muscle and adipose tissue. No malignant cells were observed (Fig. 3).

She underwent mediastinotomy and excision of the mediastinal mass after the pneumonia had resolved. There was a huge multiloculated cystic mass measuring

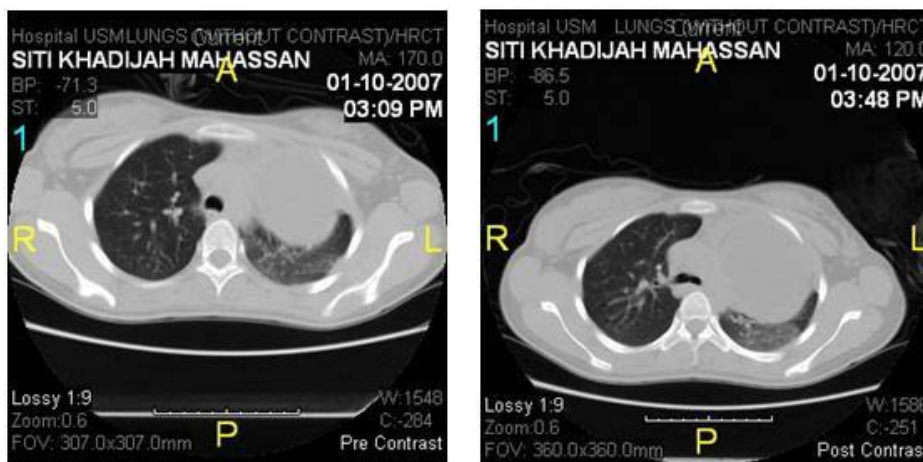


Figure 2: Computed tomography (CT) of thorax showed well defined and large rounded infected multilocular cystic lesion with peripheral rim enhancement over the left anterior and middle mediastinum measuring 11.4cm x 9.1 cm x 9.4 cm

15 cm x 16 cm x 10 cm and extending from the anterior mediastinum to the left side. The grayish brown coloured cystic mass was covered by thin fibrous tissue and contained dark brown fluid. HPE revealed cystic and solid lesion containing mature tissue that was derived from all three germ layers (endoderm, ectoderm and mesoderm) include smooth muscles squamous epithelium, respiratory epithelium, melanin pigments, colonic glandular epithelium, fibrous tissue, adipose tissue, serous glands, lymphoid and vessel aggregates. The final diagnosis was mediastinal mature cystic teratoma (Fig. 3). Her condition progressed very well. She was discharged home 5 days later. During the recent follow up she was healthy and cough had completely subsided.

Discussion

Mediastinal teratoma was first described in 1823 (2). Mediastinal mature cystic teratomas are rare germ cell tumors most commonly found in the anterior mediastinum. It constitutes about 3-12% of all mediastinal tumors. They grow slowly and are usually diagnosed incidentally (3-6).

Approximately, two third of the benign teratomas in adults are asymptomatic. They often manifest by their pressure effect to the surrounding structures. The most common complication is the compression of the intrathoracic structures due to the tumor growth (3). Pain is the most common symptom. Others include dyspnoea and cough. Atypical presentations of benign teratoma include massive haemoptysis, expectoration of hair or sebum, empyema, pericardial effusion and cardiac tamponade (7, 8). Its rare occurrence and atypical presentation usually will delay the diagnosis.

Our patient had frequent visits to the district hospital and clinics because of chronic cough. Unfortunately she was treated several times as clinical pneumonia including this admission. Perhaps, the clinical presentation of pneumonia was very obvious. As a result of delayed diagnosis, she presented with a tumour complication. The effect of external compression to the bronchus in our patient was wheezing, sputum retention, pneumonia and haemoptysis. Therefore, early diagnosis may reduce the morbidity and mortality. This patient should have been referred to the chest physician for her chronic cough and recurrent pneumonia as foreign body, gastroesophageal reflux disease, pulmonary tuberculosis, bronchogenic carcinoma can cause similar manifestations.

