Spontaneous Rupture of a Giant Intrapericardial Bronchogenic Cyst

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Bronchogenic cysts arise from an abnormal budding of the ventral diverticulum of the foregut or the tracheobronchial tree during embryogenesis. They are rarely found intrapericardially. Herein, we report the case of a 43-year-old man who presented with a ruptured intrapericardial bronchogenic cyst (IBC), with aggravating symptoms of chest tightness and shortness of breath. The cyst was completely resected, and the patient’s postoperative recovery was uneventful. This is the first report with radiologic evidence of an IBC that ruptured, rapidly releasing cystic liquid into the pericardium and exacerbating the patient’s symptoms. These results argue for the complete surgical excision of an IBC at the time of diagnosis, even if the patient is asymptomatic.

Comment

Bronchogenic cysts are the most common congenital cystic lesions of the mediastinum and are derived from the primitive foregut. The ventral segment of the foregut gives rise to the trachea [1]. Bronchogenic cysts may appear in various locations during embryogenesis [5], which includes pericardium [6, 7]. Here we report the case of a patient with an IBC, as confirmed by surgery and pathologic analysis.

In our study, surgical exploration verified that the cystic lesion was located intrapericardially. The minimal amount of liquid found in the thoracic cavity was easily distinguished from the pericardium effusion, which is often muddy rather than yellow in color. These 2 types of effusion are anatomically separated, which allowed us to conclusively identify this cyst as intrapericardial.

A 46-year-old man presented with a 7-month history of mild shortness of breath at the cardiac department of the local hospital on November 2, 2012. He reported no cough, fever, or chest pain. The electrocardiogram examination revealed a sinus rhythm and a heart rate of 89 beats per minute. The chest computed tomography (CT) scan demonstrated a large cystic mass of 10 cm × 8 cm × 7 cm in size and also revealed a close relationship between the cystic lesion and the pericardium, heart, and pulmonary arteries (Fig 1). The patient was advised to see a thoracic surgeon. On the first day of admission to our surgical unit, he experienced a sudden onset of chest pain and his shortness of breath worsened. Ultrasonography of the heart revealed moderate pericardium effusion. At that point, lesion rupture was suspected. A contrast CT scan of the chest confirmed our suspicion (Fig 2). We then performed a thoracotomy. During the operation, a minimal amount of clear liquid was found in the thoracic cavity. The lesion was mainly limited to the pericardium and presented as a ruptured cystic mass in the pericardium. Part of the cystic lesion wall adhered firmly to the pericardium and atrium. About 200 mL of sticky, yellow fluid flowed out once the pericardium was opened. The majority of the cyst excluding an area adherent to the atrium was removed. Pathologic examination confirmed our suspicion of an intrapericardial bronchogenic cyst that was lined by ciliated columnar epithelia (Fig 3). The patient reported no discomfort at the time of follow-up.

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Unlike the bronchogenic cysts in other areas of the mediastinum, most IBC patients present with mild or moderate symptoms that include shortness of breath and chest pain, sometimes in association with arrhythmia. The severity of the patient’s discomfort correlates with the location of the cyst, its size, and the extent to which the heart and great vessels are compressed [3]. In the case presented here, the patient’s symptoms were triggered by sudden rupture of the lesion. Rupture of the cyst and the ensuing inflammatory response contributed to the observed pericardial effusion. These conditions may have led to cardiac tamponade or acute pericarditis if we had not intervened [4, 5].

Pericardial effusion is a common presentation of many systemic diseases. When the cyst ruptures, the patient’s symptoms could be mistakenly attributed to acute pericarditis due to bacterial or viral infection, pericardium tuberculosis, or other infectious diseases. This would have delayed diagnosis as well as treatment. It is important to consider intrapericardial bronchogenic cyst in the patient’s differential diagnosis [5].

The conventional protocol dictates that all suspected bronchogenic cysts be removed if the patient is operable because complete surgical resection helps to establish a diagnosis, alleviate symptoms, and prevent complications [8]. This logic applies to IBC patients as well, due to the risk of rupture and ensuing cardiac tamponade or death. A radical resection is most likely to prevent recurrence.

In conclusion, although an IBC is a benign tumor, surgery may be necessary to avoid vital complications such as pericardial effusion, cardiac tamponade, and acute pericarditis. Surgical resection of the lesion should be recommended as the primary choice even when the cyst is discovered incidentally. Finally, IBC rupture should be included in the differential diagnosis of a patient who presents with pericardial effusion.

References