

Novel Approach for a Pulmonary Bronchogenic Cyst: A Report of a Case

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We present a case of a bronchogenic pulmonary cyst in a 48-year-old patient. We performed mucoclasia using argon laser photocoagulation following resection of mucosa, closure of some drainage bronchus, and covering of the inner surface by the intrapulmonary bronchogenic cyst with an absorbable vicryl mesh. At 4-year follow-up, the patient had no signs of recurrence. (Ann Thorac Cardiovasc Surg 2005; 11: 249–51)

Key words: bronchogenic cyst, surgical resection

Introduction

Bronchogenic cysts are congenital anomalies caused by abnormal bronchial development from the primitive ventral foregut, which arises from cells isolated from the main pulmonary branching when the lung bud separates from the primitive gut. Bronchogenic cysts have a wide range of clinical and radiologic manifestations. In infancy and early childhood, airway compression of the supple tracheobronchial tree often leads to symptoms and occasionally life-threatening complication. In adults, however, the diseases are often asymptomatic and are only incidentally recognized in radiologic findings. Even in such cases, however, surgical resection has been recommended, as intracystic infections often occur. We report herein a novel surgical approach for a bronchogenic cyst of the lung and discuss appropriate treatment strategies.

Case Report

A 48-year-old man complaining of cough and fever visited a private hospital in June, 2000. A chest X-ray and

chest computed tomography (CT) demonstrated a cystic lesion with fluid in the left lung, and he was therefore diagnosed as having a bronchogenic cyst with infection. A CT-guided needle aspiration revealed positive findings for a pathogen (*Hemophilus influenza*) in the fluid, and the patient underwent antibiotic chemotherapy. Because the physiological and radiological findings were not improved, he was referred to our institution for consideration of operative indications in July, 2000.

The patient had a history of allergies to a few antibiotics and analgesics, pneumonia at 36 years of age, hypertension until 47 years of age, and tobacco-smoking of 40-60 cigarettes per day for 20 years. The chest X-ray was abnormal, demonstrating a cystic shadow with an air-fluid level in the left lung field (Fig. 1), and CT of the thorax demonstrated a cystic lesion measuring 5×4 cm with a thickened wall, including fluids in the left lower lobe (Fig. 2A). A flexible fiberoptic bronchoscopy showed stenosis of the entrance of the left B⁶ segmental bronchus without mucinous discharge (Fig. 3).

The patient underwent a thoracotomy through the left postero-lateral incision. A cystic mass was found measuring 6×4.5 cm, with a thickened fibrous wall at the S⁶ of the left lower lobe. Following incision of the wall, mucinous fluid and the mucosal layer were removed by means of a scalpel knife. The inner surface of the cyst was ablated by argon laser photocoagulation for mucoclasia. Keeping the dip on the pulmonary parenchyma open, several drainage bronchi were closed, and

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Fig. 1. Standard posteroanterior chest X-ray demonstrating a cystic shadow with an air-fluid level in the left lung field.

the inner surface was covered with a vicryl mesh (vicryl mesh woven type; Polyglactin 910: ETHICON, INC., New Jersey).

The postoperative course was uneventful. The chest tube was removed on the 2nd postoperative day, and the patient was discharged from the hospital on the 27th postoperative day. The pathological examination confirmed a bronchogenic cyst based on the existence of ciliated cylindrical epithelial cells, smooth muscles, and cartilage

in the cystic wall. At the 10-month follow-up visit, the patient was asymptomatic, and a chest X-ray and CT showed no recurrent cystic lesions or intrathoracic infection (Fig. 2B).

Comment

Bronchogenic cysts of the lung originate from the foregut, as do such cysts in the mediastinum. The foregut cysts develop within the cleavage between the respiratory tract and the digestive tube. When they form early, they are located in the mediastinum by the trachea and esophagus or close to the carina and main bronchi. When they occur later, during bronchial budding and branching, they grow within the lung paraenchyma.¹⁾

Generally, such pulmonary bronchial cysts present in one of three ways: with symptomatic compression of adjacent intrathoracic structures in the infant; as asymptomatic radiographic findings; or as infectious complications related to the cyst in the adult.²⁾ Recent several reports have stated that 44-72% of cases are symptomatic, and that 30-65% of asymptomatic cases also become symptomatic during the course of observation.^{1,3)}

