Abstract:

Lipoma are rare in the endobronchial location and may cause bronchial obstruction, pneumonia and subsequent severe pulmonary parenchymal damage. Accurate early diagnosis and appropriate intervention prevents irreversible distal complications and obviates unnecessary pulmonary resection and carries excellent prognosis. We describe an interesting case of endobronchial lipoma of the left main bronchus resulting in chronic obstruction and bronchiectasis. Unfortunate delay in treatment resulted in a destroyed left lung, requiring left pneumonectomy.

Keyword: Endobronchial Lipoma, Pneumonectomy, Bronchoscopy, Bronchial tumour

Introduction:

Lipoma are the most frequent benign neoplasm in the body, but intra thoracic lipoma are uncommon. Lipoma in the endobronchial location are even rarer, constituting 0.1% of all pulmonary tumours. The medical literature in the English language has just over a hundred cases of endobronchial and endotracheal lipoma reported. We describe an interesting case of an endobronchial lipoma of the left main bronchus resulting in chronic obstruction and bronchiectasis, subsequently destroying the lung and warranting a left pneumonectomy. An early intervention could have saved the lung.

Case History:

A 36 years old man from a remote area presented with a history of intermittent scanty streaky haemoptysis of ten years’ duration with worsening of symptoms over the past two months. Clinical examination showed absence of air entry over the left chest. His chest roentgenogram revealed collapse of the left lung with a mediastinal shift to the left side.
(Figure 1A). The computed tomographic (CT) scan of the chest showed an abrupt termination of the left main bronchus by a 25mm x 13mm endobronchial mass completely occluding the left main bronchus and resulting in a complete collapse of left lung causing distal saccular bronchiectasis, fibrosis and destruction (Figure 1B).

Figure 1A: Chest x-ray showing collapse of the left lung with mediastinal shift to the left side. Figure 1B: Computerised tomogram scan of the chest showing an endobronchial lesion with collapse of the left lung.

A flexible bronchoscopy showed a well rounded, smooth walled glistening tumour in the left main bronchus two cm distal to the carina, fully occluding the lumen (Figures-2A and 2B). Bronchoscopic biopsy was inconclusive.

Figure 2A: Bronchoscopic view of the carina with the tumour in the left main bronchus. Figure 2B: Bronchoscopic view showing yellowish orange polypoid mass occupying the left main bronchus.

The pulmonary function test showed restrictive as well as reversible obstructive lung disease pattern. An endobronchial carcinoid causing obstruction and distal chronic saccular bronchiectasis and destroyed lung was assumed and the patient was taken up for surgery.

A left posterolateral thoracotomy was done and the chest entered through the 5th intercostal space. The left lung was found to be collapsed and consolidated. There were dense adhesions with the surrounding structures and distortion of anatomy. A left pneumonectomy was done with resection of the bronchus at the carina. Gross examination of the resected specimen showed a pedunculated polypoid mass attached to the bronchial mucosa consisting of soft, yellowish white and faintly lobulated lipomatous tissue (Figure 3A).
Figure 3A: Resected specimen of the lung with cut section of the endobronchial lipoma showing soft, yellowish white and faintly lobulated lipomatous tissue. Figure 3B: Haematoxylin & Eosin stained low power microscopy (5X) of the excised tumour showing lobules of mature adipocytes separated by fibrin bands with interspersed seromucinous glands.

Histopathology revealed a subepithelial tumour composed of lobules of mature adipocytes separated by fibrous bands with interspersed seromucinous glands (Figure 3B), diagnostic of endobronchial lipoma. The distal lung was totally destroyed with extensive bronchiectasis and fibrosis. The patient had an uneventful postoperative recovery and was discharged seven days after surgery.

