

Case Report

Mediastinal bronchogenic cyst with back pain

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Abstract

We report a case of a mediastinal bronchogenic cyst with back pain. The rarity of this lesion and even the more uncommon association of this lesion with symptoms of back pain prompted the report of this case.

Keywords: Back pain, bronchogenic cyst

Résumé

Nous signaler le cas d'un kyste Bronchogenic médiastinaux avec des douleurs dorsales. La rareté de cette lésion et même l'association plus rare de cette lésion présentant des symptômes de douleurs dorsales invité le rapport de cette affaire.

Mots-clés: Bronchogenic cyst; les douleurs dorsales

Introduction

Bronchogenic cysts, although relatively rare, represent the most common cystic lesions of the mediastinum.^[1,2] In infants and small children, these cysts can be life threatening. When they compromise the respiratory system in infant, initial presentation may be respiratory distress.^[3-6] Over half of the patients are asymptomatic.^[1] Diagnosis usually occurs on antenatal sonography, routine chest radiography, and during evaluation for gastrointestinal or cardiac symptomatology.^[1] Bronchogenic cysts are the result of anomalous development of the ventral foregut and lung budding during the first trimester; they are usually single but may be multiple. They have been found all along the tracheoesophageal course, in perihilar or intraparenchymal sites, with predilection for the area around the carina.^[1,2,7] They have also been described in more remote locations, including the interatrial septum, neck, abdomen and retroperitoneal space.^[7]

The rarity of this lesion and even the more

uncommon association of this lesion with symptom of back pain prompted the reporting of this case.

Case Report

A 31-year-old school teacher who presented at Medical emergency unit of the University College Hospital, Ibadan, on account of severe upper back pain radiating to both shoulders and did not respond to analgesic. There was no history of trauma to the back. There was also no history of cough or difficulty in walking. There was no history of breathlessness, chest pain or difficulty in swallowing. He was not a known hypertensive or diabetic. He did not smoke or drink alcohol. The review of systems and family and social history were not contributory. The examination revealed a young man, not pale, afebrile, with a pulse rate = 90 beats/minute and blood pressure = 110/70 mm Hg. The musculoskeletal systems showed normal muscle bulk with power of Grade 5 in all the limbs. There was no localized tenderness or swelling along the spine. Other systems were essentially normal.

The working diagnosis was severe upper backache with query cause. Dorso-lumbar spine lateral and anterior projection showed no abnormality.

Abdominal ultrasonography showed normal liver, pancreas, gall bladder, spleen and both kidneys. Chest radiograph showed a uniformly dense opacity occupying the midzone of the right lung; the lateral projection showed a walled opacity with multiple cystic shadows seen within it in the anterior mediastinum [Figure 1]. The barium swallow showed normal esophagus with no evidence of compression of the esophagus [Figure 2]. Chest computerized tomography (CT) showed a localized isodense mass in the right midzone with well-defined superior and inferolateral border. It was difficult to separate the medial border from the heart, which indicates that it was an anteriorly situated mass. There was also compression of the upper and lower right bronchus [Figure 3].



Figure 1: Chest radiograph showed a uniformly dense opacity occupying the mid zone of the right lung, the lateral projection showed a walled opacity with multiple cystic shadows seen within it in the anterior mediastinum



Figure 2: The barium swallow showed normal oesophagus with no evidence of compression

The radiologic differential diagnoses included: 1. bronchogenic cyst, 2. carcinoma of the bronchus and 3. right atrial aneurysmal dilation.

Echo cardiogram showed that the mass was separate from the right atrium. Therefore, right atrial aneurysmal dilation was excluded.

At surgery (thoracotomy), the tumor was localized on the parietal pleural in the right anterior mediastinum and was movable in the chest cavity. The tumor was resected and the pathologic diagnosis was bronchogenic cyst. Patient's operative condition was satisfactory. The backache subsided after the surgery and he was discharged home for follow up at cardiothoracic surgery clinic.

