AMERICAN JOURNAL OF DIAGNOSTIC IMAGING, 2018
VOL 4, NO. 1, PAGE 19–21
10.5455/ajdi.20180515055411

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CASE REPORT

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A rare tumor of mediastinum in a child; giant mediastinal lipoma

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ABSTRACT

Lipomas are benign mesenchymal tumors originating from fat tissue. Mediastinal lipomas are very rare, they constitute 1.6%–2.3% of all primary mediastinal tumors and are most commonly located at anterior mediastinum. It is often asymptomatic and is detected incidentally on radiographs taken. The symptoms that it creates are those caused by the pressure it has on the surrounding organs. If it is asymptomatic, follow-up is sufficient, but complete excision is needed for the symptomatic cases. This report presents the imaging findings of a giant lipoma of the anterior mediastinum that was detected incidentally and followed up on asymptomatically for 3 years.

ARTICLE HISTORY

Received 15 May 2018
Accepted 31 July 2018
Published 10 August 2018

KEYWORDS

Mediastinum; lipoma; child

Introduction

Lipomas are benign mesenchymal tumors originating from fat tissue. Mediastinal lipomas are most commonly located in the anterior mediastinum and they constitute 1.6%–2.3% of all primary mediastinal tumors [1]. Unlike subcutaneous lipomas, which are frequently seen in large numbers, mediastinal lipomas appear as a single lesion. They are asymptomatic and can be quite large at the time of diagnosis. They are usually found incidentally on chest X-ray or computed tomography (CT) taken for another cause [1]. The symptoms of mediastinal lipoma depend on the pressure put on the neighboring structures (e.g., heart, lungs, and vascular structure) [2]. Excision is indicated when the tumor causes pain or when the function of the neighboring structures is at risk due to pressure. This report presents the imaging findings of a giant lipoma of the anterior mediastinum that was detected incidentally and followed up on asymptomatically for 3 years.

Case Report

A 13-year-old male patient was admitted to the clinic upon detection of a mediastinal mass on a chest X-ray taken due to trauma. The patient had no complaints. Medical history was unremarkable. No abnormality was detected in the physical examination or the laboratory values. On the chest X-ray, on the left mediastinum, a smooth-contour lesion of 14 × 5 cm with a relatively radiolucent appearance was observed in the heart and soft tissues (Fig. 1). Magnetic resonance imaging (MRI) examination was performed on the mediastinum for diagnosis

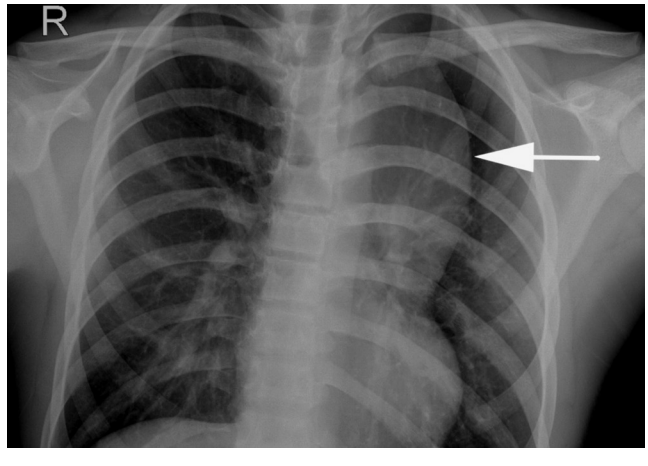


Figure 1. Chest X-ray shows that there is a smooth contour on the left side of the mediasten, a relatively radiolucent lesion compared to the heart and soft tissues (arrow).

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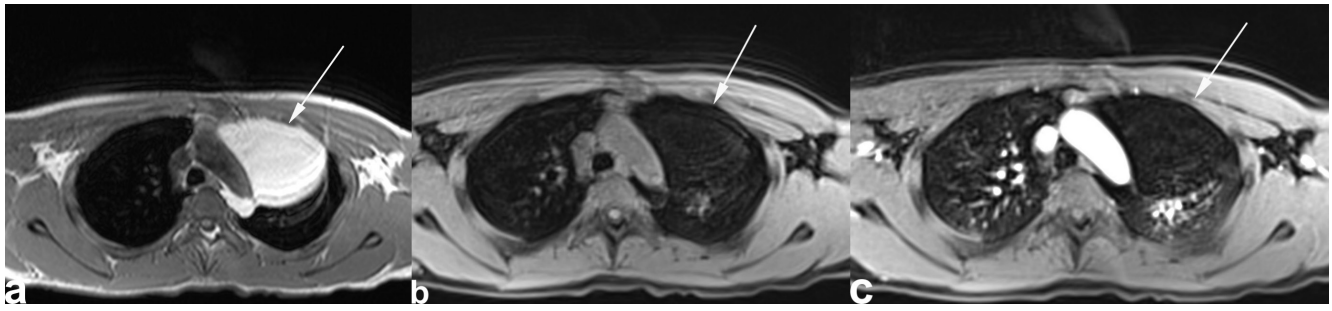


Figure 2. Axial T2-weighted MR image (a) shows that starting from the neck filling the anterior mediastinum with the left weighted hyperintense lesion. Fat-suppressed MR image (b) shows that the fat content of the lesion is suppressed. Contrast-enhanced T1-weighted MRI image (c) shows that the lesion is not enhanced.

