

# Giant Intrathoracic Pleural Lipoma – A Rare Case Report with Review of the Literature

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**Abstract:** Giant intrathoracic pleural lipomas are rare benign tumors. We report a case of giant intrathoracic lipoma in a 19 years old male student that occupied almost entire left hemithorax. The tumor was completely excised by left thoracotomy. The complete histopathological investigation showed pleural lipoma.

**Keywords:** intrathoracic, pleural lipoma, hemithorax, benign, thoracotomy, histopathology

## 1. Introduction

Lipomas are the most common benign soft tissue tumors of the body that arise from adipose tissue and can occur anywhere in the body [1]. Pleural lipoma is a rare occurrence and is usually located at the mediastinal, bronchial and pulmonary levels [2]. Giant intrathoracic lipoma is a more rarer entity and the first case was reported by Fothergill in 1783 [1,3]. Most of the patients remain asymptomatic for a long period of time and are incidentally detected in a chest radiograph or computed tomography examination [2]. Whenever diagnosed it should be completely resected even though it is benign in nature [4]. We report such a case of massive intrathoracic lipoma which is successfully resected by thoracotomy in a young boy.

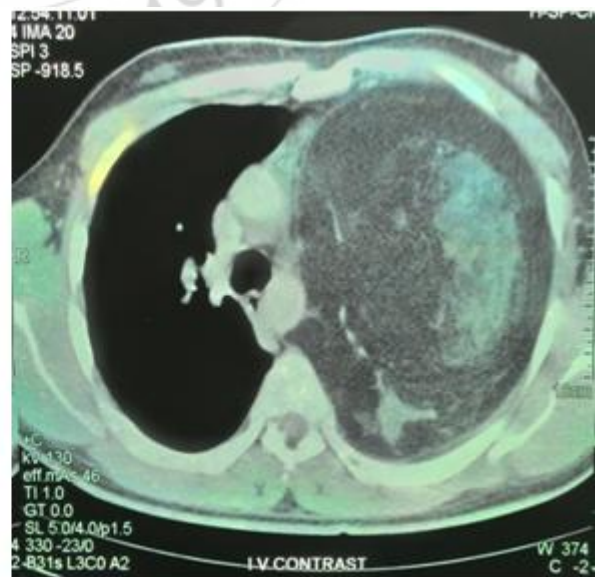
## 2. Case Report

A 19 years old young male student presented in our hospital with mild chest pain, chest tightness and occasional shortness of breath since one month before admission. The patient did not have any complain of cough, hemoptysis, exertional dyspnoea, anorexia or weight loss. He was normotensive, non-smoker, non-alcoholic and maintained a

body weight of about 55kg. He had no suggestive past medical history or any relevant family history. On physical examination the patient is found to have absent breath sounds along with dullness on percussion in left lung field. Laboratory work up was normal. Pulmonary function test showed FEV1/FVC was 97%, furthermore FVC was 72% of its predicted value with the impression of mild restrictive ventilatory disorder. Chest X-ray PA view revealed a homogeneously opacified lesion with a broad base at left lateral wall (pleural surface) seen in left chest likely to be pleural lesion. Lower margin of the SOL is seen with clear left dome of diaphragm and left costophrenic angle. Right lung is clear with mediastinal shift towards right side. CECT of the thorax was suggestive of massive fat density lesion with scattered stripped soft tissue density mass at left hemithorax with compressed lung inferoposteriorly. Mediastinum was shifted to right side without any obvious lymphadenopathy or mediastinal mass lesion. CT guided FNA smears from the left lung mass showed few lymphocytes, macrophages, benign squamous and rare benign columnar epithelial cells, stromal fragments and blood. No granuloma or malignant cells seen.



CHEST X-RAY PA VIEW

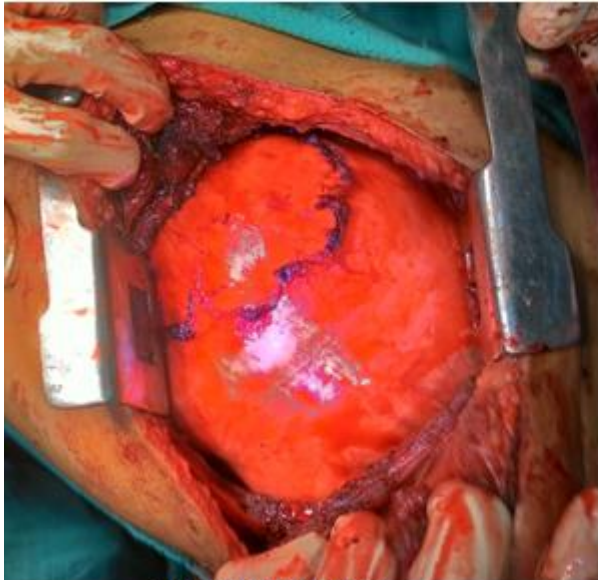


CECT THORAX

Bronchoscopy revealed left lower lobe bronchus to be narrow from the very beginning due to extraluminal compression. Yellow lipomatous lesion is seen on wall of left lower lobe lateral segmental bronchus. Bronchoscope could not be engaged further distally to other left lower lobe segmental level due to extremely narrow lumen.

