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Clinical Imaging 30 (2006) 309–314

CLINICAL IMAGING

Bronchogenic cyst of the esophagus: clinical and imaging features of seven cases

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Received 5 February 2006; accepted 20 February 2006

Abstract

Seven unusual cases of esophageal bronchogenic cyst (EBC) are presented. Different from mediastinal or pulmonary bronchogenic cysts, EBCs predominately affect young women (six out of seven cases; mean age, 29.9 years), and clinically, such cases were characterized by dysphagia and chest pain, especially during exercise. On radiographs and computed tomographs, EBCs typically appeared as 3- to 4-cm midthoracic cystic masses close abutting to the midthoracic esophagus. Rarely, exophytic lower thoracic EBC may mimic lung nodule. Total cyst excision usually offers satisfactory outcome with no recurrence in long-term follow-up.

Keywords: Esophageal bronchogenic cyst; Computed tomography; Excision

1. Introduction

Bronchogenic cysts are one of the most common bronchopulmonary malformations that arise from abnormal budding of the primitive tracheobronchial tube [1–3]. The location of the cysts depends on the embryological stage of development at which abnormal budding occurs [1–5]. Approximately 36–90% of bronchogenic cysts occur in the mediastinum, and most of the remaining cysts involve the lung parenchyma [2–8]. Bronchogenic cysts have been reported to occur in other unusual locations such as the pericardium, thymus, diaphragm, retroperitoneum, or cervical region [6–12]. Esophageal bronchogenic cyst (EBC) is uncommon, and a limited number of sporadic case reports concerning intramural bronchogenic cysts of the esophagus have been reported [13–20]. The objective of this study was to present our experiences of seven cases of surgically proven EBC with an emphasis that the sex predominance and clinical presentations of EBC may be different from classical mediastinal or pulmonary bronchogenic cysts.

2. Materials and methods

From January 1987 to July 2005, a total of seven cases of surgically proven EBC were collected from three branches (one in southern Taiwan and the other two in northern Taiwan) of our institution. The medical records of the patients were reviewed for clinical manifestations, known prior diseases, and available laboratory data pertaining to their conditions. All patients had undergone preoperative chest radiographs, and five patients underwent esophagography as well. All patients had preoperative computed tomography

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doi:10.1016/j.clinimag.2006.02.003

(CT), with the results being available for analysis. Five patients underwent thoracic conventional CT using a Picker International 1200 scanner (Picker International, Highland Heights, OH, USA), a GE 9800 scanner, or a GE ProSpeed scanner (GE HealthCare, Milwaukee, WI, USA). The patients were scanned in the supine position from a craniocaudal direction with their arms placed above their heads. The entire thorax from the level of the lower neck to the adrenal glands was scanned. Preenhanced CT images were obtained using a 10-mm collimation. Venous access was achieved through the application of an 18- or 20-gauge intravenous catheter placed into an antecubital vein contralateral to the lesion side. The enhancement studies were performed immediately after intravenous bolus hand injection of 100 ml of 60% diatrizoate meglumine using an 8-mm contiguous sectioning. Two patients underwent thoracic CT scans using a multislice scanner (Somatom plus Volume Zoom, Siemens Medical Engineering, Forchheim, Germany). The scanning protocol included a slice collimation of 2.5/7.5 mm, 0.5 s scanner rotation, 20 kV, 160 mA, and FOV of 35 cm. All the patients were taught to take three deep breaths before examination and to maintain breath-hold during scanning. The contrast agent was given via a mechanical power injector at a rate of 2 ml/s with a scan delay of 25 s. The attenuation value of the mass on preenhanced and enhanced studies was measured on the CT scanner using an electronic cursor to draw a circular region of interest with a diameter of about 60–70% of the short axis of the mass. In addition to radiographic and esophagographic findings, CT findings were reviewed with special attention to the following characteristics: tumor size, margin, location, presence of internal calcifications, and CT attenuation value. The surgical findings and surgical methods used were recorded. The pathological examination results were reviewed by an experienced pathologist.

3. Results

The clinical and imaging findings of the patients are summarized in Table 1.

3.1. Clinical features

There were six women and one man in our study, ranging in age from 19 to 60 years (mean, 29.9 years). Of these seven patients, three patients with EBC at the upper azygoesophageal recess level presented with dysphagia and chest pain, especially during exercise. Two patients with lower retrotracheal EBC presented with chest discomfort and dysphagia. One patient with lower thoracic EBC presented with dysphagia. The remaining patient was, seemingly, asymptomatic with a left lower lung nodule incidentally found on chest radiograph. The medical history of all our patients was unremarkable, with no comorbid diseases, apart from one 60-year-old woman who revealed a previous history of diabetes that was under control. There were no obvious abnormal findings on physical examination or laboratory studies.

Table 1
Summary of clinical and imaging features of seven cases of EBC

Case no.	Age (years)/ Sex	Presentations	Chest radiography	Lesion level/ Esophagraphic findings	Tumor size (cm)	CT findings: density (HU)/shape	Surgery	Follow-up (years)
1	21/M	Chest pain, dysphagia for 3 months	Right hilar mass	Right midthoracic at upper AER level/ SME on EG	4.0	48/Ovoid WDCM	VATS, TE	2, NR
2	31/F	Chest pain during exercise, dysphagia for 8 months	Right hilar mass	Right midthoracic at upper AER level/ SME on EG	3.8	15/Ovoid WDCM	TH, TE	6, NR
3	19/F	Chest pain during exercise, dysphagia for 1 year	Right hilar mass	Right midthoracic at upper AER level/ SME on EG	3.2	20/Ovoid WDCM	TH, TE	8, NR
4	20/F	Chest discomfort during exercise, dysphagia for 9 months	Right lower paratracheal mass	Right midthoracic at lower tracheal level/ SME on EG	3.0	27/Ovoid WDCM	TH, TE	4, NR
5	34/F	Chest discomfort, dysphagia for 7 months	Negative	Right midthoracic at lower tracheal level/ EG not available	3.9	21/Ovoid WDCM	TH, TE	7, NR
6	24/F	Dysphagia for 1 year	Lower thoracic paraspinal mass	Left lower thoracic at ventricular level/ SME on EG	3.6	35/Elongated WDCM	VATS, TE	1, NR
7	60/F	No symptom	Incidentally found left lower lung nodule	Left lower thoracic at ventricular level/ EG not available	3.4	30/Ovoid exophytic WDCM	TH, TE	14, NR

WDCM, well-defined cystic mass; SME, submucosal mass effect; EG, esophagogram; HU, Hounsfield unit; AER, azygoesophageal recess; TE, total excision of the cyst; TH, thoracotomy; NR, no recurrence.