Mediastinal Bronchogenic Cysts: Case Series

Mediastinal Bronkojenik Kistler: Olgu Serisi

Abstract

Mediastinal bronchogenic cysts are uncommon and mostly asymptomatic. The diagnosis can be made by computed tomography (CT), and the treatment is surgical resection. In this case series, we present four cases of patients with mediastinal bronchogenic cysts who were treated with surgical resection.

Key Words: mediastinum; bronchogenic cyst; thoracotomy

Özet

Mediastinal bronkojenik kistler nadir görülmekte olup çoğu asemptomatiktir. Tanı için bilgisayarlı tomografi faydalı olup tedaviyi cerrahi rezeksiyon oluşturur. Bu olgu serisinde cerrahi rezeksiyon ile tedavi ettiğimiz dört mediastinal bronkojenik kist vakasını sunmaktayız.

Anahtar Kelimeler: mediasten; bronkojenik kist; torakotomi

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INTRODUCTION

Bronchogenic cysts are uncommon lesions of the mediastinum, originating from an abnormal budding in the tracheobronchial tree. Histopathologically, these lesions contain one or more of the tissues that are normally found in the trachea or bronchi. Most of these cysts are located in the mediastinum, while others may be seen in the lung parenchyma, cervical area, abdomen, and skin. With the increasing use of medical imaging procedures, the detection of bronchogenic cysts has also increased recently, and they can be seen in both children and adults (1,2).

The clinical manifestations of these lesions may vary widely, and some of them may be asymptomatic. The treatment of choice is complete surgical resection due to the risk of malignant transformation, cyst infection and progressive growth (3,4). The aim of this article is to present our experience with mediastinal bronchogenic cysts.

CASE PRESENTATION

We present four patients, two females and two males, with ages ranging from 3 months to 52 years. The patients presented with various clinical manifestations including chest pain, shortness of breath, dysphagia, and pericarditis. The infant patient presented with respiratory distress and dextroposition. All of them were diagnosed with a posterior mediastinal cyst by CT, with the size ranging from 2 to 7 cm (Figure 1). The infant patient underwent further medical examination to determine the cause of her symptoms. Bronchoscopy and the barium swallow test revealed no communication with the tracheobronchial tree or oesophagus respectively, and echocardiography showed dextroposition.

The cysts were removed in all of the patients by right posterolateral thoracotomy. One of the patients presented with chest pain one year later, and a diagnosis of recurrence was made by CT. Due to the progressive enlargement of the cyst with the accompanying symptoms of chest pain and dysphagia, the patient underwent a second surgical operation, a left lateral thoracotomy, for the removal of the cyst. The histopathological examinations revealed bronchogenic cysts in all of the patients.

DISCUSSION

Cystic lesions of the mediastinum are relatively uncommon; they constitute about 12–18% of all mediastinal lesions, with the bronchogenic cysts being the most common (5,6). However, the true incidence of bronchogenic cysts cannot be determined as they are mostly asymptomatic (7).

Jiang et al reported cases of bronchogenic cysts that were mostly asymptomatic in adults and symptomatic in children. This could be attributed to the relatively smaller intrathoracic volume in children that is not large enough for such lesions to develop asymptomatically (4). Aktogu has suggested that even the asymptomatic cysts will eventually become symptomatic (1). Bronchogenic cysts commonly present with cough, chest pain, and hemoptysis (1,4,8). But it can also present with various life threatening conditions such as superior vena cava syndrome, pneumothorax (1), or obstructive emphysema (9).

In the absence of specific symptoms, it might be difficult to make a diagnosis of bronchogenic cyst. The X-ray imaging can be used initially to elucidate the cause of the symptoms, but it is considered as a poor diagnostic tool (5). Aktogu et al reported 30 cases of bronchogenic cysts in which the cysts failed to be detected on the chest X-rays (1). CT, on the other hand, can assist with the assessment of the site, size and degree of compression of the vital structures in the mediastinum (10) and reveal the typical features of a benign cystic lesion (1). Though it provides a differential, rather than the final, diagnosis of bronchogenic cyst, CT is recommended as the diagnostic imaging modality of choice in the evaluation of mediastinal lesions (2).

MRI can be superior to CT in differentiating a cystic lesion from a solid lesion. The use of PET scanning has been reported in some studies, but its role in the evaluation of bronchogenic cysts has not been thoroughly assessed (8). Although it is not necessary to obtain a histopathological confirmation prior to cyst excision, Carter et al have recommended the use of tissue biopsy as the next diagnostic step when the diagnosis cannot be made by CT, rather than the use of MRI or PET scanning. This can be achieved by CT guidance, VATS, mediastinotomy or open surgical techniques (2).

Table 1. Demographic data of the patients.

Age	Gender	Size	Site	Treatment	Results
45 years	M	7 cm	Posterior mediastinum	Thoracotomy	No recurrence
40 years	M	4.5 cm	Posterior mediastinum	Thoracotomy	Recurrence
3 months	F	2 cm	Posterior mediastinum	Thoracotomy	No recurrence
51 years	F	3 cm	Posterior mediastinum	Thoracotomy	No recurrence

The treatment of symptomatic bronchogenic cysts with surgical excision is an obvious decision. Nevertheless, the treatment of asymptomatic cysts is a controversial issue. Aktogu et al have suggested that conservative treatment play no role, given the fact that all of the bronchogenic cysts will eventually become symptomatic with the possibility of causing life threatening complications. In addition to this, intraoperative complications are more likely to occur with symptomatic bronchogenic cysts (1).

