doi:10.1510/icvts.2010.235242

INTERACTIVE CARDIOVASCULAR AND THORACIC SURGERY

Interactive CardioVascular and Thoracic Surgery 11 (2010) 335–336

www.icvts.org

Case report - Thoracic non-oncologic

Video-assisted mediastinoscopic resection of two bronchogenic cysts: a novel approach

Felice Granato*, Luca Luzzi, Luca Voltolini, Giuseppe Gotti

Department of Cardio-Thoracic and Vascular Surgery, Thoracic Surgery Unit, University Hospital of Siena, Siena, Italy

Received 11 February 2010; received in revised form 8 May 2010; accepted 18 May 2010

Abstract

The treatment of bronchogenic cysts (BCs) is still controversial. Many authors advocate the complete surgical excision of cysts [by video-assisted thoracoscopic surgery (VATS) or thoracotomy] to prevent their high rate of recurrence. Nevertheless, some recent works have attracted attention to a less invasive endoscopic management of benign mediastinal cysts. Here, we report a novel, safe, effective and minimally invasive mediastinoscopic technique used in the complete resection of two mediastinal BCs. We believe that this approach can be applied, with some restrictions: lesions located in the superior mediastinum, absence of severe adhesions, absence of infection, no previous mediastinal surgery. More experience of mediastinoscopic treatment of BCs is needed in order to better define its indications, contraindications, risks and complications.

Keywords: Bronchogenic cyst; Mediastinoscopy; Congenital lesions

1. Introduction

The treatment of bronchogenic cysts (BCs) is still controversial. Many authors agree on complete surgical excision to prevent recurrence and establish a histological diagnosis [1, 2]. Video-assisted thoracoscopic surgery (VATS) seems to be the golden standard approach in the absence of severe adhesions to the surrounding mediastinal organs [3]. Here, we report a novel and minimally invasive video-assisted mediastinoscopic technique used in the resection of two BCs of the superior mediastinum.

2. Cases

2.1. Case 1

A 74-year-old man with a persistent cough, was referred to our Institute following a computed tomography (CT)-scan revealing a low-density oval lesion of the superior mediastinum associated with subcarinal lymphadenpathy. The patient had a history of urothelial carcinoma and pulmonary silicosis. A thoracic magnetic resonance imaging (MRI) showed a cystic mass of 5-cm with an homogenous liquid content, suggesting a diagnosis of BC. Surgery was indicated.

After single lumen intubation, surgery was performed by video-assisted mediastinoscopy (Wolf Company®, Richard Wolf GmbH, Knittlingen, Germany) through a 3-cm transverse cervicotomy. Inspection confirmed the CT finding of a cystic mass with a thickened fibrous wall, measuring 5×3 cm, located in the superior mediastinum at the level of the carina (Fig. 1). Aspiration of the cystic content revealed a mucinous fluid which was sent for microbiological examination. The lesion was then resected by separating its wall from the tracheal surface and mediastinal fat, performing a smooth dissection by hook electrocautery; particular care was taken in order to avoid nerve injuries. Superior and inferior vascular bundles were identified and cut following the application of endoclips (5 mm). Haemostasis and mucoclasis were achieved by argon laser photocoagulation. The intervention was completed without the application of a surgical drain; the postoperative course was uneventful and the patient was discharged on the third postoperative day. CT-scans were performed at six- and 12-month follow-up and no evidence of cyst regrowth was found.

2.2. Case 2

A 48-year-old woman with no history of previous malignancy was referred to our attention complaining of fever and dysphagia lasting one week. A chest X-ray demonstrated an enlargement of the right mediastinal profile and a CT-scan revealed a solid mass of 3×4 cm in the right Barety space. The indication for videomediastinoscopy was made due to the clinical suspicion of lymphoproliferative disease. The procedure was performed according to the approach described above. Endoscopic examination of the right paratracheal area revealed the presence of a cystic mass with

*Corresponding author. Viale Bracci 1, Siena 53100, Italy. Tel.: +39-0577 585731; fax: +39 0577 586140.

E-mail address: felicegranato@yahoo.it (F. Granato).

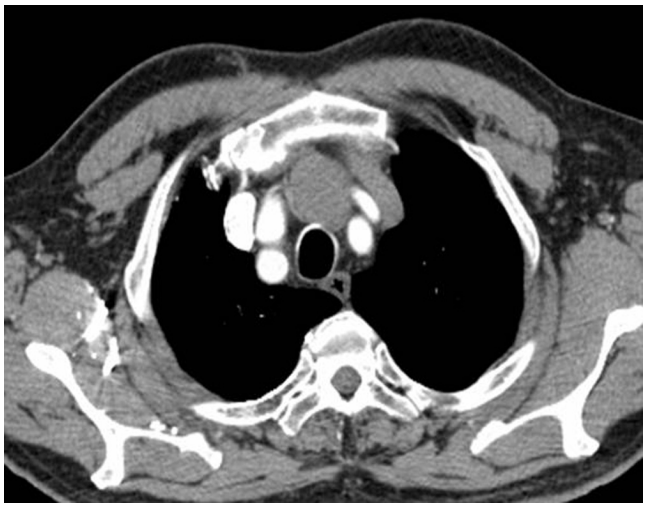

Fig. 1. CT finding of the cystic mass on the upper mediastinum.

