

Bronchogenic cyst mimicking hydatid cyst or infected bulla in child patient

Mahmut Tokur^a, Yakup Yesilkaya^{b,*}, Fuat Ozkan^c, Naime Tokur^d

^aDepartment of Cardiothoracic Surgery, Faculty of Medicine, Sutcu Imam University, Kahramanmaraş, Turkey

^bDepartment of Radiology, Educational and Research Hospital, Ahi Evran University, Kırşehir, Turkey

^cDepartment of Radiology, Faculty of Medicine, Sutcu Imam University, Kahramanmaraş, Turkey

^dDepartment of Pediatrics, Maras Women and Children Disease Hospital, Kahramanmaraş, Turkey

Abstract. Bronchogenic cysts are congenital anomalies of the bronchial tree and they are generally asymptomatic, and often incidentally diagnosed. If the bronchogenic cyst is infected or high protein level include, differential diagnosis should be included lung abscess, hydatid cyst, fungal disease, tuberculosis, infected bullae, vascular malformations, and tumoral conditions. Complete surgical excision as the most reliable therapeutic option due to the risk of development of complications and recurrence, even in incidentally diagnosed cases.

Key words: Bronchogenic cyst, child, infected, surgical excision

1. Introduction

Bronchogenic cysts are congenital anomalies of the bronchial tree and account for 6–15% of primary mediastinal masses (1-4). They are usually found in the mediastinum, although 15–20% occur in the lung parenchyma. They are generally asymptomatic, and often incidentally diagnosed. If they are symptomatic, symptoms are generally related to the region of occurrence and include cough, dyspnoea, dysphagia, hemoptysis or rarely chest pain. If the bronchogenic cyst is infected or high protein level include, differential diagnosis should be performed with solid mass such as; lymphoma, teratoma, embryonal sarcoma, metastatic tumor in the mediastinal localisation and a granuloma, lung abscess, hydatid cyst, fungal disease, tuberculosis, infected bullae, vascular malformations in lung paranchimal localization (2-5). Complete surgical excision is the main treatment option, however this method only way

to get a perfect histological diagnosis. However total cyst excision also prevents from complications and recurrences (6).

2. Case report

A 8-year-old female applied the hospital with the chief complaint of cough, fever and sputum for a two week and occasional chest pain in the left lower zone. Lung sound was crude in the left lower zone on auscultation. Her initial laboratory data were relevant for leukocytosis of 15,600 cells/mm³ (Normal range: 4000-10000 cells/mm³). Her liver and kidney panel was normal. Her sedimentation rate 45 (Normal range: 0-20 mm/h) and C-reactive protein level of 32 (Normal range: 0-3 mg/L) were elevated. A serologic test of the hydatid cyst was negative. Her chest radiography showed, cystic lesion with air–fluid level in same field. Computed tomography (CT) showed a cystic mass containing air-fluid level and lined by a thick wall, located in the left posterobasal lung paranchyma (Figure 1). And then because of her infectious clinic, antibiotherapy and albendazol was started. After two weeks her fever decreased and cough and sputum improved. After the clinical and radiological findings, the lesion was diagnosed as a hydatid cyst, infected bullous or bronchial cyst; although our patient denied animal contact and surgical exploration was planned, based on these data. A left posterolateral thoracotomy was performed, whole of the cyst

*Correspondence: Yakup Yesilkaya, MD
Department of Radiology, Ahi Evran University,
Educational and Research Hospital, Kırşehir 40100, Turkey
Phone: +90-386-213-45-15
Fax: +90-386-213-33-98
E-mail: dryakup23@hotmail.com
Received: 03.07.2012
Accepted: 12.09.2012

fluid was drained and the cyst was removed (Figure 2). Germinatif membrane did not observed. Histological findings of the specimen confirmed the diagnosis of bronchogenic cyst. The patient had an uneventful postoperative recovery and was discharged on 6th postoperative day. She is follow up still our clinic without any problems.

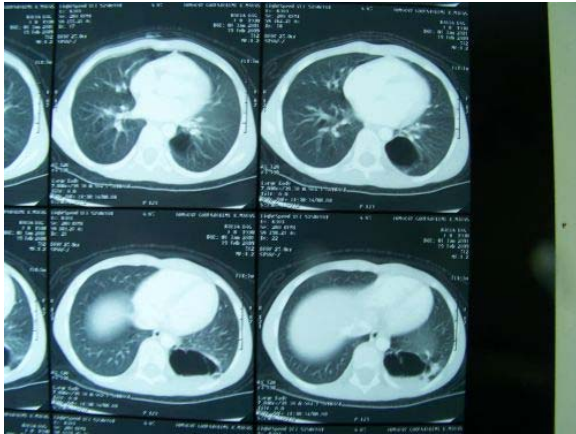


Fig. 1. Computed tomography showed a cystic mass containing air-fluid level and lined by a thick wall, located in the left posterobasal lung parenchyma.

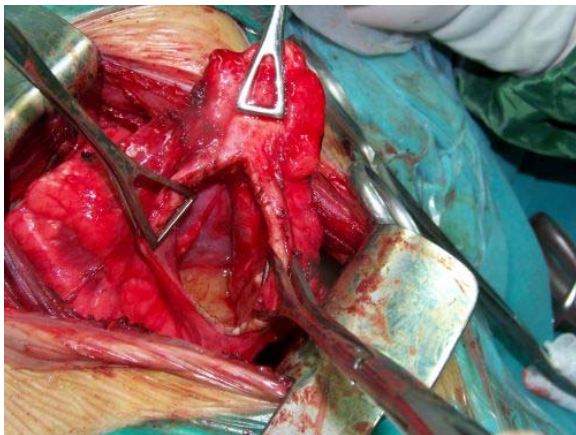


Fig. 2. Posterolateral thoracotomy images showing the bronchogenic cyst of the left lower lung parenchyma after the aspiration.

3. Discussion

Bronchogenic cysts represent a spectrum of bronchopulmonary malformations that result from abnormal budding of the tracheobronchial tree. Depending on the timing of abnormal development, cysts may locate within the mediastinum (mediastinal cysts) or lung parenchyma (intrapulmonary cysts). Otherwise, they are found in the pericardium, pleura, cervical area, or abdomen (1). Bronchogenic cysts have a wide range of clinical and radiologic manifestations. In the pediatric population,

enlargement of cysts frequently leads to life threatening situations due to impinging on adjacent structures. In adults, cysts tend to remain asymptomatic until there is enlargement secondary to secretion, infection or hemorrhage. Although some bronchogenic cysts are asymptomatic and diagnosed as incidental findings on radiographs, most are associated with clinical symptoms such as coughing, dyspnea, chest pain, and sputum (2) as shown our case. The CT scanning was helpful in further delineating the location, relation to adjacent structures, and differentiating the abnormality from vascular structures. A variety of conditions are considered in the differential diagnosis of both parenchymal and mediastinal bronchogenic cysts. With parenchymal cysts, the differential diagnosis such as neoplasms, granulomas, hematomas, vascular malformation, fungal disease, lung sequestration, lung abscesses, infected bullae, and hydatid cysts (3) should be entertained and ruled out as in our patient prior to histopathological diagnosis. Classically bronchogenic cysts are of water density (0-20 Hounsfield units); however, in the presence of infection or in those with a variable protein and calcium content, the density may be higher, falling into the solid tissue range (4,5). At CT, bronchogenic cysts generally manifest as rounded, well-circumscribed hypoattenuating cysts without enhancement. The chest X-ray is usually abnormal in patients with a bronchogenic cyst but is generally non-diagnostic, as in the case of our patient. The cyst might appear as a homogeneous mass. When the cyst communicates with the airways, it will appear as an air-filled mass or it might have an air-fluid level. Abnormalities in the surrounding lung parenchyma, atelectasis or consolidation, may occur and may make the diagnosis more difficult. In all cases, the definitive diagnosis is through histological examination of a biopsy specimen or after surgery. The cyst wall is lined by ciliated pseudostratified columnar epithelium and often contains bronchial mucus glands, smooth muscle, and cartilage. Surgical excision remains the treatment of choice. This is usually done via a posterolateral thoracotomy or median sternotomy. Complete excision of bronchogenic cysts is usually achievable, and is considered essential to prevent recurrences. When this is not possible, ablation of the epithelial layer should be performed by removal of the cystic mucosa or electrocoagulation (6). From the review of the articles, once the diagnosis is suspected, removal should be advised as early as possible to avoid complications (6,7).

4. Conclusion

The possibility of an infected bronchogenic cyst must always be present in the differential diagnosis list in any pediatric patient admitting to the hospital with the complaints of cough, fever, and dyspnea. We favor complete surgical excision as the most reliable therapeutic option in these patients, due to the risk of development of complications and recurrence, even in incidentally diagnosed cases.

References

1. Chang YC, Chang YL, Chen SY, et al. Intrapulmonary bronchogenic cysts: computed tomography, clinical and histopathologic correlations. *J Formos Med Assoc* 2007; 106: 8-15.
2. St-Georges R, Deslauriers J, Duranceau A, et al. Clinical spectrum of bronchogenic cysts of the mediastinum and lung in the adult. *Ann Thorac Surg* 1991; 52: 6-13.
3. Quinlan JJ, Holden HM, Schaffner VD, Hiltz JE. Cystic disease of the lungs. *Can Med Assoc J* 1958; 79: 1012-1017.
4. Haddon MJ, Bowen A. Bronchopulmonary and neurenteric forms of foregut anomalies. Imaging for diagnosis and management. *Radiol Clin North Am* 1991; 29: 241-254.
5. Mendelson DS, Rose JS, Efremidis SC, et al. Bronchogenic cysts with high CT numbers. *AJR Am J Roentgenol* 1983; 140: 463-465.
6. Read CA, Moront M, Carangelo R, et al. Recurrent bronchogenic cyst. An argument for complete surgical excision. *Arch Surg* 1991; 126: 1306-1308.
7. Kirmani B, Sogliani F. Should asymptomatic bronchogenic cysts in adults be treated conservatively or with surgery? *Interact Cardiovasc Thorac Surg* 2010; 11: 649-659.