Discussion:

Lipomatous tissues are normal constituents of the bronchial wall. They are found in the submucosa between the cartilage and muscular layer, surrounding the mucous glands. Occasionally they occur as a result of metaplasia inside the ossified cartilage rings. Lipoma may arise from any fatty tissue within the lung. According to their localization, intrapulmonary lipoma can be divided into two categories. Those inside the bronchi are called the endobronchial lipoma and those in the other regions of the lung are called peripheral pulmonary lipoma. Endobronchial lipoma are more common, accounting for 80% of the cases. The origin of the endobronchial pulmonary lipoma is believed to be the submucosal adipose tissue but the origin of the peripheral pulmonary lipoma is controversial. Endobronchial lipoma was first described by Rokitansky in 1854 and the first published case was the one reported in 1927 by Kernan. They are commonly found in the large bronchi where fatty tissue are normally present - more often in the left main and lobar bronchi than in the corresponding bronchi on the right. The fat content within the bronchial wall diminishes with progressive branching of the respiratory tree and hence the rarity of lipoma peripherally. The lipoma occasionally can be dumb-bell or hour-glass shaped, with an intra bronchial component filling the bronchial lumen, and a peribronchial component with a narrow neck connecting the two. These circumscribed benign tumours consist of mature adipocytes and they usually project as smooth walled polyps into the bronchus. As they grow, the normal constituent on the bronchial wall including the muscle coat become stretched out over them, which later atrophies and is replaced by connective tissue. Proximal endobronchial lipoma arising from lobar bronchi is invariably enveloped by bronchial epithelium. The peripheral lipoma are often surrounded by thin connective tissue and normal lung parenchyma. Other tissues such as glandular tissue or bone can be present leading to suspicion of a hamartoma, but the predominance of adipose tissue justifies the diagnosis of lipoma. Majority of endobronchial lipoma manifest clinically in the fifth and sixth decades. There is a male preponderance. Lipoma arising in the central bronchi leads to obstructive symptoms, causing obstructive pneumonitis and chronic bronchiectasis. The peripheral pulmonary lipoma usually present as solitary pulmonary nodules. The degree of the complaints of the patient and the degree of destruction in the lung due to an endobronchial lipoma depends upon the size and localization of the lipoma.
The clinical and radiological findings include atelectasis with volume loss, infiltration or consolidation and chronic bronchiectatic changes. Sometimes they mimic a malignant neoplasm, asthma or chronic obstructive pulmonary disease. Obesity, smoking and diabetes mellitus are the known risk factors. Atypical variants of pulmonary lipoma have been described in the literature. Moran, et al reported two cases of spindle cell lipoma with endobronchial localization. Matsuda described a pleomorphic variant of endobronchial lipoma similar to those seen in the posterior neck, shoulder and back. The diagnosis of endobronchial lipoma may be made by a CT scan that shows an intra bronchial homogeneous mass with fat attenuation in the range of 80 Hounsfield units without evidence of tumour contrast enhancement. Centrally located endobronchial lipoma are biopsied by a fibroptic bronchoscope. For a peripheral lesion, a tru-cut biopsy or wedge resection is needed. Literature data show that a correct preoperative diagnosis is possible in less than 50% of all patients and that a thoracotomy is mandatory in 85% of patients. The capsule of the tumour often renders bronchoscopic biopsy and brushings specimens inconclusive hindering a definitive preoperative cytological diagnosis. An endobronchial lipoma may be indistinguishable from a bronchial adenoma because of their similar appearance and their tendency to bleed during the bronchial biopsy.

Bronchoscopic resection should be considered as the first choice of treatment for endobronchial lipoma. However, surgical resection is indicated in the following conditions; (a) difficulty in definitive diagnosis and suspicion of a malignant tumor, (b) destroyed distal lung due to long-term atelectasis or pneumonia, (c) extrabronchial growth or subpleural lipomatous disease, or d) expected technical difficulties during the bronchoscopic procedure due to multidirectional development of the tumor. Majority of the reported tumours are removed by lobectomy or pneumonectomy because of the suspicion of malignancy. Few instances of bronchial lipoma excision by bronchotomy have been reported. With an early definitive diagnosis, treatment should be as conservative as possible.

Conclusion
Endobronchial lipoma are rare benign tumours that can cause irreversible pulmonary damage unless removed early. Accurate and early diagnosis prevents irreversible distal complications, obviates unnecessary pulmonary resection and carries excellent prognosis. Unfortunately, our patient, from a remote area had presented late, thus warranting a pneumonectomy which could have been prevented, had he presented early.

REFERENCES:


