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Interesting Case of Mediastinal Teratoma with Predominant Pancreatic tissue

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ABSTRACT

Mediastinalteratoma is a tumour usually located in the anterior mediastinum. Most of the cases occur in young adults with a mean age of twenty with near equal incidence in males and females. A 20-year-old female presented with a 5-month history of chest pain, fatigue, and breathlessness with exertion. X- ray revealed pleural effusion and pericardial effusion. A computed tomographic scan of the thorax showed a predominantly left-sided anterior mediastinal mass containing multiple areas of low density that were interpreted as cystic foci. The radiological differential diagnoses was that ofLymphangiomatosis. Histopathology of the mass was confirmed as Mediastinalteratoma with predominant pancreatic tissue.

Key words: Anterior mediastinum, Mature cystic teratoma, Pancreatic tissue

1. INTRODUCTION

Germ cell tumors arise from the totipotential cells that occur most frequently in the gonad but can rarely occur in extragonadal locations, usually in or near the midline. Extragonadal germ cell tumors may arise from similar cells that are sequestered along midline structures during their migration from the yolk endoderm to the gonad during early embryogenesis. Incidence of mature teratoma in the mediastinum is 3 to 12% (Ringertz et al., 1956; Wychulis et al., 1971).

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Figure 1

Gross specimen measuring 10cm x8cm x 6cms with cut section shows predominant cystic areas with small solid areas having yellowish discoloration

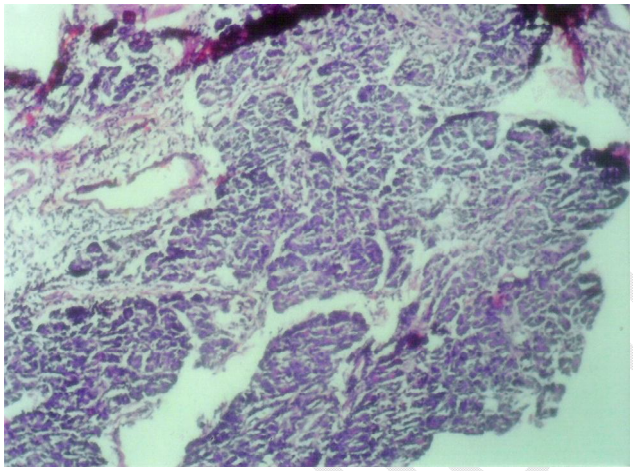

Figure 2

Photomicrograph showing predominant pancreatic tissue (H & E X 100)

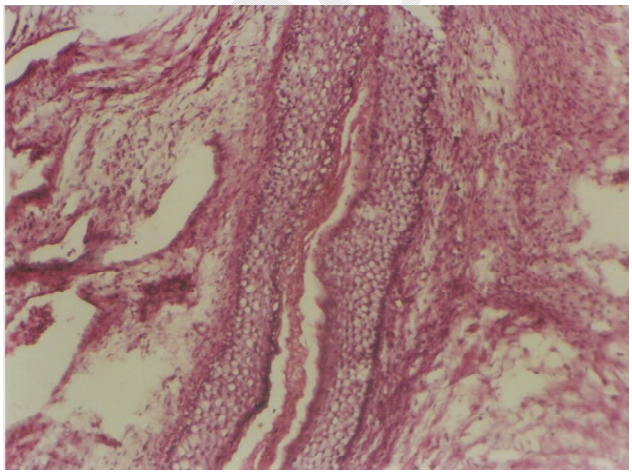

Figure 3

Photomicrograph showing squamous epithelium (H and E X 100)

2. CASE DETAILS

A young female aged 20 presented with complaints of cough, dyspnoea and chest pain since 6 months with repeated attacks of hypoglycemia. Routine blood investigations were normal except for the random blood sugar of 56gms%. X-ray revealed a right sided pleural effusion. Pleural fluid cytology was negative for malignant cells. On exacerbation of her complaints she was further investigated with CT scan which revealed the mediastinal mass close to right lung and was provisionally diagnosed as lymphangiomatosis based on its predominant cystic areas. Patient also had pericardial effusion which was also negative for malignant cells. Resection of the tumour was undertaken.

3. GROSS EXAMINATION

We are received two masses. The first mass of size 10cm x8cm x 6cmswith cut section revealed a multicystic mass with small solid areas having yellowish discoloration. The cysts were variably filled with mucin, clear serous and hemorrhagic fluid (Figure 1). Second mass received in pieces altogether measuring 8cm x 6cm x 5cms.

4. MICROSCOPY

Histological examination revealed tumour composed of trigerminal derivatives which included predominantly pancreatic tissue (Figure 2), tall columnar epithelium, stratified squamous epithelium (Figure 3), respiratory epithelium, cartilage, mature fat cells and blood vessels. Impression given was that of mature cystic teratoma with predominance of pancreatic tissue. Post operative period was uneventful and patient was asymptomatic at time of discharge. Subsequently we lost the patient to follow up.

5. DISCUSSION

'Teratoma' is derived from the Greek word 'teraton' meaning monster and is composed of ectodermal, mesodermal and endodermal derivatives displaying occasional cellular disorganization and continued haphazard growth (David et al., 1983). Though generally located in the gonads they are occasionally present in extragonadal sites like retroperitoneum, central nervous system and sacrococcygeal areas and mediastinum (Anirban maitra, 2010). Mediastinal germ cell tumors are rare and represent approximately 1–3% of all germ cell neoplasms (Nichols, 1991) with mediastinalteratoma accounting for 42% of the germ cell lesions of the mediastinum (Moran and Suster, 1997). Benign teratomas of the mediastinum are rare and account for only 3 to 12% of mediastinal tumors (Ringertz et al., 1956; Wychulis et al., 1971). They have near equal incidence in males and females (Hainsworth et al., 1995). Mostly asymptomatic few complain of chest pain and dysnoea mainly due to the mechanical effects of the expanding tumour on adjacent tissues. Mediastinalteratomas should be differentiated from the other mediastinaltumours including neurogenic tumours 20%, thymomas 19%, primary cysts 18%, lymphomas13% and other germ cell tumours 10% .Other less common mediastinal masses include primary carcinomas, mesenchymal tumours, giant lymph node hyperplasia, chondroma (Magu et al., 2000). Chest x ray usually shows the tumour with pleural effusion or pericardial effusion or only the pleural effusion if thetumour is inferior to the lung (Shackelford et al., 1976; Itoh et al., 1988). CT demonstrates the cystic and solid areas resembling the lymphangiomatosis which is less than 1%of the mediastinaltumours (Hainsworth et al., 1995).

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On histological examination mature ectodermal and endodermal and mesodermal derivatives of germ cell layers are present (Hainsworth et al., 1995). Grossly these capsulated tumors are composed of cystic spaces filled with sebum or mucin like areas with some calcified areas. Histology of this tumour shows tall columnar cells, respiratory epithelium, stratified squamous cell layer, mature adipose tissue and pancreatic tissue. Rarely malignant transformation is seen. Surgical excision is the treatment for benign teratoma of mediastinum**.** Surgical removal is sometimes complicated by dense adherence to pericardium, lung, and chest wall as in our case (Hainsworth et al., 1995). This is likely due to the serum amylase and other enzymes that act locally (Itoh et al., 1988; Kawakami et al., 1985). Tumour recurrences are rare following complete removal. Attacks of hypoglycemia ceased after operation .Hypoglycemia has been reported rarely in teratoma having pancreatic tissue which was seen in our case (Suda et al., 1984). This report suggested that mediastinalteratoma should be considered when wide spread pressure effect induced by a mediastinal mass is observed in a young individual.

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