Eastern Journal of Medicine 3 (1): 32-33, 1998.

A case of mediastinal teratoma presenting as a cystic lesion on chest wall

SOYSAL Ö[1], SARAÇ K.[2], KUTLU R.[2], AYDIN A.[3], BENLİ A.[1]
Departments of Cardiovascular and Thoracic Surgery[1], Radiology[2], Pathology[3], School of Medicine, İnönü University, Malatya

Key words Teratoma, mediastinum, chest wall

Introduction

In 1953 Willis defined the teratomas as true tumors composed of tissues that are foreign to the part or organ in which they are found (1). Teratomas are thought to be originated from multipotent embryonic cells. Anterior mediastinum is the most frequent site of localization in thorax, and benign teratomas constitute about 3-12% of mediastinal tumors (2,3). There are only a few cases reported bulging from anterior mediastinum through intercostal space towards the anterior chest wall with destruction of the ribs (2).

Case report

A 28 years old woman admitted to Cardiovascular and Thoracic Surgery Department of Turgut Özal Medical Center with the complaint of a mass in the left anterior chest wall that had been present for about four years. She had pain in the region the of mass and said that mass was increasing in size. Physical examination revealed a mobile, fluctuating, cystic mass in dimension of 10x10 cm on the left anterior chest wall (Figure 1). Routine laboratory tests were normal. On chest roentgenogram there was smooth contoured, round, hyperdense lesion near the left hilum. Ultrasound examination revealed a cystic mass with fine septations but no capsule. Computed tomographic examination showed a lobulated, smooth contoured, benign appearing cystic mass with 8x10x12 cm dimensions near the ribs, beneath the latissimus dorsi and pectoralis major muscles and partly in between, extending towards the axilla and inferior of the scapula, without any invasion through chest wall. Inside this cystic lesion, on the medial wall, a hyperdense (853 HU) lesion of about 1 cm with well defined contours was seen (Figure 2). With the preoperative diagnosis of benign chest wall tumor (probably teratoma), the patient was operated. On the operation a 10 cm incision was made 5 cm below the clavicle. Between the thoracal muscles and just above the ribs a mass with a very fine membrane and containing yellow-green liquid was seen, and totally removed . The mass had a stalk near the sternum, connecting it to the thorax through the third intercostal space. This stalk was clamped and then excision was completed. The liquid in the mass was serous. There was a hard material inside the mass resembling tooth. During the operation thorax was not opened. The patient was discharged on the 3rd postoperative day. Pathologic diagnosis was benign teratoma containing tooth (Figure 3).

Figure 1. Lateral view of the mass on the left chest wall.

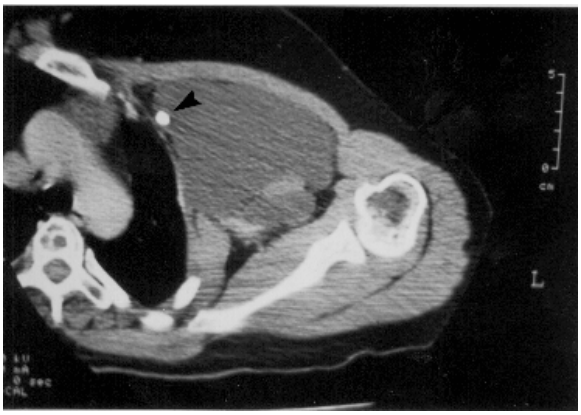

Figure 2. CT scan shows a lobulated, smooth contoured cystic mass containing a hyperdense lesion of about 1 cm on the medial wall on left chest wall.

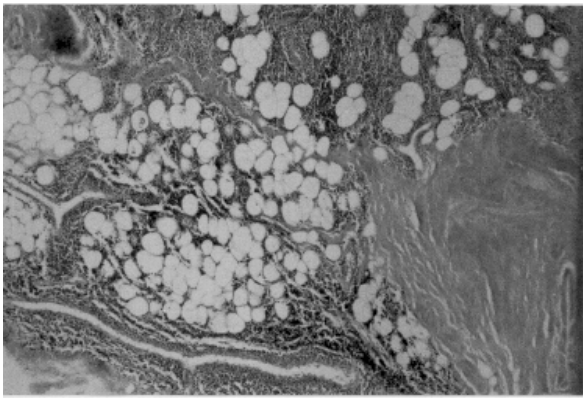

Figure 3. Microscopic appearance of benign teratoma. This photomicrograph shows that collagen, fat cells and

Accepted for publication: 10 July 1997

lymphoid tisue are mixed. A small duct is also seen at the bottom of the picture (Hematoxylin & Eosin X40).

