

Bronchogenic Cyst: An Uncommon Cause of Back Pain

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Abstract

Bronchogenic cysts, although rare, are one of the most common primary mediastinal masses; symptomatic presentation is infrequently seen in adults. Most adults with a bronchogenic cyst may go through life without knowing that they have one. We present a case of a symptomatic bronchogenic cyst in an adult female. Typically, bronchogenic cysts are located in the superior and medial aspects of the mediastinum; our patient presents with an extremely rare presentation. The cyst was adherent to both the esophagus and pericardial surface.

Keywords: Bronchogenic cyst; Back pain; Mediastinal cyst; Lung cyst; Thoracic cyst; C benign cyst

Case Report

A 55-year-old previously healthy Caucasian female presented to the emergency department (ED) with four days of back pain. The pain began near the angle of her right scapula and radiated to both shoulders and across her posterior neck. The patient had a history of chronic generalized back pain but stated that this pain was different; it was more intense and sharper than usual. The pain was exacerbated by laying supine and was not relieved with either ibuprofen or warm compresses. She denied chest pain, shortness of breath, nausea, vomiting, fevers, cough, dysphagia and hoarseness of her voice. There was no history of trauma, recent infections, recent travel or unexpected weight change. She reported a history of thoracentesis over ten years ago, due to a right-sided pleural effusion of unknown origin. She was not on any medications and reported no allergies. Her social history and family history were not contributory.

Her initial vital signs were a blood pressure of 160/100 mmHg, heart rate of 58 beats per minute, respiratory rate of 24 breaths per minute with an oxygen saturation of 98% on room air and an oral temperature of 36.7°C. The patient was a well appearing woman who was not in any apparent distress. Her physical exam, including the neurological exam, was unremarkable. There was no localized tenderness to palpation overlying the areas of described discomfort or deformity of her spinal column.

Laboratory tests were obtained and were significant for a white blood cell count of 16,100/uL and a mildly elevated Troponin I of 0.079 ng/mL with a normal electrocardiography. It is unknown why her Troponin levels were elevated; however, her levels trended down over the course of the next several days. The rest of her laboratory results were all within normal range. Chest radiograph (CXR) was significant for an enlarged transverse diameter of the cardiac silhouette. Lung fields were clear and without effusions (Figure 1). A computed tomography (CT) scan with intravenous contrast was performed to further evaluate the abnormal finding on the CXR and was significant for a 9.1 cm cyst adjacent to the posterior aspect of the pericardium (Figure 2). Echocardiography showed an approximately 8 × 9 cm non-septated cystic appearing structure adjacent to the left atria, best seen in the apical 4-chamber view (Figure 3).

A video-assisted thoracoscopic surgery (VATs) found the cyst in the lower lobe of the right lung. It was adherent to both the esophagus and the pericardial surface without evidence of airway obstruction, esophageal compression or displacement of major mediastinal vessels. A total of approximately 800 mL of yellow cloudy fluid was drained. Histopathological examination confirmed it to be a benign bronchogenic cyst. There were no reported complications from the VATs and the patient was discharged home 6 days later in good condition.

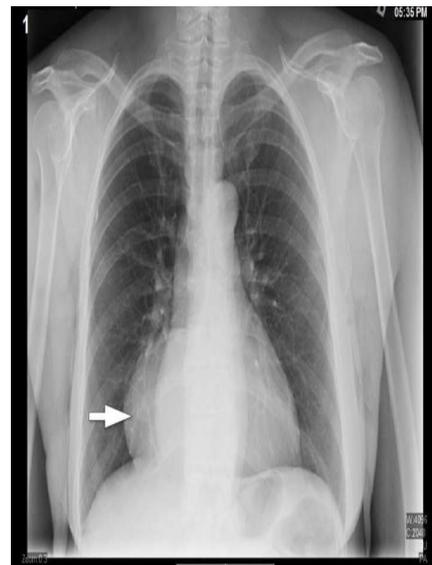


Figure 1: CXR PA view showing widened transverse diameter of cardiac silhouette.

