

Case report

Mediastinal bronchogenic cyst's recurrence treated with EBUS-FNA with a long-term follow-up

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Abstract

Bronchogenic cysts are congenital abnormalities generally mediastinal and are frequently detected incidentally. We report a case of a symptomatic mediastinal cyst treated previously by video-assisted thoracoscopy (VATS) but complicated by pericystic adhesions. The subsequent incomplete excision led, after 8 months, to a cyst's recurrence that was accurately drained by endobronchial ultrasonography-guided fine needle aspiration (EBUS-FNA), with no new regrowth after 18 months. We hypothesized that the support of a high-definition diagnostic tool (EBUS) improved the FNA ability to make a deep and complete aspiration of the cyst. The usefulness of FNA in bronchogenic cyst's treatment is underestimated. Our experience is an attempt to encourage the use of EBUS-FNA as a new therapeutic option in the management of bronchogenic cyst.

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1. Introduction

The management of bronchogenic cyst is controversial, many authors consider the simple aspiration as a form of treatment that can lead to a high recurrence rate and indicate the surgical excision as mandatory. We report our experience in which we combined a standardized procedure of drainage (fine needle aspiration (FNA)) with a new diagnostic tool able to improve its yield, showing no regrowth after long-term follow-up.

2. Case report

A 50-year-old woman presented with dysphagia, dyspnea, and cough. Chest X-ray showed a right mediastinal mass. Chest computed tomography (chest-CT) revealed a 4 cm × 4 cm lesion with a typical homogeneous water density (20 Hounsfield Units) adjacent to the anterior tracheal wall (Fig. 1a). Surgery was performed on January 2003. The patient underwent mass resection by video-assisted thoracoscopy (VATS). The excision was incomplete because of pericystic adhesions to the tracheal wall; a small patch was left in place. The cyst was filled with a mucoid material

without signs of purulence; the histological findings were consistent with a bronchogenic cyst.

A new cystic recurrence, localized at the same place, was found at a CT control 8 months later (Fig. 1b). After informed consent, the patient underwent EBUS-guided FNA for a complete aspiration of the cyst.

We performed a fiberoptic bronchoscopy using a flexible bronchoscope (Olympus BF B3) equipped with a 20 MHz flexible probe connected to an endoscopic ultrasound system EU-M30 (Olympus, Tokyo, Japan). The use of a water-filled balloon permitted a perfect adhesion with the inner surface of the wall (Fig. 1c). During the procedure, a round hypoechoic structure, with ultrasound characteristics suspicious for a cystic lesion, was observed adjacent to the anterior wall of the trachea. After localization of the cyst, FNA was performed, in the same place indicated by EBUS, using a 22-gauge full length steel needle for its complete drainage.

According to literature, the patient received an antibiotic prophylaxis before and after EBUS-FNA in order to avoid infective side effects [1].

After 7 days, the patient underwent a second EBUS control, which confirmed the complete aspiration previously performed and the total collapse of the inner surface. No side effects were detected after these procedures.

Then, the patient was subjected to a 6-month CT follow-up and, after 18 months, no cyst's regrowth was found (Fig. 1d).

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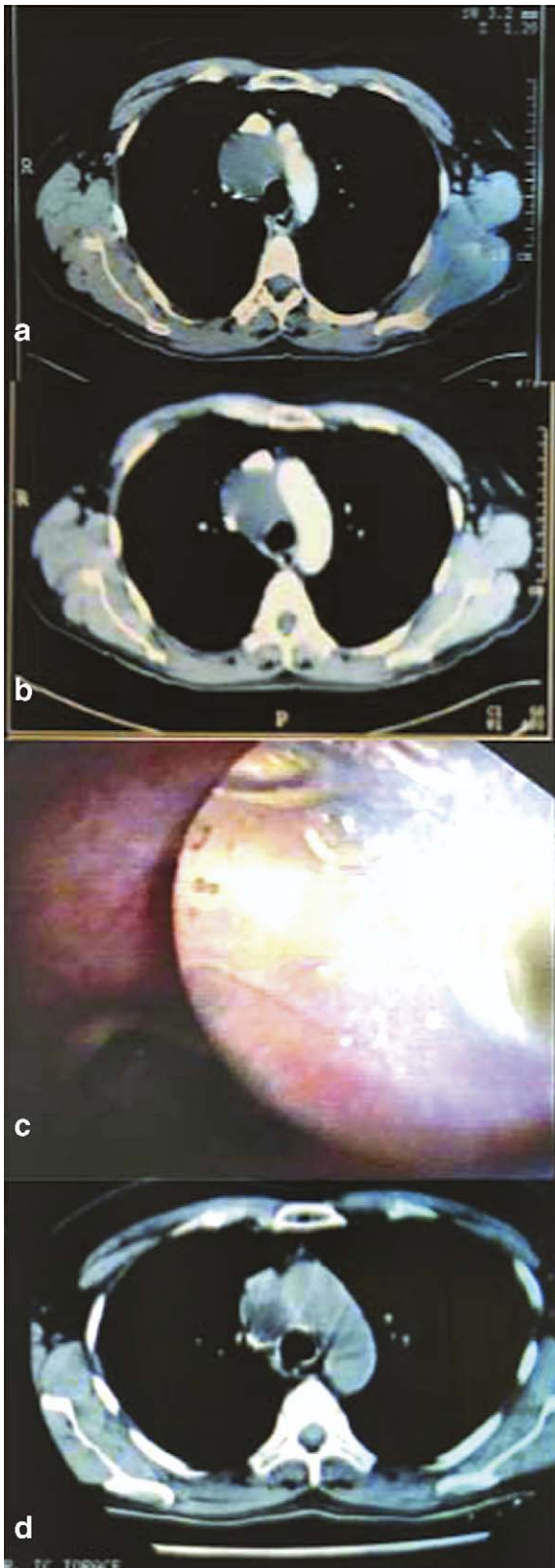


Fig. 1. (a) Bronchogenic cyst before VATS (January 2003). (b) Cyst's recurrence after VATS (June 2003). (c) EBUS water-filled balloon. (d) After 18 months from EBUS-FNA treatment.

3. Discussion

Bronchogenic cysts are congenital bronchopulmonary malformations resulting from an abnormal development of the bronchial tree that can be observed not only in infants but also in adults [2]. They account for 10% of primary mediastinal lesions that are localized mostly in the middle and superior mediastinum [1,2]. Common symptoms are retrosternal pain, cough, dyspnea, dysphagia, and fever [2,3].

At chest X-ray and CT, the bronchogenic cyst appears as a round mass, well circumscribed, with smooth outlines, usually unilocular and non-calcified, with an homogeneous water density [3,4].

Although some cysts are asymptomatic, they can eventually produce compression or irritation of adjacent structures causing symptoms and potentially serious complications [3–5]. Therefore, many authors indicated the necessity of an early therapy [3,5,6] and considered the complete surgical excision (by VATS or thoracotomy) as the treatment of choice for bronchogenic cyst [3,5–7]. Moreover, they maintained that a simple aspiration can lead to a high recurrence rate because of the not obliteration of the lining [5,6]. Past works considered the importance of FNA as a diagnostic procedure but limited its therapeutical use only in the management of bronchogenic cyst's recurrences [5], in case of acute compression [2] and in compromised or nonoperative candidates [8].

Kuhlman et al. [9] recommended FNA as a practical alternative to surgery but they were limited by a short follow-up (only 3 months).

Among these controversial and different therapeutical approaches, we experienced the application of fine needle aspiration biopsy (FNA) using a real-time ultrasonographic procedure (EBUS) able to improve its efficacy.

Endobronchial ultrasound (EBUS) is the latest, relatively not invasive procedure, that has widened the bronchoscopic vision beyond the bronchial wall [10]. This new diagnostic tool allowed us to make a real-time visualization of the cyst's structure so that we were able to make a deep and complete aspiration of it, obtaining a collapse of the lesion and a total obliteration of the lining (which is the first cause of cyst's recurrences) [4]. The efficacy of this procedure was also confirmed by the absence of regrowth after 18 months of follow-up (Fig. 1d).

In conclusion, our experience would encourage new studies on the use of this less invasive and more accurate procedure in the treatment of bronchogenic cyst.

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Editorial comment

Bronchogenic cysts are the most common cystic lesions in the middle mediastinum in adults. Most mediastinal bronchogenic cysts arise near the tracheal carina in relationship to the major airways and rarely communicate with the tracheobronchial tree. Surgical resection is the therapy of choice, even though bronchogenic cysts usually present as an asymptomatic finding and can be monitored by serial follow-up imaging studies. Recent series show that bronchogenic cysts should always be removed as, even if patients do not initially present with symptoms, most eventually become symptomatic with long-term follow-up and complications can develop if these cysts are left unattended. Therefore, the progressive fluid collection and the consequent increase in size which will produce respiratory symptoms, the development of infection and the occurrence of malignant degeneration within the cysts, justify early interventions at the time of diagnosis. In fact, the onset of symptoms makes the surgical procedure more difficult for both the surgeon and the patient.

The procedure for removing a simple bronchogenic cyst is relatively easy with minimal morbidity for the patient; furthermore, with the advent of video-assisted thoracoscopic techniques, the period of disability and hospitalization is also shorter.

Complete excision of a bronchogenic cyst is the goal and the recurrence is extremely rare. The most important point for preventing recurrence of the cyst is the complete resection of the mucosal lining.

No secreting mucosal surface should be left behind and surgery is the most appropriate treatment to accomplish this goal.

Transthoracic and transbronchial needle aspirations have been proved useful procedures as well, both diagnostically and therapeutically, yet have never achieved universal acceptance. In fact, aspiration of the content of the cyst does not allow the lining removal.

Dr Galluccio and Dr Lucantoni [1] have provided an interesting case report on endoscopic ultrasound capability in evaluating and treating a recurrent mediastinal bronchogenic cyst when associated with a standardized but underestimated procedure like FNA. This paper is somehow provocative; in fact, even though the aggressiveness of some interventional bronchoscopists is not always justified and accepted, in this case has been rewarded with excellent results.

Several studies show that ultrasound has been of some value in the evaluation of mediastinal lesions, particularly for the purpose of needle guidance, and a wider appliance of this procedure would be desirable in the future.

Reference

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