CASE REPORT

Benign cystic teratoma of mediastinum

Siddharth Lakhotia · Ravindra Kumar Dewan

Received: 23 March 2008 / Accepted: 22 April 2008

Abstract Benign mediastinal teratoma accounts for 60% of all mediastinal germ cell tumors, which in turn account for 15–20% of all anterior mediastinal masses. It is frequently associated with compressive effects of surrounding structures. Total surgical excision is curative and life saving also. We are presenting a case of giant benign cystic mediastinal teratoma which underwent surgical excision but long term compressive effect on lungs resulted them to be small in size compared to thoracic cavity even six months postoperatively.

Keywords Mediastinal mass · Teratoma

Case report

A 16-year-old male was admitted with complaints of cough, breathlessness on exertion and right sided chest pain since last two years. There was no history of fever, weight loss, hemoptysis, dysphagia and hoarseness of voice. X-ray chest showed a huge mediastinal mass involving left pleural space with right mediastinal shifting (Fig. 1). CT scan showed huge cystic mass lesion with collapse of underlying left lung and calcification of cyst wall (Fig. 2). On bronchoscopy slit like opening of left main bronchus was present beyond which bronchoscope could not be negotiated. Aspiration from the mass revealed dark brownish fluid showing mesothelial cells but no malignant cells. Left posterolateral exploratory thoracotomy was done which showed a giant cystic mass in left pleural space and anterior mediastinum adherent to pericardium and lung. Partially collapsed left lung was lying in the paravertebral gutter. Two liters of chocolate colored fluid and sebaceous material was aspirated (Fig. 3) and mass was totally excised along with surrounding adherent pleura and pericardium. Histopathologic examination revealed benign teratoma. At time of discharge X ray chest showed small size left lung partially filling the left hemithorax (Fig. 4). Follow up at six months showed the same finding, with patient becoming symptom free. We assumed that the long term compressive effect of the cyst has retarded the volume expansion of left lung with age.

Discussion

Germ cell tumors (GCT) comprise 15–20% of all anterior mediastinal masses. 50–60% of GCT are benign teratomas. These tumors consist of multiple tissue types from totipotent cells containing three embryonic layers ectoderm,

S. Lakhotia · R. K. Dewan
Department of Thoracic Surgery,
LRS Institute of Tuberculosis and Respiratory Diseases
New Delhi, India

S. Lakhotia (✉)
e-mail: drslakhotia@gmail.com

Fig. 1 X-ray of chest showing a huge mediastinal mass

Fig. 2 CT scan showing huge cystic mass lesion

mesoderm and endoderm. However the ectodermal component i.e skin, sebaceous tissue, neural tissue are usually predominant. Benign teratomas are usually well encapsulated

Fig. 3 Two liters of chocolate colored fluid and sebaceous material

Fig. 4 X ray chest showing small size left lung partially filling the left hemithorax

and are composed of either a single large cystic cavity or of several smaller intercommunicating cystic spaces. They may be mature (80% of cases), immature (foetal tissue is histologically present) and rarely teratoma with malignant component. Greater risk of malignancy is noted with immature type [1]. 95% of mediastinal teratomas are located in anterior mediastinum, remainder in posterior mediastinum [2]. These tumors are slow growing and up to 50–60% of patients may be asymptomatic at time of diagnosis by X-ray. When symptoms are present dyspnoea and chest

pain are most common. Cough productive of hair or sebum is pathognomonic, this rare symptom is due to rupture in tracheobronchial tree. Serum levels of alpha foeto protein and beta-HCG values are normal. The chest radiography typically reveals a well circumscribed anterior mediastinal mass that often protrudes into one of the lung fields. Occasionally it may show teeth within the tumor, a pathognomonic finding. Calcification may be present in up to 25% of tumors.

The differential diagnosis of cystic mass with calcification in mediastinum includes teratoma, foetus-in-foetu, congenital asymmetric twin (heteropagus), acardius acephalus, meconium pseudocyst and neuroblastoma [3]. Teratoma of the mediastinum originates from totipotent cells of Hansen's node or from primitive germ cells during their migration from the yolk sac. Willis defined teratoma as a tumor composed of multiple tissues of kinds foreign to the parts in which they arise [4]. Spencer points teratoma to be an aberration of monozygotic twinning with parasitic attachment in nonduplicated fashion on any portion of the body [5]. The spectrum includes conjoint twins, malformed external parasitic twin, acardius acephalus connected to the placenta, an enclosed foetus-in-foetu, foetaform teratoma and well differentiated teratoma. A teratoma shows lesser organization of microscopically identifiable tissues, rarely with more differentiated component like teeth, lack of any normal functioning cardiac structures and organized brain. Fluid in cystic teratoma comes from secretions of intestinal

epithelium, pancreatic tissue, degeneration of the structure (autolysis) and haemorrhage after needle aspiration [6].

Treatment of choice is surgical removal by median sternotomy, thoracotomy or video assisted which is definitely curative. Surgical removal is sometimes difficult due to large size of tumor and the involvement of other structures like pericardium, lung, great vessels, thymus, chest wall, hilar structures, and diaphragm. They are resistant to radiation and cytotoxic drugs. Tumor recurrence following complete surgical excision is rare.

References

1. Dehner LP (1983) Gonadal and extragonadal germ cell neoplasia of childhood. *Hum Pathol* 14:493–511
2. Deshmukh AG, Murab MV, Jadhav SR, Mhaiskar DG, Deversi DB Anterior mediastinal mass: dermoid cyst – a case report. *Indian Med Gaz* 206; CXL:290–292
3. Higgins KR, Coley BD (2006) Fetus in fetu and foetaform teratoma in two neonates. An embryologic spectrum. *J Ultrasound Med* 25:259–263
4. Wills R The structure of teratoma. *J Pathol Bacteriol* 935; 40: 1–36
5. Spencer R (2001) Parasitic conjoined twins: external, internal (fetuses in fetu ans teratomas) and detached (acardiacs). *Clin Anat* 14:428–444
6. Duwe BV, Sterman DH, Musai AI (2005) Tumors of the mediastinum. *Chest* 128:2893–2909