Pleural lipomatosis: A new pose of occult pleura effusion

Ahmed M. Abumossalam

Intrathoracic benign neoplasm can develop from any tissue; inside the thoracic cavity, however, infrequently, pleural lipomas can be detected, attributable to unusual adipose tissue in the pleural and subpleural layer. Asymptomatic presentation may be proven commonly and revealed by unintended radiology with a measured Hounsfield scale −100 to -50. We report a case of pleural lipomatosis by medical thoracoscopy, with multiple nodular forms. Pathological examination of the specimen confirmed the diagnosis of lipoma. A radiological diagnosis of pleural lipoma can be made by computed tomography, transthoracic ultrasound, or dual-energy X-ray absorptiometry as a diagnostic investigation because of their characteristic fat attenuation. Medical thoracoscopic biopsy provides a more accurate and confirmed diagnosis. Pleural lipoma is a rare clinical pleural dilemma that needs suspicious sense and a feasible radiological diagnosis as soon as a strong evidence of malignant transformation is excluded. *Egypt J Broncho* 2016 10:76–78

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Department of Thoracic Medicine, Faculty of Medicine, Mansoura University, Mansoura, Egypt

Correspondence to Ahmed M. Abumossalam, MD, Lecturer in Thoracic Medicine Department, Faculty of Medicine, Mansoura University, Mansoura, 35116, Egypt
Tel: +20 100 842 4320;
e-mail: abumossalam79@yahoo.com

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Introduction

Lipomas are benign tumors that build up at the outlay from adipose tissues and can develop all over the body. They are considered to be the most recurrently and commonly detected benign mesenchymal neoplasm with an unusual intrathoracic presentation. Lipoma can develop in fat-containing tissues such as the mediastinum, diaphragm, bronchus, lung, or thoracic wall; however, atypical localization can be noticed in the pleura [1,2]. Pleural lipoma is found by the way on a chest radiograph or a computed tomography (CT) examination of the chest for patients presented with complains other than pulmonary problems.

Presentation of case

A 57-year-old Egyptian man was admitted for treatment for persistent dyspnea on exertion and dry cough. He had no previous history of chest troubles or cardiac disorders. Chest radiography was performed and indicated right-sided mild pleural effusion. Transthoracic ultrasound examination was performed for localization and as guidance for aspiration, which showed free pleural fluid with simple anechoic criteria of about 2600 ml in volume with few pleural-based nodules. Pleural aspiration was performed and showed an inflammatory smear with scanty lymphocytes neutrophils and reactive mesothelial cells. Other routine laboratory tests of complete blood count, and liver and kidney function tests were of normal range. A CT of the chest indicated pleural nodular irregularities more than 1.5 cm in thickness, which indicated that medical thoracoscopy was required, which was performed 2 days later after obtaining patient informed consent and verification of no bleeding diathesis. Pleural endoscopic findings were surprising; multiple variable-sized pleural nodules of homogenous size and uniform distribution were observed studding the costal surface of visceral pleura with easy fragmentation on seizing of specimen. Sampling of both visceral and parietal pleura was considered and biopsies were sent for pathological examination. Naked eye examination of the biopsied specimen indicated a small (2 × 2 × 2.6 cm) a round, yellowish, consistently soft tumor that had a smooth surface as seen in Figures 1 and 2). The tumor was attached to the costal pleura with a pedicle of 1.8 cm in diameter. No adhesion was found between the tumor and the surrounding tissues. The microscopic examination of this tumor indicated an encapsulated tumor with abundant mature adipose tissue, a few scattered strands of fibroconnective tissue, and no sarcomatous changes. Histopathological examination of the biopsy with staining of block with hematoxylin and eosin indicated well-differentiated mature adipocytes, with no pleomorphism, necrosis, or mitotic activity, suggestive of pleural lipoma.

The patient had a severe postoperative course, with recurrence of the condition and effusion; hence, revision of the slides was performed by another pathologist with another preparation from the paraffin block. They established the same diagnosis. Management

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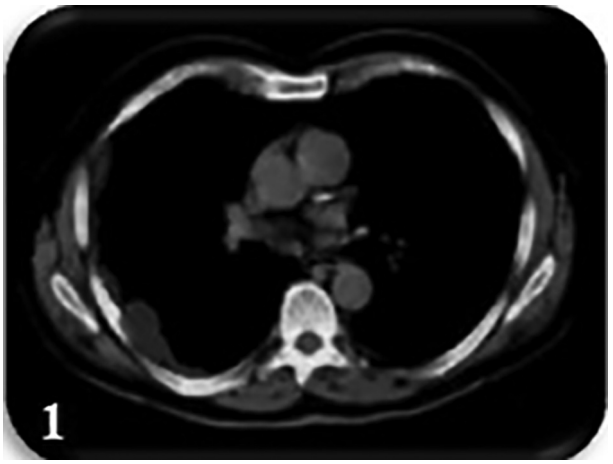
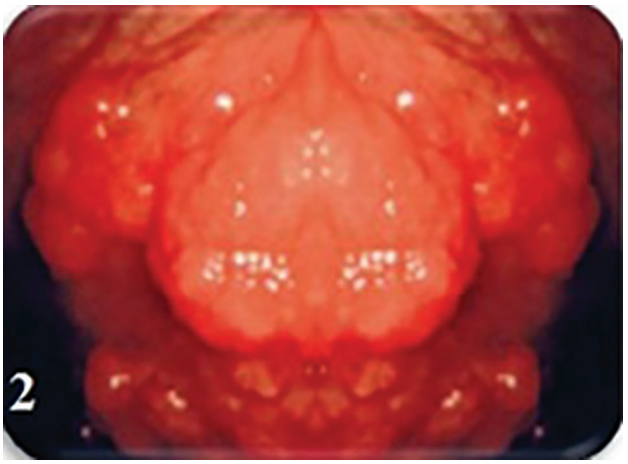
Fig. 1



Computed tomography of the chest of right-sided pleural-based nodules on the costal pleural surface.