Discussion

Benign teratomas which are also known as teratodermoids are among the benign germ cell tumors. They are divided into three groups as epidermoid cysts, dermoid cysts, and teratomas. Epidermoid cysts are composed of only squamous epithelium lined cysts. They also contain skin appendages like sweat glands and hair. Teratomas may be cystic or solid and contain tissues that originate from two or three germ layers. With the detailed histopathological examination it is possible to show structures originating from at least two germ layers. For that reason it is more suitable to name those three forms as teratoma or teratodermoid (4). Teratomas originate from multipotent primitive embryonic cells and are frequently found in median and paramedian regions of the body. Mediastinal teratomas are thought to arise from cells near the third branchial cleft (4). Mediastinal teratomas are slowly growing tumors and approximately 95% of them are found in anterior mediastinum (2). Posterior mediastinum is a very rare location for teratomas. The presence of a structure resembling tooth, and fat tissue, lymphoid tissue, collagen, vessels and ductal structures led us to the diagnosis of teratoma.

About 60% of teratomas are asymptomatic and diagnosed with chest roentgenograms that were ordered for other reasons. The most common symptom is chest pain, and dyspnea and cough are among other symptoms (2). They may be infected, and with the rupture to neighbouring regions expectoration of hair (trichoptysis) and the other cystic contents may be seen. They may also rupture to pleural cavity, and empyema may develop. Pressure effects to neighbouring organs may be seen even in the absence of infection. Physical examination generally reveals no pathological finding. If the tumor is very large, it may push the ribs and cartilagenous parts of ribs anteriorly or bulge towards the neck or chest. Lewis et al (2) reported this bulging or mass appearance in the neck in 5 of 89 (6%) patients. In our case we did not detect a mediastinal lesion and the intrathoracic connection of cystic lesion on the chest wall was in the midline. Teratomas just lateral to the sternum may herniate out of the mediastinum and extend between fascias of the chest wall muscles to the axilla. By that way the cystic chest wall mass, as in our case, may develop. A mediastinal teratoma case that changed to cystic form while it was been followed as an anterior mediastinal mass was reported in the literature (5).

On chest roentgenograms, teratomas are usually seen as a mass of about 8-10 cm in length, localized to anterior mediastinum and frequently protruding to one side of the chest. In about 25% of the cases, calcifications are seen (3). Radiographic recognition from plane film examination is not possible unless teeth or skeletal elements are seen. On CT they are well defined, thick walled cystic masses containing a variable admixture of densities: fat, water, soft tissue and calcium. CT can be diagnostic in teratomas by revealing pathognomonic findings of fat and calcific densities (6, 7). Our case also was a cystic mass which had calcific density that was reported as tooth pathologically.

The treatment of choice for benign mediastinal teratomas is surgical excision. Thoracotomies which were performed from the side of tumor that has more extension is the preferred method of surgical intervention. In cases of small sized tumors and in which adhesions to neighbouring vital organs are less, median sternotomy can also be performed. Since we knew that the mass had no connection to mediastinum and thorax, we began the operation directly on the mass, over the second rib in the midclavicular line. After the removal of the mass and seeing that its relation to mediastinum was just in adhesion levels we decided that the performed procedure was enough. Due to the fact that recurrence rate is very low, in cases of extreme adhesions to pericardium, lung, main vascular and hilar structures it is not necessary to perform total excision and a small amount of tumor may be left behind (2).

Although benign mediastinal teratomas are rare, they may present as a chest wall mass with bulging from mediastinum to chest wall. In cases of cystic masses, containing fat and calcific densities, in unusal locations the diagnosis of teratoma should be considered. The treatment is surgical exicision, and though they can not be removed totally, their recurrence rate is very low.

References

1. Willis RA.: The spread of tumors in the human body. London, Butterworth, 1953.
2. Lewis BD, Hurt RD, Payne WS, Farrow GM et al.: Benign teratomas of the mediastinum. J Thorac Cardiovasc Surg 86(5):727-731, 1983.
3. Hainsworth JD, Greco FA.: Mediastinal germ cell neoplasms. In: Roth JA, Ruckdeschel JC, Weisenburger TH (eds). Thoracic Oncology, Philadelphia, W.B. Saunders Co 478-489, 1989.
4. Shields TW. Primary lesions of the mediastinum and their investigation and treatment. In: Shields TW (ed) General Thoracic Surgery Baltimore-Philadelphia, Williams & Wilkins, 1724-1769, 1994.
5. Ohta Y, Sato H, Seki M, Endo M et al. A case of anterior mediastinal mature teratoma containing air because of penetration to the lung. Nippon Kyobu Geka Gakkai Zasshi 41(6):1114-1118, 1993.
6. Levitt RG, Husband JE, Glazer HS. CT of primary germ-cell tumors of the mediastinum. AJR 142:73-78, 1984.
7. Kuhn JP, Slovis TL, Silverman FN, Kuhns LR. The mediastinum. Silverman FN, Kuhn JP (eds). In: Caffey's Pediatric X-ray diagnosis: an integrated imaging approach volume I. St Louis, Mosby, 637-695, 1993.

Correspondence to:
Dr. Ömer Soysal
İnönü Üniversitesi Tıp Fakültesi Göğüs-Kalp
Damar Cerrahisi
ABD, Malatya, TÜRKİYE