Case Report

A 24 year-old female with ruptured primary pulmonary teratoma

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SUMMARY. Intrathoracic teratoma is mainly found in the mediastinum. Primary intrapulmonary teratoma is very rare. A 24 year-old female presented with a 2-month history of intermittent episodes of cough and haemoptysis. Contrast enhanced computed tomography (CT) examination of chest revealed a mass in the left lingular lobe with evidence of fat and surrounding peripheral translucency. A presumptive diagnosis of intraparenchymal teratoma was considered. Internal inhomogeneity with irregular margins and bursting fat configuration suggested intrapulmonary rupture.Thoracotomy was performed, which revealed an encapsulated mass in the left lingula with bronchial communication. Lingual segmentectomy was performed, with complete resection of the tumour. Gross and histopathological features of the resected specimen were suggestive of a benign intrapulmonary teratoma. *Pneumon 2012, 25(2):243-246.*

Key words:
- pulmonary,
- teratoma

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INTRODUCTION

Teratomata are found mainly in the gonads and only 3% are extragonadal. They are found in the ovaries, testes, the sacrococcygeal area, the mediastinum and other sites in decreasing order of frequency. Intrathoracic teratoma is seen mainly in the mediastinum and intrapulmonary teratoma is extremely rare. The clinical diagnosis of intrapulmonary teratoma is difficult as it generally presents with non-specific symptoms such as chest pain, haemoptysis and cough. It is diagnosed on the basis of computed tomography (CT) findings and gross and histopathological features.

CASE REPORT

A 24 year-old female presented with a history of intermittent episodes of cough and haemoptysis over a 2 month period. There was no history of fever, chest pain, expectoration or weight loss. She was non-smoker. On clinical examination her vital signs were stable. Respiratory system examination revealed reduced breath sounds on the left side. The examination of the cardiovascular and gastrointestinal systems was normal.

Complete blood count and renal and liver function tests were within the normal range. Mantoux test and sputum culture for acid fast bacilli were negative. Straight chest X-ray showed an ill defined nonhomogeneous opacity in left paracardiac region, silhouetting the left cardiac border (Figure 1). Contrast enhanced computed tomography (CT) examination of the chest revealed a heterogeneous mass in the left lingular lobe with evidence of fat content and adjacent consolidation. A presumptive diagnosis of teratoma was considered. The lesion was abutting the chest wall and the subcostal pleura anterolaterally while medially it was abutting the left ventricle and the mediastinal pleura. There was evidence of peripheral translucency, indicating air arising from bronchial communication. This apperance confirmed the intraparenchymal origin of the mass, rather than the much commoner mediastinal teratoma that lacks this sign. The mass was heterogeneous with irregular margins and a bursting fat configuration, suggesting intrapulmonary rupture of teratoma (Figure 2). Ultrasonography (US) of the abdomen and pelvis revealed no other abnormality.The human chorionic gonadotropin and alpha fetoprotein levels were normal.

Thoracotomy was conducted, which revealed an encapsulated mass in the left lingula with bronchial communication. Lingual segmentectomy was performed, with complete resection of the tumour. Macroscopic examination of the resected surgical specimen revealed an encapsulated structure showing a cystic area with heterogeneous elements consisting of hair, cartilage, bone and and an area of yellowish pasty sebaceous material (Figure 3). Histopathological examination of the resected surgical specimen showed a cystic structure with elements derived from all three germ cell layers with areas showing cartilage, a blood filled cavity, respiratory epithelium and mature neural tissue (Figure 4). The diagnosis was made of benign ruptured intrapulmonary teratoma. Post operatively the patient recovered well and was discharged.

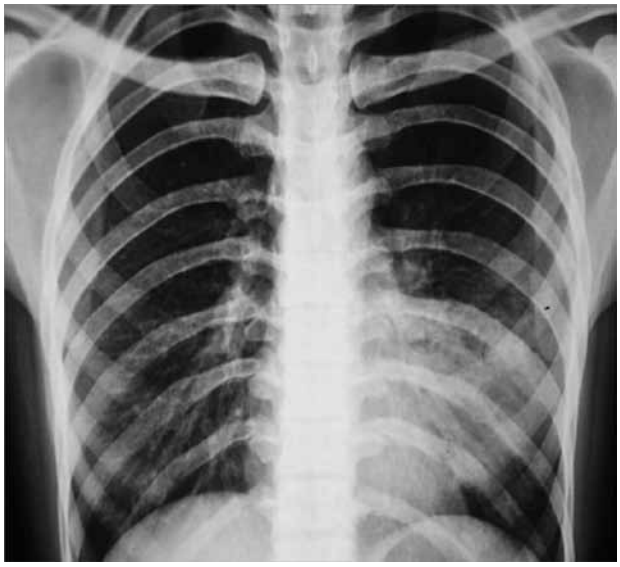

FIGURE 1. Straight X-ray of chest in a 24 year-old female, showing an ill-defined inhomogeneous opacity with air bronchogram in the left paracardiac region, silhouetting the left cardiac border.