Based on these investigation findings left lateral thoracotomy was decided through left 5<sup>th</sup> intercostal space. Left thoracotomy revealed a massive yellowish soft to firm tumor mass with a lobulated surface occupying almost entire

left hemithorax or pleural cavity compressing entirely the left lower lobe and partially the left upper lobe of the lung. The tumor was attached to the parietal pleura against the 2<sup>nd</sup> intercostal space with a pedicle of around 3cm in diameter. The tumor was densely adhered with the surrounding structures but without any definite attachment. The entire mass was successfully extirpated after ligation and division of its pedicle. The tumor weighed of about 4500gm and measured 30x20x15 cm<sup>3</sup>.



ON EXPLORATION



REMOVAL OF THE TUMOR



TUMOR BED AFTER REMOVAL OF MASS



THE TUMOR MASS

On final histological examination it was found to be an encapsulated mass with abundant mature adipose tissue, scattered strands of fibroconnective tissue without any sarcomatous changes, suggestive of pleural lipoma. The postoperative recovery of the patient was uneventful and he was discharged after after two weeks.

### 3. Discussion

Lipoma is a benign mesenchymatous tumor and is mostly found in the subcutaneous plane. Although it can occur in

any part of the body, intrathoracic lipoma are rare and can be found in mediastinal, bronchial and pulmonary levels[2]. A pleural lipoma is extremely rare [2,5,6].

George Huer classified 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 roof of the neck c) those lying completely within the thorax [7]. According to this classification, our case belong to the last group. Depending upon their origin,

intrathoracic lipomas are classified into several types, such as endobronchial lipoma, diaphragmatic lipoma and as in this case, pleural lipoma which originate from the submesothelial parietal pleura and may extend into subpleural, pleural and extrapleural spaces [8].

Tateishi et al [9] suggested intrathoracic lipoma to be related to obesity. But according to Sukurai et al [8] study three out of ten patients were obese with BMI>25kg/m<sup>2</sup>. He also suggested that most lipomas become apparent in patients at 40-60 years of age without any gender predilection [8]. This patient is however a young male with average built.

Lipomas often grow slowly and subsequently are detected at a relatively late stage of evolution [1,2]. But in Christoph's opinion such development is not slow and therefore once lipoma is detected close follow up is mandatory [4].

Lipoma grows very slowly and may attain very large size. Initially the patients remain asymptomatic for a long time and the symptoms are mostly due to compression of the large tumor upon its surrounding structures like dysphagia due to compression of oesophagus, dyspnoea due to compression of trachea etc. Shortness of breath may be due to compression of lung tissue by the large tumor. Rarely an intrathoracic, extrapericardial lipoma may cause left ventricular dysfunction due to direct compression as reported by Jack et al [10]. The patient refused surgical excision and subsequently suffered cardiac arrest due to the tumor directly compressing upon the heart.

Pleural lipomas may be complicated with intramural haemorrhage with pain and fever and may invade intercostal spaces and cause rib lysis [11].

Although most of the intrathoracic lipomas are detected incidentally on plain chest X-ray but computed tomography scan has replaced the conventional chest X-ray and ultrasound scan mostly and presently is the investigation of choice for its definitive diagnosis when it demonstrates a homogenous fat attenuation mass (-50 to -150 Hounsfield or HU) which forms obtuse angles with the chest wall and displaces adjacent pulmonary parenchyma and vessels [12]. The density is often not uniform because lipoma frequently contains fibrous stroma. Ramona et al [13] reported a case in which CT revealed several areas of dystrophic ring type calcifications within a field of scattered dense soft tissue elements.

Most authors prefer and recommend complete surgical excision of the mass if possible for diagnostic and therapeutic considerations [2]. An observation principle with clinical and radiological follow up may be suitable for elderly patients and patients with poor general condition, especially in the presence of small and asymptomatic lesion [8].

Surgical approach is often via muscle sparing or an open standard thoracotomy particularly for a large lipoma as in this case. Video assisted thoracoscopic surgery (VATS) has become a modality of choice for pedunculated small thoracic tumor as it is a well tolerated procedure with less morbidity

and mortality [2]. Successful extirpation of a pleural lipoma with a single-port VATS has been also reported [14].

The complete resection of lipoma is usually associated with good outcome with a reported recurrence rate of less than 5% [8]. Recurrences are mostly due to incomplete resection of the lesion. Factors like infiltration of adjacent structures like brachial plexus may impede complete resection of the lipoma and is justified to avoid serious functional disorder. Warlitzer and colleagues [15] reported several cases in which the tumor stopped growing after incomplete surgical removal.

#### 4. Conclusion

Giant intrathoracic lipomas are rare benign lesions that grow very slowly over years and most of the patients present with compressive symptoms. CT scan and MRI scans are helpful in diagnosis. Complete surgical excision is the treatment of choice firstly because FNAC cannot distinguish between lipoma and well differentiated liposarcoma, secondly to relieve compression symptoms and lastly to avoid complications like intramural haemorrhage and infiltrating development. Complete surgical excision should be attempted with great care to avoid injury to surrounding vital structures. Local recurrence of intrathoracic pleural lipoma is uncommon.

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