The treatment options of symptomatic cases currently available include fine needle aspiration for drainage and resection under thoracotomy or video-thoracoscopy such as wedge resection, segmentectomy, or lobectomy. The fine needle aspiration drainage is sometimes effective for decompression of cysts in acutely compromised or inoperative cases. However, a number of surgeons world wide

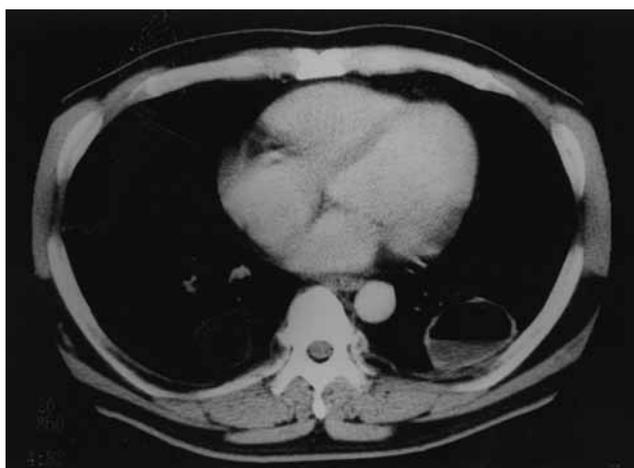


Fig. 2.

A: Computed tomography scan demonstrating a cystic lesion, measuring 5×4 cm, with a thickened wall, including fluids in the left lower lobe.

B: At the 10-month follow-up visit, computed tomography scan demonstrating no recurrent cystic lesions.

A | B

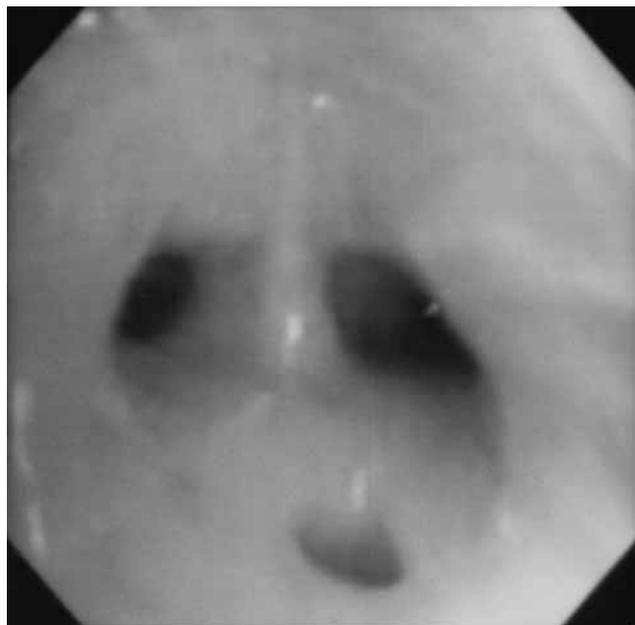


Fig. 3. A flexible fiberoptic bronchoscopy demonstrating stenosis of the entrance of the left B⁶ segmental bronchus without mucinous discharge.

advocate a complete removal by thoracotomy because of the possibility of recurrence of bronchogenic cysts and malignant degeneration with the residual epithelium.⁴⁾ Ribet et al. have reported that a lobectomy is the best choice because the cyst is often surrounded by areas of atelectasis and pneumonia, and that an anatomic segmentectomy is reasonable when the cyst is small in size.⁵⁾

Recently, several investigators have reported that even following incomplete excision of mediastinal cysts, recurrence can be prevented by ablating the residual tis-

sues with an electrocautery.⁶⁾ In the present case, we performed mucoclasia using argon laser photocoagulation following resection of mucosa, closure of some drainage bronchi, and covering of the inner surface by the intrapulmonary bronchogenic cyst with an absorbable vicryl mesh, which is required for a lobectomy by means of the usual resection strategy. No signs of recurrence have been observed in this patient in the 4-year period after surgery. We consider that this procedure could be very effective for treatment of intrapulmonary bronchogenic cysts, even for large-sized or symptomatic cases, although a careful follow-up is absolutely necessary.

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