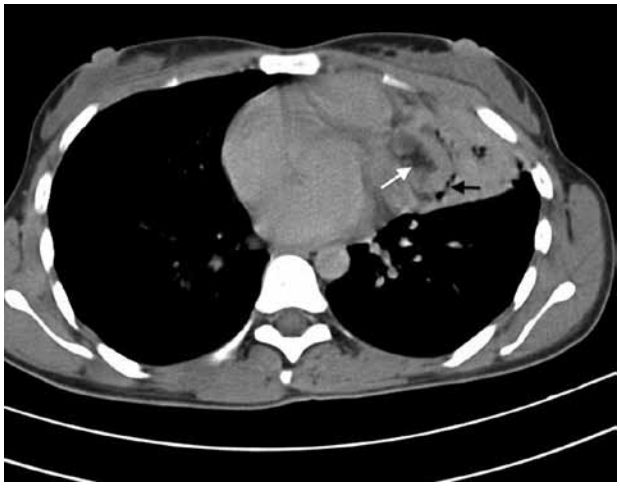

FIGURE 2. Contrast enhanced computed tomography (CT) examination of the chest, revealing a mass in the left lingular lobe with evidence of fat content (white arrow). Presence of peripheral translucency around the lesion confirm the intraparenchymal origin (black arrow), while internal inhomogeneity and the bursting fat configuration and adjacent consolidation suggest intrapulmonary rupture.

DISCUSSION

Teratomata are germ cell tumours composed of tissues derived from one or more of the three germinal layers. They most commonly involve the gonads, and only 3% are extragonadal[1]. The most common extragonadal site in adults is the anterior mediastinum and in children the sacrococcygeal region[2]. Although mediastinal teratoma is common, primary intrapulmonary teratoma is extremely rare[3]. The first case of intrapulmonary teratoma was reported in 1839 by Mohr[4]. In the literature only 67 cases of primary pulmonary teratoma have been reported up to 2007[5]. Intrapulmonary teratoma is usually diagnosed in the first and second decades of life and involves males

FIGURE 3. Photograph of the surgical specimen, showing an encapsulated structure, with a cystic area with heterogeneous elements consisting of hair, cartilage, bone and yellowish pasty sebaceous material.

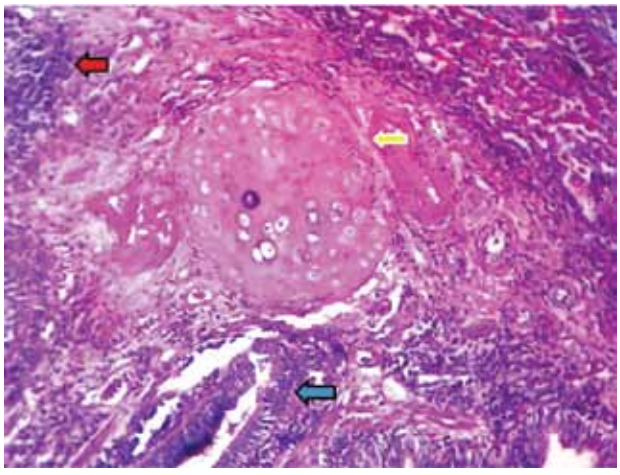

FIGURE 4. Histopathological preparation from the excised lesion. H&E stained section showing a cartilagenous area in the centre representing mesodermal derivation (yellow arrow). The bottom of photomicrograph shows respiratory epithelium, indicating endodermal derivation (blue arrow) and few areas show neural tissue, indicating ectodermal origin (red arrow).

and females equally[6]. Intrapulmonary teratoma mainly involves the left upper lobe[6]. Intrapulmonary teratomata are usually 2.8-3.0 cm in diameter[7]. They are usually cystic and multiloculated but may be solid[7]. The cystic tumours may have direct bronchial communication, resulting in haemoptysis or expectoration of hair or sebum[5]. Intrapulmonary teratomata are usually derived from the thymic tissue of the third pharyngeal arch[8].

The most common presenting symptoms for intrapulmonary teratoma are chest pain (52%), haemoptysis (42%) and cough (39%)[2]. Trichoptysis or expectoration of hair is a pathognomic feature of intrapulmonary teratoma, occurring in 13% of cases. Bronchiectasis and post obstructive pneumonia is found in 16% of cases[2].

Radiologically, intrapulmonary teratoma usually presents as a lobulated mass but may also be seen as a parenchymal opacity or area of consolidation or cavitating lesion[9]. On CT intrapulmonary teratoma shows an encapsulated mass with a smooth wall containing soft tissue, fluid (88%), fat (76%), calcification (53%) or a combination of these[10]. CT also helps in differentiating between ruptured and unruptured teratomata. Unruptured teratoma shows a homogenous internal density while ruptured teratoma shows heterogenous internal density with irregular margins and a bursting configuration of the fat component[11]. The tumour may have a risk of rupture due to proteolytic enzymes. It can rupture into the pericardium, mediastinum or bronchial tree leading to cardiac tamponade, granulomatous mediastinitis or lipoid pneumonia respectively.

It is important to distinguish an intrapulmonary teratoma from a mediastinal teratoma because the treatment approaches to the two conditions are different. A useful distinguishing feature is the presence of peripheral translucency around the intrapulmonary teratoma, which indicates air within the cavity arising from bronchial communication and is absent from mediastinal teratomata[5,9].

Germ cell tumours commonly metastasize to the mediastinum and thorax, so it is also very important to distinguish the true primary thoracic teratoma from a metastatic teratoma, which signifies a grave prognosis. Testicular and pelvic US is useful to rule out a coexisting gonadal germ cell tumour.

Due to the risk of rupture and the potential for malignant change, surgical resection is the treatment of choice for intrapulmonary teratoma, and this results in complete cure. Surgical resection may be in the form of segmentectomy or pneumonectomy[12].

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