Discussion

Bronchogenic cysts are rare congenital abnormalities that account for 5-15% of all primary mediastinal masses [1-6]. They arise during the primitive foregut development between the 3rd and 6th weeks of gestation along the tracheobronchial tree usually within the carina [2-8]. Histologically, bronchogenic cysts are lined by cells similar to respiratory tract epithelium and can contain mucoid material of variable viscosity and color [7-9]. Typically they are located on the superior and medial aspects of the mediastinum. Rarely, they have also been found in the intra-parenchymal, subcutaneous, intra-abdominal, pelvic and retroperitoneal regions [3,10-12].

Symptoms vary with age and are largely dependent upon size and location [13]. There appears to be a bimodal age peak for symptom-

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Figure 2: CT angiography of chest with IV contrast showing posterior cyst in soft tissue window.



Figure 3: Posterior cyst visualized in apical 4-chamber view.

atic presentation. Most commonly they are symptomatic in children younger than 6 and adults aged 40-60, with a male predominance [6,8,14]. As many as two-thirds of children develop symptoms due to compression of respiratory structures.5 Bronchogenic cysts in this population are potentially more life threatening due to the smaller thoracic cavity and softer more narrow airway of children when compared to adults. Patients may present with stridor and recurrent pulmonary infections. Severe compression has even been noted to cause death in neonates and infants [15].

In adults, despite the potential to grow to relatively large sizes, most are asymptomatic and are often discovered incidentally [4,5]. Symptomatic patients often have larger sized masses ranging from 7-13 cm. Patients typically present with chest pain, dyspnea, cough, fever, and vocal hoarseness. Complications include recurrent respiratory obstruction, fistulae formation and cyst cavity haemorrhage [4,7,9,13,16,17].

Although rare, fistulae formation is important to consider in a patient with recurrent and chronic pulmonary sepsis; in a small percentage of patients, these fistulas allow bacterial propagation into the respiratory tract [1,7,13,15,16]. Other less commonly reported complications include superior vena cava syndrome, arrhythmias, pulmonary artery obstruction, pneumothorax, hemoptysis, esophageal compression and cyst rupture [1,8,13,15]. A few case reports have noted associated metastasia and malignant transformation of these cysts; however, this remains controversial and requires further studies [2,8].

For symptomatic patients, VATs to enucleate and devitalize the cyst wall is definitive treatment [5]. In asymptomatic individuals diagnosed incidentally, surgical intervention is recommended to prevent future complications, as described above [4,6,14,18]. Post-operative prognosis is exceptional [6,15].

This was a unique case of a symptomatic bronchogenic cyst in a middle-aged female presenting with back pain. Seventy-five percent of patients with bronchogenic cysts are asymptomatic [13]. Many are diagnosed incidentally during exploration of other diseases. In cases where patients present with a symptomatic cyst, back pain is not considered one of the most common presentations. Approximately 2.4% of all ED visits per year are for the chief complaint of back pain [19]. Over 90-95% of patients presenting with back pain have non-life threatening diagnoses [19]. Differential diagnosis that we typically consider are musculoskeletal strain or spasm, vertebral dysfunction, disc disease, thoracic aneurysms or dissections, spinal metastasis and spinal epidural abscess or hematoma. Bronchogenic and mediastinal cysts should perhaps be considered more frequently. Despite her history of chronic back pain, our patient presented with symptoms atypical of her usual pain, which we suspect may have been caused by expansion of the cyst. Theoretically this is caused by stretching of nerves in the parietal pleura by an enlarging cyst [13]. To date, there have only been a few reported cases of back pain associated with the occurrence of a bronchogenic cyst [3]. In our patient, removal of the inciting agent lead to complete resolution of her symptoms after a six-month follow-up.

In most adult patients, bronchogenic cysts are not acutely life threatening; however, they have the potential to lead to long-term morbidity and mortality if they are left undiagnosed. Although rare, mediastinal cysts such as ones of bronchogenic origin should be considered in the differential diagnosis of patients presenting with undifferentiated back pain.

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