

## BRONCHOLITHIASIS : A RARE CAUSE OF MASSIVE HEMOPTYSIS

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**SUMMARY** : A case with massive hemoptysis due to broncholithiasis is described, and the causes and treatment of massive hemoptysis are discussed.

**Key Words**: Broncholith, Massive Hemoptysis.

### INTRODUCTION

Broncholith is an endobronchial polypoid mass of granulation tissue. It usually occurs due to erosion of calcified perihilar or mediastinal lymph nodes into the tracheobronchial tree and can result in cough, lithoptysis, airway obstruction, pneumonia, fistula formation and/or hemoptysis. Hemoptysis secondary to broncholithiasis is rarely massive. We report an unusual case with massive hemoptysis due to broncholithiasis.

### CASE REPORT

A 51-year-old man was hospitalized with acute onset of massive hemoptysis. Approximately 700 cc of blood was expectorated during the last 36 h. He presented with a 20 months history of treatment for recurrent pneumonia. Before searching the origin of massive hemoptysis, tranexamic acid and aprotinin infusion were applied for hemostasis. Hemoptysis ceased on the second day of hospitalization without requiring bronchoscopic intervention. Therefore, vital signs were kept within normal limits and hematologic parameters, including hemoglobin, were normal. On the chest examination, rales were heard over the right lung. Other physical

examination findings were normal.

Chest X-ray revealed a pneumonic infiltration of the right lower zone (Fig. 1). Computed tomography (CT) of the chest revealed middle lobe atelectasis and right bronchopulmonary calcified lymphadenopathy of 2 cm in diameter (Fig. 2).

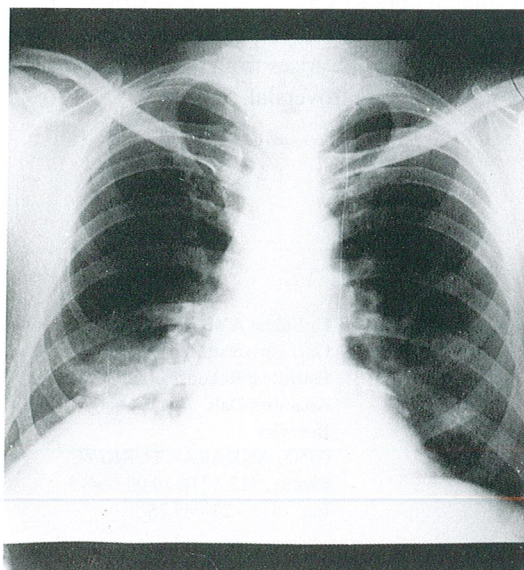


Fig - 1 : Pneumonic infiltration of right lower zone.

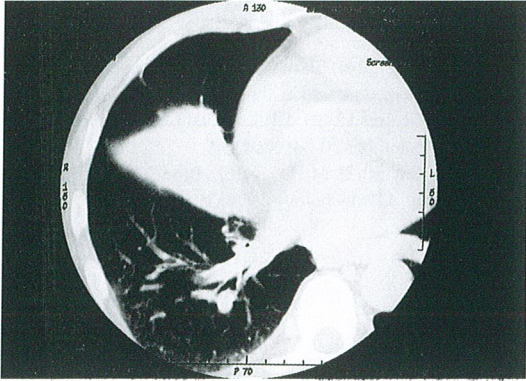


Fig - 2 : Right bronchopulmonary calcified lymphadenopathies.

Fiberoptic bronchoscopy showed a white, fragile endobronchial lesion in the entry of the right middle lobe. Bronchial punch biopsy demonstrated chronic inflammatory changes.

