Giant mediastinal thymolipoma simulating cardiomegaly

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Received 2 October 2008; received in revised form 17 December 2008; accepted 24 December 2008
Available online 13 February 2009

KEYWORDS
Cardiomegaly; Thymolipoma; Mediastinal mass

Abstract Thymolipomas are rare anterior mediastinal tumors composed of mature adipose tissue and benign thymic tissue and they may rarely simulate cardiomegaly on chest radiograph. We report an adult male who presented with progressive dyspnea of 2 months’ duration. Clinical examination was unremarkable. Chest radiograph showed enlarged cardiac silhouette. Computed tomography of chest revealed a giant anterior mediastinal noncontrast enhancing mass partially wrapping around the heart. A needle biopsy obtained lymphomatous material that was diagnosed as thymolipoma. The tumor was successfully removed en bloc through a median sternotomy. Histopathological examination confirmed thymolipoma. We emphasize the importance of considering mediastinal tumors as a differential diagnosis in patients with progressive dyspnea without any obvious cause and chest radiograph showing enlarged cardiac silhouette.

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1. Introduction

Thymolipomas are rare anterior mediastinal tumors composed of mature adipose tissue and benign thymic tissue. The majority of these tumors are clinically quiescent; however, they may reach large dimensions and manifest themselves clinically by compression of adjacent structures. Thymolipomas are benign neoplasms for which complete surgical excision is curative. We report a 42-year-old man who presented with progressive dyspnea and was discovered to have an anterior mediastinal giant thymolipoma simulating cardiomegaly.
Giant mediastinal thymolipoma simulating cardiomegaly

Fig. 1  (A) Chest radiograph showing enlarged cardiac silhouette simulating cardiomegaly and (B) 64 slice CT scan thorax reconstruction image showing giant paracardiac noncontrast enhancing heterogenous mass.

2. Case report

A 42-year-old male presented to the hospital with complaints of gradually progressive dyspnea of 2 months’ duration. The patient had no history of cough, hemoptysis, loss of weight, loss of appetite, or other constitutional symptoms. Clinically, the patient was hemodynamically stable. The heart sounds were muffled with no gallop or murmur being heard. Routine blood investigations were within normal limits. A chest radiograph revealed an enlarged cardiac silhouette mimicking cardiomegaly (Fig. 1A). The outline of cardia was very difficult to delineate. The point against cardiomegaly and pericardial effusion was the left border of cardia extending above pulmonary artery and aortic knuckle. 2D echocardiogram revealed normal chamber dimension with no evidence of segmental wall motion abnormality and normal Doppler hemodynamic data. It also showed a large anterior mediastinal extracardiac mass compressing the right ventricular outflow tract. A computed tomography (CT) scan of the thorax revealed a large mass measuring $22.5 \text{ cm} \times 15.4 \text{ cm} \times 11.5 \text{ cm}$ fat attenuated ($-80$ to $-120$ HU) with minimally enhancing internal densities noted in the anterior mediastinum extending downwards into the left paracardiac region and partially wrapping around the heart obscuring the left border of the heart and touching the lateral chest wall on the left side (Fig. 1B). The mass was predominantly of fat density with multiple internal non-homogenous areas of soft-tissue density with no definite pattern. The mass was draping around the heart and great vessels with displacement of mediastinum to right and posteriorly. The patient underwent

Fig. 2  Excised lobulated mediastinal mass.
median sternotomy and a large lobulated fatty mass in the anterior mediastinum that was well encapsulated and was extending to surrounding recesses was noted and it was excised en bloc (Fig. 2). The mass weighed 1750 g. The histopathological examination of the specimen showed a lesion composed of an admixture of mature adipose tissue and microscopically normal thymus tissue with Hassal’s corpuscles, features that are consistent with thymolipoma.

3. Discussion

The most common causes of enlarged cardiac silhouette on chest radiography in daily clinical practice are cardiac chamber enlargement due to any cause or pericardial effusion. Rarely enlarged mediastinal structures or collection in the mediastinum [1] can simulate cardiomegaly on chest radiograph.

Thymolipomas are rare slow-growing mediastinal tumors constituting only 2—9% of all thymic neoplasms. Arising in the anterior mediastinum at the level of the thymus gland, these soft and pliable tumors droop inferiorly as they enlarge and are said to slump onto the diaphragm, accommodating themselves to the spaces between the lungs and the heart, diaphragm, or anterior mediastinum [2]. Their pendulous, elongated, teardrop shape leaves the anterior clear space unencumbered on the lateral chest film. They may simulate cardiomegaly on the frontal chest film. Because they are asymptomatic until marked mass effect occurs, thymolipomas often become large, sometimes weighing several kilograms at the time of excision. Thymolipomas are uncommon, accounting for approximately 5% of all thymic tumors. Most are discovered incidentally.

The most common location is the anterior mediastinum. Because of its large size and pliability, the mass usually drapes itself around the heart, conforming to its borders, and produces a large radiographic shadow easily mistaken for cardiomegaly. Noteworthy is the fact that although they adhere to surrounding structures, invasion per se has never been documented.

Most patients are asymptomatic, being identified on routine chest radiography. Symptoms, when present, are attributable to displacement of mediastinal structures. About 25% of patients complain of cough, dyspnea, and chest pain. The frequency of the symptoms increases as the tumor grows in size. The pathogenesis of thymolipoma is unclear and has been the subject of much speculation. Up to now, four theories have been proposed, but none has been solidly proved [3].

The radiologic features can mimic several conditions, including cardiomegaly, pleural tumors, pericardial effusion, pericardial tumors, basal atelectasis, and pulmonary sequestration. When small, thymolipomas usually are round or oval, are situated anterior to the heart base, and usually are indistinguishable from other benign anterior mediastinal masses. Due to its great pliability, a large thymolipoma drapes around the heart and simulates cardiomegaly. On a CT scan, the tumor appears almost entirely fatty with some areas of inhomogeneity of soft-tissue density, which represent thymic tissue [4]. Its sharp borders, its lack of compression of nearby vessels, and its location point to a benign lesion.

Microscopic features include the presence of normal adult adipose tissue with accumulation of lymphocytes and the characteristic scattered islands of Hassal’s concentric corpuscles of thymic tissue. The amount of the latter is well in excess of that normally expected for the patient’s age [5]. Surgery is the main modality of treatment and is well tolerated since the tumor can be removed easily because of its well-defined capsule and absence of invasion of surrounding structures.

Early diagnosis should be the major objective of the clinician to avoid late complications due to pressure effects. This will only be possible if a high degree of clinical suspicion and a pathophysiological perspective exist, because the patients are usually young, asymptomatic and once diagnosed it is curable. Therefore, we emphasize the importance of considering mediastinal tumors as a differential diagnosis in patients with progressive dyspnea without any obvious cause and chest radiograph showing enlarged cardiac silhouette.

4. Conclusion

Thymolipomas are rare anterior mediastinal tumors, the majority of which are clinically quiescent; however, they may reach large dimensions and manifest themselves clinically by compression of adjacent structures. It is important to consider mediastinal tumors in the differential diagnosis of patients presenting with progressive dyspnea without any apparent cardiac illness but chest radiograph showing enlarged cardiac silhouette.

References

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