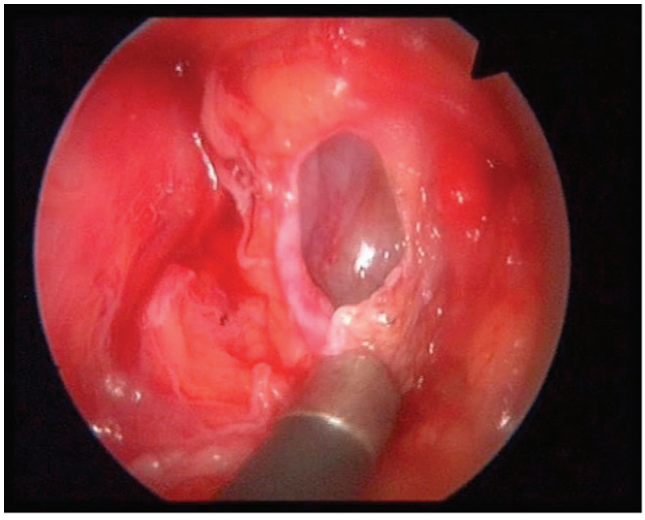

Fig. 2. Endoscopic view of cyst's mucosal surface.

a yellow–white viscous fluid content; the liquid was completely aspirated and a biopsy of the cystic wall was sent for intraoperative examination, resulting in the diagnosis of a BC. Endoscopic exploration of the cyst confirmed the presence of a thick mucosal inner surface (Fig. 2). The lesion was therefore removed with smooth dissection by hook electrocautery. The small residual cystic wall adhering to the trachea and mediastinal vessels was ablated by argon laser photocoagulation for mucoclasis. No tube drainage was applied. There were no postoperative complications. CT follow-up showed no recurrence after six months.

In both cases, pathological examination confirmed the diagnosis of a BC. Microscopically, ciliated cylindrical epithelial cells, smooth muscle cells and cartilage were identified in the cystic wall. No evidence of infection was found.

3. Discussion

BCs are congenital lesions developing from the abnormal budding of the primitive foregut during the second to the fourth week of gestation. They may locate within the mediastinum or lung parenchyma depending on the timing of this abnormal growth. Common symptoms are coughing, dyspnoea, chest pain and sputum. Chest X-ray, CT and MRI are mainly used in the diagnosis of BC. CT is useful in defining the localization of BC but has limited value in determining the characteristics of cystic content [4]. In particular, in case 2 the CT-scans showed high density cystic content, suggesting a solid tumour.

With mediastinal BCs, most surgeons indicate the necessity for early treatment in order to avoid complications due to infections and subsequent severe adhesions that can lead to more complex surgery, and to prevent the small risk of malignant transformation [4, 5]. There is a general lack of agreement concerning the utility of a conservative approach, such as fine needle aspiration (FNA) because it does not obliterate the lining and is generally only reserved in the management of recurrences, acute compression and inoperable patients. As a result, many authors advocate the complete surgical excision of cysts (by VATS or thoracotomy) to prevent their high-rate of recurrence [6–8]. Nevertheless, some recent works have attracted attention to a less invasive endoscopic management of benign mediastinal cysts [8, 9].

In the two cases reported above, we experimented a novel, safe, minimally invasive and effective approach for the treatment of mediastinal BCs. To the author's knowledge, these are the first two cases to be described of completely video-assisted mediastinoscopic removal of BC. We believe that this technique can be applied, with some restrictions: lesions located in the superior mediastinum, absence of severe adhesions, absence of infection, no previous mediastinal surgery. When surgical removal is not possible, this method can be used as an initial and minimally invasive approach to obtain a histological diagnosis. More experience of mediastinoscopic treatment of BCs is needed in order to better define its indications, contraindications, risks and complications.

References

[1] Ribet ME, Copin MC, Gosselin BH. Bronchogenic cysts of the lung. Ann Thorac Surg 1996;61:1636–1640.
[2] Bolton JW, Shahian DM. Asymptomatic bronchogenic cysts: what is the best management? Ann Thorac Surg 1993;53:1134–1137.
[3] Weber T, Roth TC, Beshay M, Herrmann P, Stein R, Schmid RA. Video-assisted thoracoscopic surgery of mediastinal bronchogenic cysts in adults: a single-center experience. Ann Thorac Surg 2004;78:987–991.
[4] Granato F, Voltolini L, Ghiribelli C, Luzzi L, Tenconi S, Gotti G. Surgery for bronchogenic cysts: always easy? Asian Cardiovasc Thorac Ann 2009;17:467–471.
[5] Miralles Lozano F, Gonzalez-Maritez B, Luna More S, Valencia Rodriguez A. Carcinoma arising in a calcified bronchogenic cysts. Respiration 1981;42:135–137.
[6] Patel RS, Meeker DP, Biscotti CV, Kirby TJ, Rice TW. Presentation and management of bronchogenic cyst in the adult. Chest 1994;106:79–85.
[7] St-Georges R, Deslauriers J, Duranceau A, Vaillancourt R, Deschamps C, Beauchamp G, Pagé A, Brisson J. Clinical spectrum of bronchogenic cysts of the mediastinum and lung in the adult. Ann Thorac Surg 1991;52:6–13.
[8] Galluccio G, Lucantoni G. Mediastinal bronchogenic cyst's recurrence treated with EBUS-FNA with a long term follow-up. Eur J Cardiothorac Surg 2006;29:627–629.
[9] Burjonrappa SC, Taddeucci R, Arcidi J. Mediastinoscopy in the treatment of mediastinal cysts. JSLS 2005;9:142–148.