

## BRONCHIAL LIPOMA: AN UNUSUAL CAUSE OF PLEURAL EMPYEMA

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**We report a case of rapidly growing pleural empyema due to endobronchial lipoma. The diagnosis was established by chest computed tomography (CT). Endobronchial lipoma is a rare benign tumor of the tracheobronchial tree which can cause irreversible damage to the distal lung parenchyma if diagnosis and treatment are not carried out in time.**

**Key-word:** Lipoma and lipomatosis.

### Case report

A 63-year-old man treated for bilateral pneumonia for two days was admitted to the emergency department with a temperature of 39°C, tachycardia and left basithoracic chest pain. Blood tests showed a C-reactive protein (CRP) of 92 mg/L (reference < 5 mg/L) without leukocytosis.

Chest radiography at the admission showed bilateral opacities in the bases of the lungs.

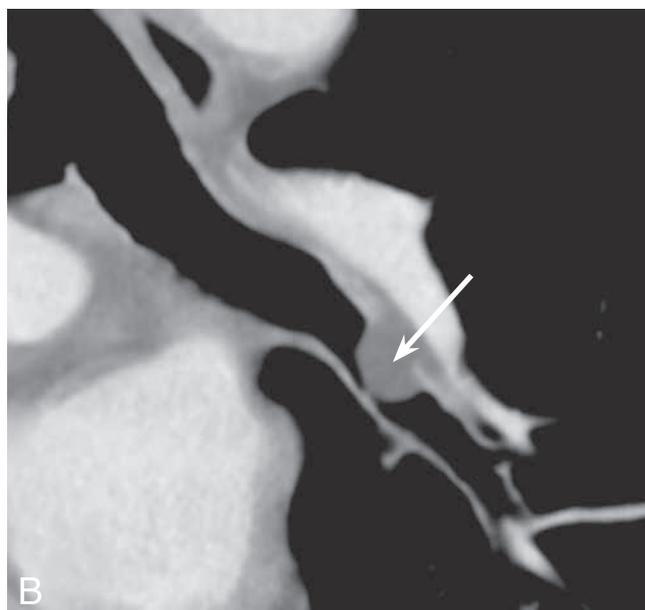
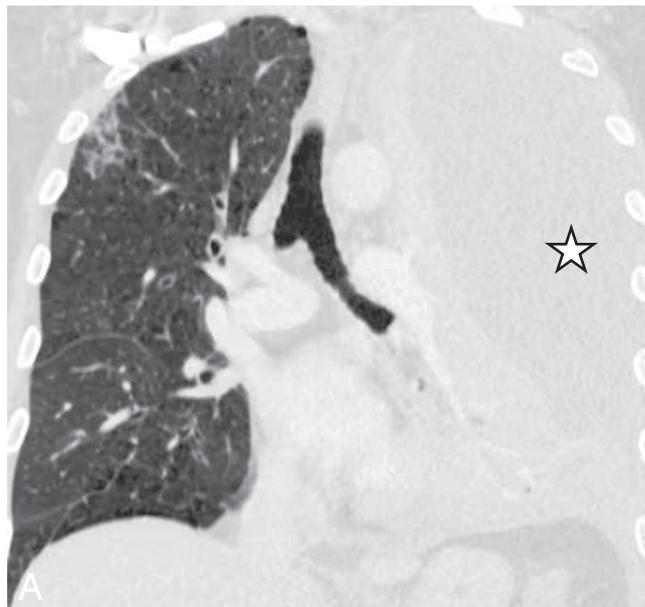
Patient's condition worsened despite large spectrum antibiotherapy. A repeated chest radiograph, two days after admission, showed a complete opacification of the left lung.

A chest computed tomography (CT) was performed and showed a huge left sided pleural effusion (Fig. 1). The ultrasonography showed multiloculated pleural fluid. The diagnostic was a rapid development pleural empyema. A left thoracoscopy was performed and the collection was drained.

Three months later, a control CT-scan was performed and showed that the left pleural empyema had completely resolved but it revealed in the left basal trunk, a nodular lesion, with homogeneous fat density and a bronchus parietal defect (Fig. 2).

Bronchoscopy revealed a subtotal obstruction of the basal segmental bronchi of the left lower lobe by a yellowish polypoid lesion protruding into the bronchial lumen (Fig. 3).

Histopathological examination of the biopsies confirmed a proliferation of mature fat tissue. There was no evidence of malignancy, and thus, a diagnosis of endobronchial lipoma was established.