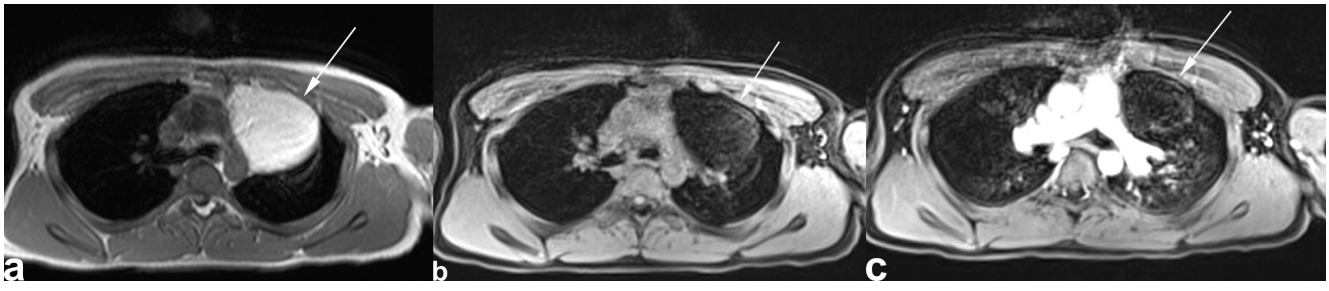


Figure 3. Three years later, axial T2-weighted image (a), fat-suppressed MR image (b) and contrast-enhanced T1-weighted MRI image (c) show that there is no difference in lesion size and appearance.

and differential diagnosis. On T1-weighted images, a hyperintense lesion extending to and filling the anterior mediastinum was seen, starting at the inferior part of the thyroid gland. The lesion lost signal in fat-suppressed images and was not enhanced (Fig. 2a–c). Giant mediastinal lipoma was considered based on the imaging findings. Biopsy or excision was not needed, as the imaging findings of the lesion were typical, and the patient had no complaints. There was no difference in lesion size and appearance on the control MRI examination performed 3 years later (Fig. 3a–c). The patient has had annual MRI follow-ups in the clinic for 3 years. Informed consent was obtained from the patient and his family for publication of this study and any accompanying images.

Discussion

A giant mediastinal lipoma with typical imaging findings, extending from the thyroid gland adjacent to the anterior mediastinum in the neck region was incidentally detected in the case. Clinically, lipomas are very common and frequently present in the subcutaneous regions of the body; however, giant mediastinal lipomas are rare. They are separated from the normal fat tissue by the surrounding fibrous capsule [3]. They grow very slowly over a span of years [1]. To qualify as a giant lipoma, the lipoma must be larger than 10 cm in size or greater than 1,000 g in any plane [4]. They are usually seen in the elderly and are very rare in children.

Although the etiology of lipomas is not completely known, genetic, endocrine, and traumatic factors are the most common causes of the disease. The uncontrolled growth mechanism of lipomas is not clear. Blunt trauma is one of the possible causes. After blunt trauma, fibrous tissue rupture may cause proliferation of fatty tissue. In some cases, lipomas are associated with various syndromes such as Gardner's syndrome, Madelung's disease, and Dercum's disease [1,5].

The most common symptoms are those caused by pressure on the peripheral organs, including difficulty in swallowing, respiratory distress, cardiac arrhythmia, phrenic and spinal nerve paralysis, superior vena cava syndrome, and Horner's syndrome [3].

Anterior mediastinal fat-containing lesions include liposarcoma, teratoma, epicardial fat tissue, and congenital diaphragm hernia. Liposarcomas are extremely rare and tend to occur in the fifth decade of life. The most frequent site is the posterior mediastinum, although they may originate in the thymus. Most patients are present with locally

advanced disease and signs and symptoms of compression. The well-differentiated forms show areas of fat density associated with areas of soft-tissue density, whereas the poorly differentiated forms show homogeneous soft-tissue density. Teratomas are common in adolescents and young adults. Mature teratomas are benign and are the most common variant, accounting for 70% of mediastinal GCTs in children. Imaging shows laminar calcification and, rarely, bone, or teeth structures. On CT and MRI, they have well-defined, smooth or lobulated margins and show heterogeneous attenuation due to a combination of soft tissue, fluid, fat, and calcific components [6]. The epicardial fatty tissue is observed around the heart and does not show capsular formation. In congenital diaphragmatic hernias, there is mediastinum transition in the internal organs of the abdomen with fat tissue as well as a diaphragmatic defect. MRI findings of lipomas are quite typical. A mediastinal lipoma usually appears as a capsular, homogenous fat mass. It shows high-signal intensity on T1- and T2-weighted images, suppressed on fat-suppressed images [7,8]. When cases are symptomatic, fine-needle aspiration cytology may be required to differentiate a mediastinal lipoma from a well-differentiated liposarcoma before complete resection [8]. There is no need for treatment in asymptomatic cases [9].

Conclusion

Imaging methods are crucial for the proper diagnosis of and follow-up on mediastinal lipomas. In asymptomatic cases with typical imaging features, MRI may be used safely for follow-up without surgery or biopsy.

Funding

None.

Conflicts of Interest

The authors have no conflicts of interest to declare.

Informed Consent

Informed consent was obtained from the patient and patient's family for publication of this manuscript and any accompanying images.

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