Fig. 2



Thoracoscopic view of visceral pleural-based nodules on the costal pleural surface.

with trial diuretic was unsatisfactory. Pleurodesis with a sclerosing agent was advised to arrest the repeated course.

Discussion

In general, lipomas are benign mesenchymatous tumors hat develop all over the body composed of mature adipocytes presenting just about half of soft tissue tumors and 80% of benign fat-containing neoplasms. Ordinary lipomas may be found all over the body, but they are rarely found in the thoracic cavity. Consistent with classifications established by Keeley & Vana and Williams & Parsons, they can be divided into two classes:

(i) Hourglass or dumbbell lipomas that move across the thoracic inlet or intercostal space and
(ii) Entirely intrathoracic lipomas [2].

Along with their origin, they are classified as follows:

(i) Endobronchial lipoma originating from the submucosal fat of the tracheobronchial tree,
(ii) Parenchymal lipoma originating from interstitial adipocytes and located peripherally,
(iii) Pleural lipoma originating from the submesothelial layer of parietal pleura,
(iv) Mediastinal lipoma that represents a part from mediastinal lipomatosis, and
(v) Pericardial lipoma [1,3,4]. Pleural lipomatosis are usually multiple and have no association with other extrathoracic locations; they involve both sides with the same frequency, but there is no malignant conversion.

They are most commonly detected between the ages of 45 and 62 years, often associated with obesity.

The pleural lipoma observed originated in the submesothelial layer of parietal pleura and showed hemispherical sessile or pedunculated lesions distributed widely all over the costal pleural surface [4,5]. From the clinical point of view, no specific signs or symptoms of this kind of neoplasm were detected apart from conventional pulmonary symptoms such as dyspnea and dry cough until they attained a large size, and once it spreads over the wide costal surface, it may induce compression symptoms such as persistent dry cough, chest pain, increased dyspnea, or chest heaviness sensation. In 11% of cases as part of Pierre Marie's syndrome, clubbing was observed, which disappeared after tumor surgical removal [1]. In a study by Zidane *et al.* [2], accompanying signs were occasional; bone erosion, cortical thickening, and hyperostosis secondary to extrinsic pressure, and periosteal irritation have been documented. They are usually detected inadvertently on plain chest radiographs as smooth, rounded nodules. CT chest provides essential information to differentiate between benign and malignant pleural disease, and determine the location and extent of disease; it occasionally enables characterization of tissue on the basis of signal attenuation. Moreover, CT enables the study of associations between lipoma and nearby organs. The radiological diagnostic criteria are as follows: a well-defined nodular appearance composed of homogeneous fat (-50 to –150 HU), not enhanced by an injected contrast medium, with obtuse angles with the chest wall and displacing adjacent pulmonary parenchyma and vessels [1,2,6,7]. However, differentiation between malignant liposarcomas and benign lipomas may be challenging on CT images. The typical characteristics of a malignant tumor include invasive growth, infiltration of surrounding structures, rather than displacement, inhomogeneous enhancement after intravenous contrast medium application, attenuation values greater

than -50 HU, poor delineation of the lesion, and occurrence of metastases [1,2,7]. Ultrasound of the thoracic wall may facilitate the diagnosis, confirming the pleural origin of the tumor [1,8]. If there is doubt in radiological diagnosis by CT, MRI may be useful. It occasionally enables a more refined evaluation of the linkages between both the tumor and the thoracic wall, eventrations from lipomas arising near the diaphragm. Its main value is its ability to differentiate between lipoma and liposarcoma. Pathological examination is the definitive diagnosis by which differentiation between these two tumors can only be achieved only by, which should differentiate between these two tumors. No definitive lines of a management strategy for pleural lipomas have been established as yet. A close monitoring policy with clinical and radiological follow-up may be suitable for patients, especially in those with small and asymptomatic lesion [2,4,7]. However, a surgical excision is considered to be the treatment of choice. Sometimes, intracavitary radiotherapy can be, to some extent, valuable, fearing of recurrence or malignant conversion. Infiltration of lipoma to the surrounding structures can cause severe symptoms, such as for example invasion to intercostal spaces, and induce rib destruction [1,2]. Thoracoscopic surgery has become a more common technique for thoracic tumor operations, being an effective, well-endured procedure that is associated with less morbidity and mortality than that with conventional surgery [1,5,9]. Surgical resection can be performed easily by an open thoracotomy to provide relief of symptoms and to confirm diagnosis.

Conclusion

Pleural lipoma, however, is a rare pleural neoplastic lesion; concern should be put in mind for lipoma as being one of the possible etiologies before stating the case as idiopathic effusion. The clinical scenario usually does not involve a neoplastic course as well as a thoracoscopic view; hence, transthoracic ultrasound and/or CT assessment by Hounsfield unit represent important noninvasive diagnostic tools that have the advantages of decreased surgical morbidity, not as much pain, and a reduced duration of postoperative hospital stay.

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Conflicts of interest

There are no conflicts of interest.

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