Discussion

In the United States, this rare congenital malformation represents 6–15% of primary mediastinal masses.^[2] Ribet *et al*^[2] reported a postoperative morbidity of 13.4%. This series included 45 adult and 24 pediatric cases over a 25-year period at the University of Lille in France. There is no predilection to sex and more than 50% cases are diagnosed in patients older than 15 years.^[7,8] The case presented is a 31-year-old male patient.

Chest pain and dysphagia are the most common symptoms in symptomatic adults. In infants, symptoms are most often produced as a result of airway or esophageal compression.^[1,3,9] The patient in this case report, presented with severe backache; this symptom is very rare in a patient with bronchogenic cyst. The extensive search through the literature revealed only one similar case reported by Umemory *et al*^[10] who documented that the back pain was caused by a stimulus of a nerve in



Figure 3: Chest Computerised Tomography showed a localized isodense mass in the right mid zone with well defined superior and inferolateral border. There was also compression of the upper and lower right bronchus

parietal pleura.

Aktogu *et al*^[9] reported superior venacava syndrome, tracheal compression, pneumothorax, pleurisy and pneumonia in a series of 30 adult patients. Bronchogenic cyst should also be considered in patients with recurrent pulmonary infections.^[9] Intra abdominal cysts are rare and as with mediastinal variety, most are asymptomatic, which is similar to this case report presented, with no chest syndrome. However, hemorrhage, infection and compression of adjacent structures can be observed.^[7] The presence of symptoms is important in preoperative assessment because symptomatic patients are more likely to have perioperative difficulties.^[8] Rebet *et al*^[2] reported that 70.8% of children were symptomatic because 75% of the cysts were in a critical area around the level of the carina. Approximately 60% of adults in this series were symptomatic and 53% of those mediastinal cysts were at or above the carina. Partial obstruction of the trachea or bronchus with resultant emphysema may occur, and case reports exist in which Swyer-James syndrome and asthma were initially considered.^[8] Less frequently, communication may develop between the cyst and the airway.^[2] Cyst-related complications such as infection, rupture, bleeding and compression are common.^[1] A risk of malignant degeneration such as adenocarcinoma and rhabdomyosarcoma has been reported.^[8] No evidence of complication was reported in this case presented.

The imaging studies include conventional 2-view chest radiography and barium swallow, which are often sufficient to support a preoperative diagnosis. Additional clarification may be obtained using CT and magnetic resonance imaging (MRI) studies. Conventional 2-view chest radiography typically shows a sharply demarcated spherical mass of variable size, most commonly located in the middle mediastinum around the carina. When the cyst is infected or contains secretions, it may appear as a solid tumor or it may demonstrate an air fluid level. A barium swallow helps to define the mass and its effect on adjacent structures. On chest CT, cysts appear as lesions with smooth borders and thin walls and may contain secretion, pus or blood. Calcification may also be observed. The case presented here showed a well-localized anterior mediastinal mass with no evidence of calcification. MRI may show a homogenous mass of moderate-to-bright intensity on T2-weighted MRI. On T1-weighted images, lesions may vary in their intensity because of their protein content. The finding on CT or MRI of a cystic lesion at the level of the carina is most frequently associated with a bronchogenic cyst; however, the mass is located in the anterior

mediastinum in this case report, whereas in all other locations diagnosis cannot be as reliably forecast.^[8] Kanemitsu *et al*^[1] reported the imaging studies in a series of 17 patients seen at National Cancer Hospital in Tokyo between 1966 and 1996; chest radiographs were found to be ineffective for accurate preoperative diagnosis, but accurate diagnosis was possible with 69.2% of CT scans and 100% of MRI scans. MRI also proved to be very useful for qualitatively diagnosing the mediastinal tumors as cystic or solid.

The treatment for bronchogenic cyst is complete surgical excision. Recurrence, though rare, is associated with incomplete excision.^[11]

Conclusion

A case of a 31-year-old man with congenital bronchogenic cyst associated with severe back pain has been presented. The diagnosis made by chest radiograph and chest CT was confirmed by pathology. The clinical presentation, radiologic features and treatment of bronchogenic cyst have been discussed. Literature has also been reviewed.

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