*Fig. 1.* — A. Coronal reconstruction CT scan shows a huge left pleural empyema (white star). B. On a control CT performed three months later, meticulous analysis of bronchial tree revealed the presence of an adipose mass occluding the left basal trunk, including a homogeneous fat density area (- 98 HU), with bronchus parietal defect (white arrow).

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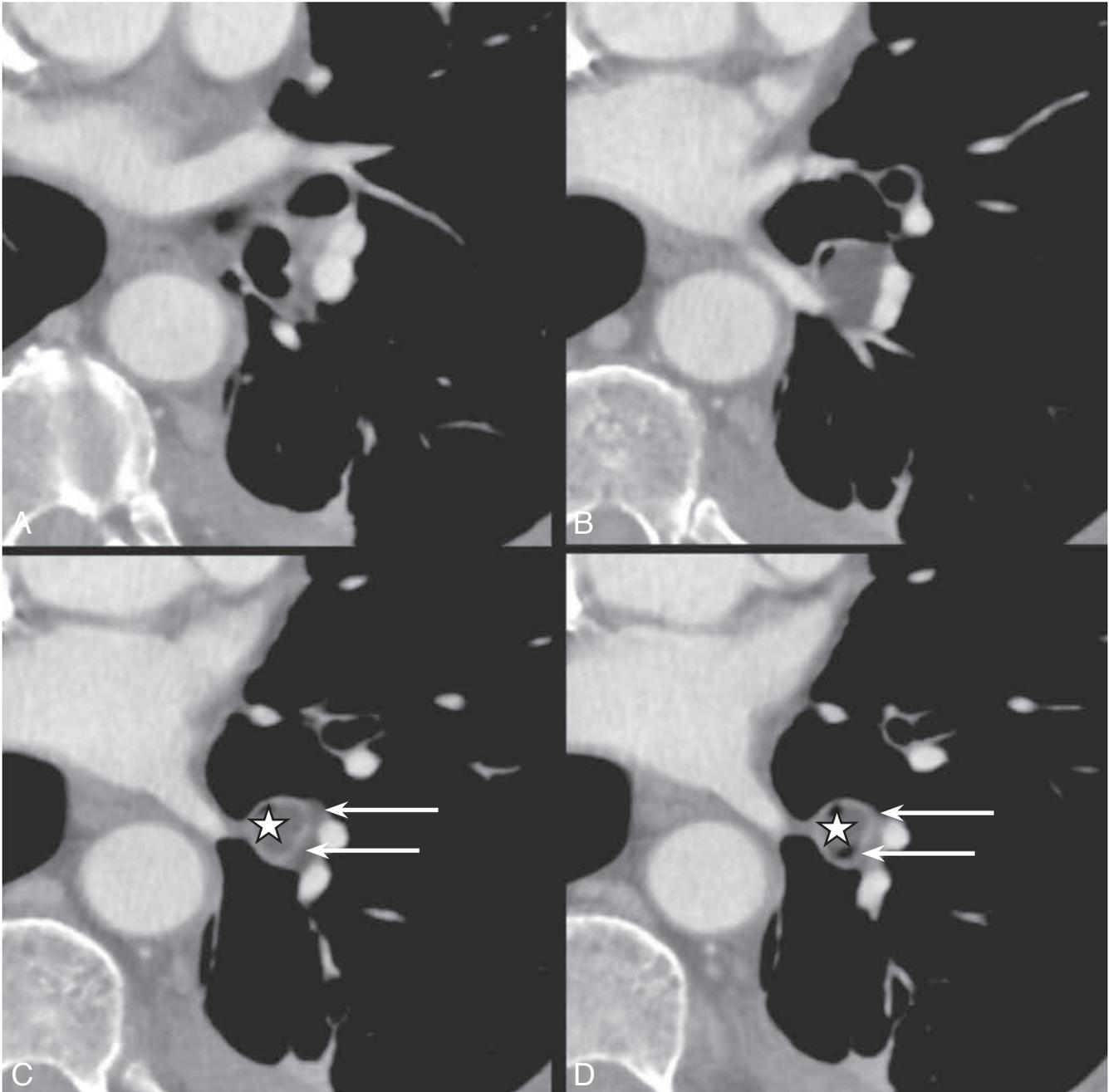


Fig. 2. — CT scan with contrast injection of iodinated contrast (KV 120, mA 180, DLP 390 mGycm). Axial CT views at the level of left basal trunk show an endobronchial lipoma (- 111 HU) in the left basal trunk (white star) with bronchus parietal defect (black arrowheads) through bronchial wall (white arrows).

