Case report

Recurrent bronchogenic cyst causing recurrent laryngeal nerve palsy

David C. Rice*, Joe B. Putnam Jr

Department of Thoracic and Cardiovascular Surgery, The University of Texas MD Anderson Cancer Center, 1515 Holcombe Boulevard, Houston, TX 77030-4009, USA

Received 3 October 2001; received in revised form 27 November 2001; accepted 4 December 2001

Abstract

A case of a 50-year-old male who developed left recurrent laryngeal nerve palsy due to a bronchogenic cyst is presented. The bronchogenic cyst recurred following incomplete excision and multiple attempts at percutaneous aspiration. Recurrent laryngeal nerve palsy is an unusual complication of bronchogenic cysts. This case highlights the need for complete excision of these cysts and the lack of efficacy of cyst aspiration. © 2002 Elsevier Science B.V. All rights reserved.

Keywords: Mediastinal bronchogenic cyst; Recurrent laryngeal nerve

1. Case presentation

A 50-year-old man developed hoarseness in 1985 from a true left vocal cord paralysis. Computed tomography (CT) of the chest revealed a mediastinal cyst. He underwent a left thoracotomy and a partial excision of the lesion. Histology revealed a bronchogenic cyst. His voice improved, however, 12 years later he developed recurrent hoarseness and mild substernal discomfort. Imaging studies revealed recurrence of the bronchogenic cyst. CT-guided cyst aspiration and drainage improved the patient’s hoarseness. Three years later the patient experienced hoarseness again. Recurrence of the cyst was documented and aspiration was repeated with an improvement in the patient’s voice, however, within 6 months his symptoms had returned. The patient was subsequently referred to our institution. Physical examination was normal except for the presence of a true left vocal cord paralysis and a left thoracotomy scar. Chest X-ray and CT scan of the chest revealed two large cysts; one of which was located within the parenchyma of the left upper lobe, the other was located within the aortico-pulmonary window (Figs. 1 and 2). Both cystic lesions had air fluid levels within them. The two lesions were discrete and there was no apparent connection between them. The patient underwent pre-operative bronchoscopy which was normal.

A left muscle-sparing thoracotomy was performed. Two discrete cystic masses were identified. The smaller cyst was located within the posterior segment of the left upper lobe. It was surrounded by a dense fibrotic reaction, and upon division of the cyst wall, exuded a thick, viscous, chocolate-like material. The larger cyst lay within the aortico-pulmonary area and was densely adherent to the arch of the aorta, left pulmonary artery, left main bronchus, pericardium and the medial aspect of the left upper lobe. In order to completely resect both the cysts a left upper lobectomy was performed in addition to removal of a portion of pericardium. The vagus nerve was completely enmeshed within the fibrosis surrounding the cyst wall and was divided distal to the take-off of the recurrent laryngeal nerve, which was visualized and preserved. Both lesions were lined with ciliated columnar epithelium, confirming the diagnosis of a bronchogenic cyst. The patient’s post-operative course was uneventful, and he left the hospital on the 7th post-operative day. Despite preservation of the left recurrent laryngeal nerve, the patient had minimal improvement in his hoarseness, and ultimately required a medialization thyroplasty 9 months later.

2. Discussion

Bronchogenic cysts are congenital cystic lesions derived from abnormal budding of the primordial lung bud that occurs during the early development of the foregut. The majority of cysts are located within the middle or posterior mediastinum but up to 30% occur within the lung parenchyma [1]. Uncomplicated cysts are usually solitary thin-walled structures lined with ciliated columnar epithelium. Cyst fluid may either be thin and clear or may be viscous...
containing varying amounts of inspissated material and necrotic cells. Overt communication with the bronchial lumen is uncommon, particularly for mediastinal cysts, however, microscopic connections between the airway and the cyst frequently occur and may be a source of infection of cyst contents. Airway communication will present radiographically as an air fluid level. In the case presented, air fluid levels were probably the result of percutaneous aspiration rather than direct communication with the bronchial lumen, since they were not present on earlier CT scans. Furthermore, although hemorrhage into a cyst has been reported [1], it is a rare occurrence and the hemorrhagic contents that were evacuated at the time of surgery were also most likely related to percutaneous aspiration.

Between 50 and 75% of patients present with symptoms. Serious complications have been reported to occur in 25–37% of patients. Infection is the most common, but arrhythmias, pulmonary artery obstruction, severe hemoptysis, cyst rupture, superior vena cava syndrome and malignant transformation have been reported. The present case clearly demonstrates left-sided recurrent laryngeal nerve palsy caused by a mediastinal bronchogenic cyst, an unusual complication, which to the best of our knowledge has been reported on only one other occasion [2]. The etiology of the neuropraxia was likely external compression initially, since percutaneous decompressions of the cyst resulted in resolution of hoarseness on several different occasions. Repeated aspirations, however, probably resulted in pericystic and intracystic hemorrhage, which contributed likely to the intense regional fibrosis that was encountered. Although injury to the recurrent laryngeal nerve at the time of operation cannot be entirely disproved, this marked pericystic reaction probably contributed in large part to the persistence of the patient’s recurrent laryngeal nerve palsy post-operatively.

The frequent presence of symptoms, the possibility of serious complications if left untreated, and the danger of a missed malignant diagnosis are the reasons why surgical excision is the recommended treatment for all bronchogenic cysts [3,4]. Percutaneous aspiration may be readily performed but inevitably leads to recurrence of the cyst since the bronchial epithelium lining the cyst remains. Furthermore, cyst aspiration adds little diagnostic information, cannot effectively rule out malignancy, and may lead to complications such as infection and hemorrhage. Incomplete surgical excision is to be avoided since there have been numerous other reports of cyst recurrence after such procedures [5,6]. Thoracotomy is easily performed, results in excellent surgical exposure, has low morbidity and mortality and is the procedure of choice for complicated cysts. Newer, less invasive techniques such as thoracoscopic and mediastinoscopic [7] excisions have recently been advocated with seemingly good results, and may prove to be acceptable alternatives to thoracotomy for uncomplicated cysts.

References