Since the patient presented a 20-months history of recurrent pneumonia, the bronchial punch biopsy specimens were not neoplastic, and there were calcified lymphadenopathies in the mediastinum on CT scan, he was suspected of having a benign bronchial lesion. Diagnostic and therapeutic thoracotomy was planned and right middle lobectomy was performed. Histopatologic examination of the surgical resection material demonstrated grossly, that the right middle lobe bronchus contained a

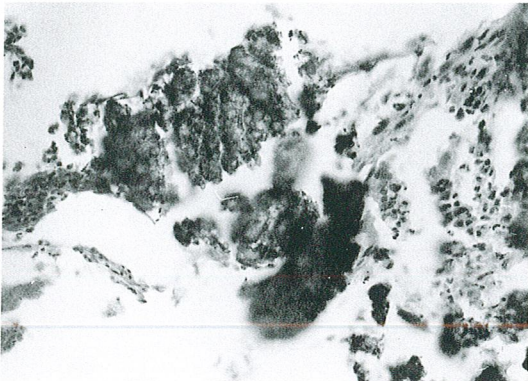


Fig - 3 : Microscopically appearance of broncholith.

stony-hard and grey-white coloured mass measured 0.8x0.6x0.3 cm in size. Microscopically, patchy, coarse, calcific depositys, surrounded by acute and chronic inflammatory reaction (consisting of broncholith) were observed (Fig. 3). Chronic inflammatory pneumonia was determined in the lobectomy specimen.

## DISCUSSION

Broncholithiasis is one of the causes of hemoptysis, but massive hemoptysis due to broncholithiasis is rare. Eleven cases have been reported in the reviewed literature (1). Most bronchololiths originate from the calcification of the peribronchial lymph nodes, subsequently erode the bronchial wall, and protrude into the airway. Pulmonary tuberculosis is one of the most common etiologies of broncholithiasis (1). Cough, hemoptysis, and obstructive pneumonia are the most common presentations. Lihoptysis which is a patognomonic symptom for this disorder is an uncommon complaint (2, 3). The chemical composition of a bronchololith is very similar to that of bone, consisting of 85 to 95 percent calcium phosphate and 10-15 percent calcium carbonate (2). Bronchololiths can cause middle lobe syndrome with intraluminal obstruction (4, 5).

Massive hemoptysis is a rare but life threatening event, occurring in less than 5 % of all patients who present with hemoptysis. A rational approach to the initial management of patients with massive hemoptysis can be directed by the rate of bleeding. However, conservative regimens can control massive hemoptysis and provide therapeutic alternatives to avoid unnecessary emergent surgery. The value of fibrinolysis inhibitors in the prevention of bleeding from various systems is well documented. It has been demonstrated that a combination of aprotinin with tranexamic acid may be effective in preventing or delaying of excessive bleeding; the addition of aprotinin seems to decrease the incidence of delayed vasospasm and ischaemic complications which are sometimes noted when tranexamic acid is used alone (6). We also applied this conservative regimen with no side effects, and we conclude that infusion therapy of aprotinin and tranexamic acid is a simple and effective regimen in the control of massive hemoptysis. After medical stabilization, surgical approach was applied.

Compression or distortion of adjacent structures by bronchololith leads to the necrosis of the walls of pulmonary vessels and hemoptysis occurs. Most

patients with massive hemoptysis have an underlying active inflammatory disease (1). The treatment of massive hemoptysis due to broncholithiasis is similar to that of massive hemoptysis due to the other causes. Surgical intervention should be done rapidly follow medical stabilization. Review of the literature demonstrates all medically managed patients died due to recurrent hemorrhage (1). Conservative resection should be the intraoperative goal. Lobectomy is generally made due to adhesions. Rarely, injured pulmonary arteries necessitate pneumonectomy.

Broncholith may be removed bronchoscopically, if it is small and mobile within the airway. However in a recent report, large broncholiths that cannot be removed by standard flexible or rigid bronchoscopic techniques could be extracted by bronchoscopic application of electrohydraulic or pulsed dye laser energy to fragment to stone (7). This new therapeutic intervention (broncholithotripsy) can diminish the need of major thoracic surgical procedures for treating broncholithiasis.

In conclusion, though new therapeutic intervention (broncholithotripsy) has been reported surgical resection is the preferred method for definitive therapy especially in cases with massive hemoptysis.

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