A giant intrathoracic osteolipoma: A case report and review of the literature

Jun Yang\textsuperscript{a,}\textsuperscript{*}, Shaomin Li\textsuperscript{b}, Anjing Kang\textsuperscript{a}, Xiaoli Chen\textsuperscript{a}, Baoshan Su\textsuperscript{a}, Yaofeng Jin\textsuperscript{a}

\textsuperscript{a}Department of Pathology, Second Hospital of Medical School, Xi\textsuperscript{a}an Jiaotong University, Xi\textsuperscript{a}an, Shaanxi 710004, China

\textsuperscript{b}Department of Thoracic Surgery, Second Hospital of Medical School, Xi\textsuperscript{a}an Jiaotong University, Xi\textsuperscript{a}an, Shaanxi 710004, China

\textbf{A R T I C L E   I N F O}

Article history:
Received 30 December 2011
Received in revised form 9 February 2012
Accepted 7 March 2012
Available online 30 March 2012

Keywords:
Lipomas
Intrathoracic lipomas
Osteolipoma

\textbf{A B S T R A C T}

\textit{INTRODUCTION}: Lipomas are ubiquitous and can occur anywhere in the body. Intrathoracic lipomata are rare benign lesions. However, a complete removal giant intrathoracic osteolipoma is achieved with only 18 cases previous cases described in medical literature from 1960 to 2008.

\textit{PRESENTATION OF CASE}: A 66-year-old female presented to our hospital suffered from mild chest pain and mild shortness of breath for more than 10 days. A subsequent chest X-ray and CT scans revealed a large homogeneous, low-attenuation fat density mass containing an oval calcification area in the center of the mass. Following surgical resection was performed successfully to remove the entire mass, which weighed a total of 1568 g and measured 26 cm × 19 cm × 12 cm in size. The histological analysis confirmed a giant intrathoracic osteolipoma without evidence of malignancy.

\textit{DISCUSSION}: Intrathoracic lipomas are rare, slow-growing benign tumors without any symptom, which originate from the adipose tissue in submesothelial layers of the pleura parietalis, diaphragm, mediastinal and extrapericardial. They may extend into the chest cavity and fully encapsulate in most cases. Chest X-ray and CT and MRI scans are the most helpful tests in the diagnosis of intrathoracic lipomas. Complete en bloc removal of lipoma whenever possible, is the only definitive treatment option and the only way to prevent future recurrences.

\textit{CONCLUSION}: This case is the largest intrathoracic osteolipoma documented in the modern literature. Complete en bloc removal of lipoma whenever possible, is the only definitive treatment option.

\textsuperscript{*}Corresponding author. Tel.: +86 29 87679466; fax: +86 29 87678634. E-mail address: yangjun19@yahoo.com.cn (J. Yang).

1. Introduction

Lipomas are the most common benign soft tissue tumors and can occur anywhere in the body. Intrathoracic lipomas are of great rarity uncommon benign lesions, giant lesions are even more infrequent. The first case was reported by Fothergill in 1783.\textsuperscript{1} We achieved a complete removal of 26 cm × 19 cm × 12 cm large intrathoracic osteolipoma and reported here, which is the largest intrathoracic osteolipoma documented in the modern literature perhaps.

2. Presentation of case

A 66-year-old Chinese female, who was a farmer, presented to our hospital suffered from mild chest pain and mild shortness of breath for more than 10 days without weight loss, non-productive cough, orthopnoea or exertional dyspnoea. She was normotensive and a non-smoker, and maintained a healthy weight of 55 kg for her 160 cm height. She had no significant past medical history. Clinical examination was unremarkable, and routine blood tests were normal.

A subsequent chest X-ray (Fig. 1A) and computed tomography (CT) scans (Fig. 1B and C) revealed a large homogeneous, low-attenuation fat density mass containing an oval calcification area in the center of the mass. The mass occupied the majority of the left thoracic cavity, with shift of the left lung to the upper of left chest cavity, and with shift of the heart and mediastinal vascular structures to the left of midline.

In order to remove the entire tumor, surgical resection was performed through the left sixth intercostal space. In the operative field, a soft pale yellow mass was noted in the left chest cavity, the lobes of left lung were compressed into the upper of left chest cavity. In gross appearance, it was a thinly encapsulated, dull mass in a pale yellow color which with a thin membrane, which was smooth surface and soft to the touch. A tight adhesion was observed in the middle portion of the connection region of mediastinal and extrapericardial. Except this portion, the tumor was well demarcated and not adhering or invading the surrounding tissues. Finally, the entire mass encapsulated was successfully removed en bloc easily.

The resected specimen weighed a total of 1568 g and measured 26 cm × 19 cm × 12 cm in size. Its surface was smooth and covered by a thin membrane. On cut sections of the mass, it consisted of mainly yellow fat tissue with a few scattered fibroconnective tissue, and ovoid osseous tissue core in the center of it (Fig. 2A and B).

Final histopathologic analysis of the tumor revealed that the tumor consisted largely of abundant mature adipose tissue with a
Fig. 1. Direct radiography (A) and CT scan (B, C) shows the characteristic homogenous fat density and a well delineated, encapsulated soft tissue mass with oval of bony density located in the center of the mass without connected to the chest wall.

Fig. 2. Surgical specimen macroscopic appearance of the intrathoracic lipoma (A) (dimensions, 26 cm × 19 cm × 12 cm; weight, 1568 g). An oval of bony tissue located in the center of the mass (B).

Fig. 3. Histological examination revealed that this mass was composed of mature adipose tissue with inconspicuous nuclei at the cell borders (A). Area of an oval mature osseous tissue nodule associated with trabecular bone tissue in it, which is surrounded by normal adipose tissue (B) (HE, original magnification ×20).
thin layer fibrous membrane. The adipocytes were uniform in size and shape. There were no nuclear atypia, hypercellularity, mitosis or necrosis had been seen. The osseous tissue was found in the center area of it (Fig. 3A and B). The definitive pathologic diagnosis was a giant intrathoracic osteolipoma without evidence of malignancy.

The patient’s postoperative course was simply. Approximately 3 weeks after her surgery, she recovered and was discharged from hospital with no serious complications.

3. Discussion

Lipomas are mostly found within the subcutaneous areas of the body. But intrathoracic lipomas are rare, slow-growing benign tumors. The first case was reported by Fothergill in 1783. The most comprehensive report in current journals is reviewed by George Heuer. He made an extensive search into medical literature and found records of only 30 cases from 1783 to 1933. In the review, George Heuer classifies intrathoracic lipoma into three groups: (a) Those of dumbbell tumors, which are in part intrathoracic and connected by an isthmus with the extrathoracic portion. (b) Anterior superior mediastinal lipoma presenting at the root of the neck. (c) Those lying completely within the thorax. According to this classification, the following case belongs to this group.

These tumors originate from the adipose tissue in submesothelial layer of the pleura parietalis, diaphragm, mediastinal and extrapericardial. They may extend into the chest cavity and fully encapsulate in most cases, and are typically very slow growing (often taking many years without any symptom).

CT scans and magnetic resonance imaging (MRI) scans are the most helpful tests in the diagnosis of intrathoracic lipomas. The giant lesions are even more infrequent, with symptoms depending primarily on their location and size. Usually intrathoracic lipomas have been reported as incidental findings on chest radiographs or CT scans or MRI scans in asymptomatic patient, or are discovered after the patient presents with symptoms of shortness of breath with exertion or dyspnea secondary due to a mass effect, i.e., the compression of the primary bronchi, esophagus, vagus nerve, and phrenic nerve, or other internal structures. Symptoms can include dry cough, dyspnea, orthopnea, intermittent dysphagia, chest pain, jugular distention, and cardiac arrhythmias and so on. Jack reported a case of intrathoracic extrapericardial lipoma, who suffered cardiac arrest due to the direct compression upon the heart from this large mass.

In general, lipomas are typically encapsulated, homogeneous mature adipose tissue, slow growing tumors. Occasionally, other mesenchymal elements may be found in it. Once, a lipoma containing mature osseous elements is called osteolipoma, or ossifying lipoma.

Osteolipoma is an extremely rare histologic variant of lipoma that contains mature lamellar bone within the tumor and osteolipoma independent of bone tissue are very rare. Only 18 cases of osteolipoma were reviewed by Kayo Kuyama in the English-language literature from 1960 to 2008.

We achieved a rare complete removal of 26 cm × 19 cm × 12 cm large intrathoracic osteolipoma independent of bone. The definitive pathologic diagnosis was intrathoracic osteolipoma. It is the largest intrathoracic osteolipoma documented in the modern literature.

4. Conclusion

Intrathoracic lipomas are rare benign lesions. They are typically very slow growing, often taking many years without any symptom. CT and MRI scans are most helpful in diagnosis of it. The giant lesions are even more infrequent, with symptoms depending primarily on their location and size. We achieved a rare complete removal of 26 cm × 19 cm × 12 cm large intrathoracic osteolipoma independent of bone. It is the largest intrathoracic osteolipoma documented in the modern literature.

Conflict of interest

There are no conflicts of interest.

Funding

There are no sources of funding.

Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Authors’ contribution

Jun Yang studied design and wrote the case report, performed the literature review and obtained informed consent, and performed data collection and drafted and reviewed the manuscript. Shaomin Li carried out the patient diagnosis, performed the surgery, and collected data. Jun Yang and Anjing Kang and Xiaoli Chen make the histopathological diagnosis and reviewed the manuscript together. Baoshan Su and Yaoqin Lin made the tissue sections and took the photographs. All authors read and have been involved in approving the final manuscript.

References

1. Fothergill J. Lipoma of the external thoracic wall. Eur Respir J 1994;7:207–9 [cited by Sulzer et al.].
2. Heuer George J. The thoracic lipomas. Ann Surg 1933;98(5):801–19.
3. Gaerte SC, Meyer CA, Winer-Muram HT, et al. Fat-containing lesions of the chest. Radiographics 2002;22:61–78.
4. Buxton RC, Tan CS, Khine NM, et al. Atypical transmural thoracic lipoma: CT diagnosis. J Comput Assist Tomogr 1988;12:196–8.
5. Jack AI, Blohm ME, Lye M. An intrathoracic lipoma impairing left ventricular function. Br Heart J 1995;74(7):95.
6. Tos AP, Fedori P. Adipocytic tumors. In: Fletcher CDM, Unni KK, Mertens F, editors. World Health Organization classification of tumours. Pathology and genetics of tumours of soft tissue and bone. Lyon, France: IARC Press; 2002. p. 19–46.
7. Kuyama K, Fifita SF, Komiy M, et al. Rare lipomatous tumors with osseous and/or chondroid differentiation in the oral cavity report of two cases and review of the literature. Int J Dent 2009:143–460.

Open Access
This article is published Open Access at sciencedirect.com. It is distributed under the IJSCR Supplemental terms and conditions, which permits unrestricted non commercial use, distribution, and reproduction in any medium, provided the original authors and source are credited.