The patient was treated with endobronchial resection by laser and cryotherapy.

The patient underwent bronchoscopic regular follow up to detect a possible recurrence because of the bronchus parietal defect at the level of the lipoma.

#### Discussion

Endobronchial lipoma is a benign tumor of the tracheobronchial tree, defined as a mass composed exclu-

sively of mature fat tissue (1) arising from the submucosal fat of large bronchus.

Benign neoplasm of the tracheobronchial tree is quite rare, accounting for less than 10% of all airways neoplasms, while endobronchial lipoma is extremely rare.

The tumors are more frequent in middle-age men (mean age, 60 years). Smoking and obesity are significant risk factors (2).

Lipoma, like other endo-bronchial tumors, produces respiratory symp-

toms due to upper airways obstruction that occur when more than 50%-75% of the luminal diameter is occluded. All of the symptoms are nonspecific and include persistent cough, dyspnea, chest pain, hemoptysis and recurrent pneumonia.

Endobronchial lipoma is a benign tumor but it can cause irreversible damages to the distal lung parenchyma, unless the diagnosis and treatment are carried out in time (3).

Chest radiographs usually show nonspecific changes related to the

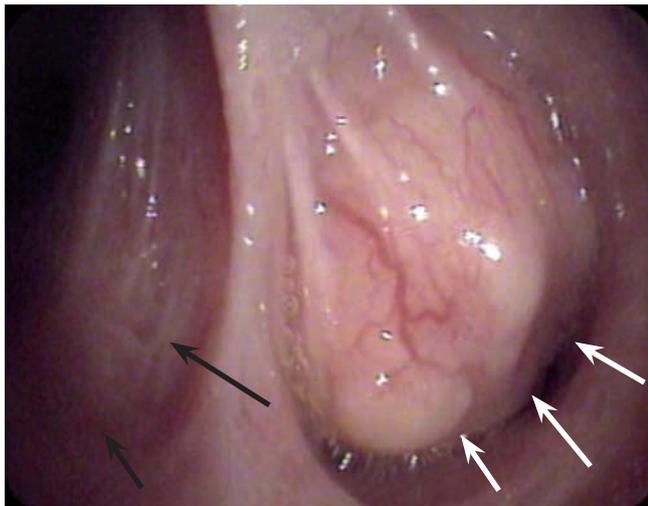


Fig. 3. — Bronchoscopy revealed a smooth, polypoid lesion protruding into the bronchial lumen, obstructing the orifice of the left basal trunk (white arrows), below the Nelson bronchus (black arrows).

bronchial obstruction such as atelectasis or pneumonia. Less frequently, pleural effusion was observed on chest radiography. Our patient presented pneumonia of the left lung with rapid development pleural empyema. Pleural empyema associated to endobronchial lipoma was only recorded in four cases, and this is the fifth English-language reported (3).

CT typically shows a homogeneous mass with fat density (-70 UH to -140 UH) and no contrast enhancement (4). Because of his high specificity and sensitivity in fat detection, computed tomography (CT) has a key role in establishing the diagnosis of endobronchial lipoma. However, when a fatty endobronchial mass is

identified on CT, differential diagnosis should include lipoma and fatty hamartoma that also can appear as a fatty mass (5). Pathological analysis of the resected tissue is necessary for accurate diagnosis but the distinction of endobronchial lipomatous hamartoma from lipoma is of minor interest as both are rare benign mesenchymal tumors in clinical practice

Definitive diagnosis is made by bronchoscopy and biopsy (6). Bronchoscopic examination typically reveals a yellow polypoid mass with a smooth, regular and soft surface.

Bronchoscopic resection is the treatment of choice as it helps preserving lung parenchyma. However, surgical resection is required if there

is permanent distal damage or any feature suggesting a possible malignant process (2).

## Conclusion

Endobronchial lipoma is a rare and benign tumor of the lung. During the analysis of a chest CT scan, a systematic examination of the endobronchial tree should be performed, especially when imaging shows persistent changes due to upper airway obstruction or rapid development pleural empyema. Early diagnosis and endoscopic resection help to prevent irreversible distal lung damage.

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