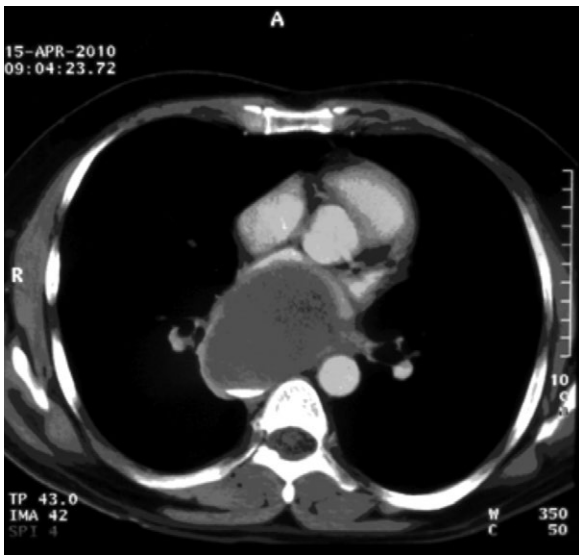


Figure 1. CT scan demonstrate a7 cm bronchogenic cystin the posterior mediastinum

Surgical options vary from thoracotomy to less invasive procedures including thoracoscopy, transbronchial aspiration, and robotic surgery. Even though thoracotomy is still preferred by many clinicians, it has many disadvantages such as prolonged hospitalization and musculoskeletal complications, and these may lead to a shift of preference in favor of the less invasive procedures. Upon reviewing the data on 67 patients of which 39 had undergone thoracoscopy due to cystic lesions and 28 thoracotomy, Lau et al reported comparable results regarding operative time. Shorter hospitalization, less need for intensive care, and absence of musculoskeletal complications were observed in the thoracoscopy group. The postoperative complications were comparable in both groups (3).

Minimally invasive surgery has recently been used increasingly for the excision of mediastinal cysts. Lin et al reported the successful thoracoscopic resection of two bronchogenic cysts in the upper mediastinum without postoperative complications (11). With many reports of cases treated successfully, Toker et al reported the resection of a bronchogenic cyst in an 8-year-old patient with robotic surgery (6).

The incidence of recurrence of bronchogenic cysts following the resection is unknown, as most of the reported patients, including ours, are lost to follow-up. In the literature, cases of recurrence as late as 25 years have been reported (7).

In conclusion, mediastinal bronchogenic cyst are uncommon and mostly asymptomatic. The best diagnostic tool is CT, and surgery is the major treatment modality for this entity.

CONFLICT OF INTEREST STATEMENT

The corresponding author and the co-authors declare that there is no conflict of interest.

REFERENCES

1. Aktogu S, Yuncu G, Halilcolar H, Ermete S, Buduneli T. Bronchogenic cysts: clinicopathological presentation and treatment. Eur Respir J. 1996;9(10):2017-21.
2. Carter BW, Marom EM, Detterbeck FC. Approaching the patient with an anterior mediastinal mass: a guide for clinicians. J Thorac Oncol. 2014;9(9 Suppl 2):S102-9.
3. Lau CT, Leung L, Chan IH, Chung PH, Lan LC, Chan KL, et al. Thoracoscopic resection of congenital cystic lung lesions is associated with better post-operative outcomes. Pediatr Surg Int. 2013;29(4):341-45.
4. Jiang JH, Yen SL, Lee SY, Chuang JH. Differences in the distribution and presentation of bronchogenic cysts be-

tween adults and children. J Pediatr Surg. 2015;50(3):399-401.
5. Maturu VN, Dhooria S, Agarwal R. Efficacy and safety of transbronchial needle aspiration in diagnosis and treatment of mediastinal bronchogenic cysts: systematic review of case reports. J Bronchology Intery Pulmonol. 2015;22(3):195-203.
6. Toker A, Ayalp K, Grusina-Ujumaza J, Kaba E. Resection of a bronchogenic cyst in the first decade of life with robotic surgery. Interact Cardiovasc Thorac Surg. 2014;19(2):321-23.
7. Kozu Y, Suzuki K, Oh S, Matsunaga T, Tsushima Y, Takamochi K. Single institutional experience with primary mediastinal cysts: clinicopathological study of 108 resected cases. Ann Thorac Cardiovasc Surg. 2014;20(5):365-69.
8. Aydin Y, Ogul H, Turkyilmaz A, Eroglu A. Surgical treatment of mediastinal cysts: report on 29 cases. Acta Chir Belg. 2012;112(4):281-86.
9. Vimala LR, Sathya RK, Lionel AP, Kishore JS, Navamani K. Unilateral obstructive emphysema in infancy due to mediastinal bronchogenic cyst-diagnostic challenge and management. J Clin Diagn Res. 2015;9(5):TD03-5.
10. Pearson JK, Tan GM. Pediatric anterior mediastinal mass: a review article. Cardiothorac Vasc Anesth. 2015;19(3):248-54.