Case report - Thoracic non-oncologic

Video-assisted mediastinoscopic resection of a large symptomatic bronchogenic cyst

Jan Lesaffer\(^a, x\), Birgit Heremans\(^b\), Paul De Leyn\(^c\), Dirk Van Raemdonck\(^a\)

\(^a\)Department of Thoracic Surgery, University Hospital Leuven, Herestraat 49, 3000 Leuven, Belgium
\(^b\)Department of Radiology, University of Leuven, Leuven, Belgium

Received 4 December 2010; received in revised form 8 February 2011; accepted 16 February 2011

Abstract

Bronchogenic cysts are congenital lesions from the primitive foregut, mostly located in the mediastinum. Surgical excision in symptomatic cases is often challenging. Video-assisted mediastinoscopy offers a safe and effective approach with less morbidity and shorter hospital stay compared to open sternotomy or posterolateral thoracotomy. We describe a case of a young female with a large symptomatic cyst located in the superior mediastinum. The cyst was completely removed through a video-assisted cervical mediastinoscopy.

Keywords: Mediastinoscopy; Bronchogenic cyst; Minimally-invasive surgery

1. Introduction

Bronchogenic cysts, although a rare congenital pathology, represent the most common cystic lesions of the mediastinum [1, 2]. Although there is still controversy about the management of asymptomatic cases, symptomatic cases need to be treated. Complete surgical excision is indicated to prevent local recurrence. In the era of minimally-invasive surgery, video-assisted mediastinoscopy plays an upcoming role as a therapeutic tool.

2. Case report

A 23-year-old female was referred to our department complaining of stridor, hoarseness and cough. The complaints were clinically diagnosed and treated as asthma. Since the progressive nature of her respiratory complaints further examination was needed. A computed tomography (CT)-scan revealed a large isolated cystic structure in the middle mediastinum with compression of the right pulmonary artery (Fig. 1), left atrium and both main stem bronchi (Fig. 1), suggesting a diagnosis of bronchogenic cyst. Surgery was indicated.

After single lumen intubation, surgery was performed by a video-assisted mediastinoscopy through a transverse cervicotomy. Inspection confirmed the CT finding of a cystic mass with a thick wall located superior in the mediastinum. The cyst was mobilized with blunt and sharp dissection. The cyst was adhered to the pericardium which was perforated during dissection. During dissection care was taken to avoid nerve injuries. Aspiration of the cyst content revealed a mucinous fluid which was sent for microbiology. The entire cyst was removed under direct vision (Fig. 2). The intervention was completed without the application of a surgical drain. Total duration of the operation was 150 min.

The postoperative course was uneventful and the patient was discharged on the second postoperative day. Pathologic examination confirmed the diagnosis of a congenital bronchogenic cyst. During follow-up the patient remained symptom free.

3. Discussion

Bronchogenic cysts are congenital lesions from the abnormal budding of the primitive foregut during the first trimester of gestation and are the most common primary cysts of the mediastinum. They are lined by ciliated epithelium and have focal areas of hyaline cartilage, smooth muscle, and bronchial glands within their walls. Most commonly they are located within the mediastinum. Most of the other cysts involve the lung parenchyma when arising at a later stage of development. Atypical locations include paratracheal, cutaneous, lingual, supraclavicular, supravacularicular, intrapericardial, spinal, abdominal areas, and the neck [3].

The first case of bronchogenic cyst was reported by Meyer in 1859 [4]. Since then many reports of symptomatic and asymptomatic bronchogenic cysts in both children and adults were published.

Bronchogenic cysts have a wide range of clinical manifestations. Not only in infants and small children, also in adults they can be life-threatening by producing compression, infection, hemorrhage and rupture [2]. Frequently, bronchogenic cysts are found incidentally on a chest radiography [4]. Management of the asymptomatic cysts...
remains controversial [1]. Some believe that surgical excision of asymptomatic bronchogenic cyst is recommended to prevent complex surgery once they become infected or symptomatic and have greater risk of complications [2, 5]. Others believe that asymptomatic cysts are of little clinical importance and should be observed [4]. Although the natural history of bronchogenic cysts remains unknown most of the asymptomatic bronchogenic cysts become symptomatic when observed [6].

Symptoms are usually related to cyst infection or compression of mediastinal structures with cough, dyspnoe, pain, recurrent infection and dysphagia being the most common presentations. Other complications include extrinsic pulmonary artery stenosis, superior vena cava obstruction, pericardial tamponade, arrhythmias, unilateral pulmonary edema, obstructive emphysema, bronchial atresia, hypoplastic pulmonary artery, pneumothorax, pleural effusion and carcinomatous or sarcomatous change [4].

In symptomatic cases management is indicated. Since transcutaneous, transbrachial or transoesophageal aspiration are often associated with a high rate of recurrence, complete surgical excision remains the treatment of choice. The mediastinum is one of the most anatomically complex regions of the body and its relative inaccessibility makes surgery for mediastinal disease very challenging. In the past, surgical excision was approached through a posterolateral thoracotomy or median sternotomy. In the era of minimal invasive surgery video-assisted thoracic surgery (VATS) seems to be the golden standard approach. However, in cases of uncomplicated bronchogenic cysts located in the superior mediastinum video-assisted mediastinoscopy has been reported as a safe and effective approach with reduced morbidity [7, 8].

Cervical mediastinoscopy plays an important role in the mediastinal staging of lung cancer. But considering our case and other previously reported cases it can represent an important therapeutic tool in superior mediastinal disease. We can also add the advantages of video-assisted mediastinoscopy: increased visual field, possibility of bimanual handling, improvement of endoscopic instruments and the use of video-assisted mediastinoscopy as a training tool [9].

Prognosis of bronchogenic cysts after complete removal is excellent. However, late recurrences have been described after incomplete excision [10].

In conclusion, our case shows that video-assisted cervical mediastinoscopy is a safe and feasible therapeutic tool even in more difficult accessible bronchogenic cysts considering the adhesions to the pericardium. This approach has certainly the advantage of reduced morbidity compared with open removal through a median sternotomy or thoracotomy.

References