Most often there are no physical findings in a benign teratoma. Routine roentgenographic examination may

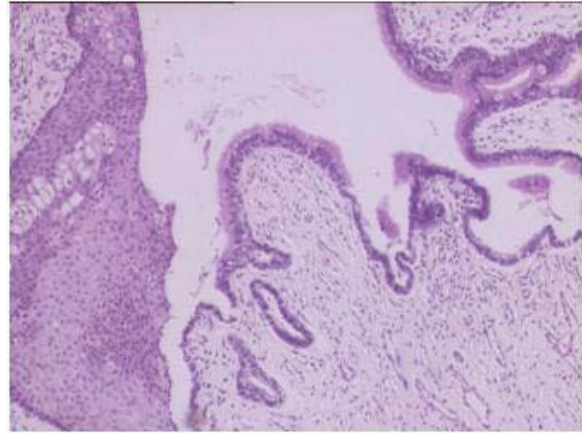


Figure 3 : HPE revealed cystic and solid lesion containing mature tissue that derive from all three germ layers (endoderm, ectoderm and mesoderm) include smooth muscles squamous epithelium, respiratory epithelium, melanin pigments, colonic glandular epithelium, fibrous tissue, adipose tissue, serous glands, lymphoid and vessel aggregates.



Figure 4: Chest X-ray post excision of the mediastinal mass

reveal the tumour (9). Presence of calcification in the chest radiograph should raise the suspicion of teratoma.

Aggressive management of this type of tumour is required in order to achieve long-term disease free status. Surgical resection, chemotherapy, radiotherapy are the mode of treatment and also to prevent recurrence. Surgical resection is advocated since the tumour can grow slowly and invade adjacent structures (growing teratoma syndrome) and potentially undergo malignant transformation (9, 10,11).

The malignant transformation of a teratoma is quite often refractory to cisplatin-based chemotherapy and represents a poor prognosis. Recurrence after a complete surgical excision is unknown. Prognosis after a complete surgical resection is excellent (9, 10, 11).

References

1. Wald ER. Recurrent and non-resolving pneumonia in children. *Semin Respir Infect* 1993; 8(1):46-58.
2. Wagner RB. The history of mediastinal teratoma. *Chest Surg Clin N Am* 2000; 10(1): 213-22
3. Savas B, Kucukarslan N, Gurkok S, Özcan A, Tatar H. Surgical Treatment Of A Benign Mature Teratoma Localised In Anterosuperior Mediastinum. *The Internet Journal of Thoracic and Cardiovascular Surgery* 2005; 7(1): 1-3
4. Chaganti RS, Rodriguez E, Bosl GJ. Cytogenetics of male germ cell tumours. *Urol Clin North Am* 1993; 20(1): 55-6.
5. Knapp RH, Hurt RD, Payne WS, et al. Malignant germ cell tumours of the mediastinum. *J Thorac Cardiovasc Surg* 1985; 89(1): 82-9.
6. Aliotta PJ, Castillo J, Englander LS, et al. Primary mediastinal germ cell tumors: histologic patterns of treatment failure at autopsy. *Cancer* 1988; 62:982-84.
7. Sakamoto K, Kase M, Mo M, Kurata H. Mediastinal mature teratoma perforated into the pericardial sac: a case report. *Kyobu Geka* 2000; 53(1): 74-7.
8. Verhaeghe W, Meysman M, Noppen M, et al. Benign cystic teratoma: an uncommon cause of anterior mediastinal mass. *Acta Clin Belg* 1995; 50(2):126-9.
9. *General Thoracic Surgery*. 3rd ed. Ed Thomas Shields. Lea and Febger. 1989.
10. Ahmed T, Bosl GJ, Hajdu SI. Teratoma with malignant transformation in Germ Cell Tumours in men. *Cancer* 1985; 56(4): 860-863.
11. Lewis BP, Hurt RD, Payne WS, et al. Benign Teratomas of the mediastinum. *J Thorac Cardiovasc Surg* 1983; 86: 727-37.