BRONCHOGENIC CYSTS

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SUMMARY

Between 1984 and 1992, patients with bronchogenic cysts were treated in our institution: 17 males and 12 females ranging in age from 3 years to 50 years (average 23.4). Two of them were brothers. The majority of the bronchogenic cysts (19 of 29) 65,5% were intraparenchymally located, remaining (10 of 29) 34,5% were located in the mediastinum. Lesions of seven asymptomatic patients were discovered on chest x-ray. Chest pain was the most common respiratory symptoms in twenty-two patients. All patients underwent surgery. Intraparenchymal lesions were removed by segmentectomy or lobectomy. On the other hand a cyst located in the fissure was simply excised. Among the cysts adhering to the trachea, 2 of them required suturation of the trachea due to airway communication. One case developed empyema as a postoperative complication and it was surgically drained. Thirteen operated patients were followed up at an average of 6 months. No sequelae was noted and all patients had normal control chest film.

Key words: Congenital anomalies, Bronchogenic cysts.

INTRODUCTION

Bronchogenic cysts are benign masses located in the mediastinum or lung parenchyma and arise from abnormal budding of the primitive tracheo-bronchial tree (1). Because tracheo-bronchial tree development is more active in between 26th and 40th day of intrauterine life, the bronchogenic cysts occur commonly during this time (2). The time of abnormal budding determines cyst localization. Cysts can also migrate to subpleural, pericardial, paravertebral and cervical locations if embryologic connections with their parent bronchus are lost (1,3).

Bronchogenic cysts which contain mucoid material, are surrounded by the wall containing bronchial cartilage, smooth muscle, elastic tissue and mucus glands. The cysts are lined with ciliated columnar or cuboidal epithelium (2,3).

Symptomatology varies according to location of cysts, being infected or not, age of the patient, size of the cyst (3). Surgical excision is recommended in order to diagnose the disease, alleviate the symptoms and prevent the complications in future (4).

The histopathologically confirmed bronchogenic cyst cases determined during the last 8 years in our institution were reviewed in this article.

MATERIAL AND METHODS

A retrospective study was conducted on 29 patients with bronchogenic cysts discovered between January, 1984 and January, 1992 at Sureyyapasa Chest Diseases and Surgery Center in Istanbul. Data were collected with regard to sex, age, mode of presentation, type of investigations performed, location of the cyst, operative complications, and follow-up.

RESULTS

Our series consists of 29 patients who underwent surgery for excision of bronchogenic cyst. The details of presentation and management of these 29 patients are listed in Table I. There were 17 males and 12 females ranging in age from 3 to 50 years. The average age was 23,4. Two of the patients were brothers. Seven patients (24,1%) presented asymptomatically were found out on routine chest film. Four of the seven patients had intraparenchymal cysts. One paratracheal, one carinal and one was located at the hilum. The remaining 22 patients presented with chest pain. The other symptoms were cough, hemoptysis, fever, back pain, fatigue and dyspnea. In this symptomatic group, (15 of 22) 68,2% had intraparenchymal lesions, (4 of 22) 18,2% had paratracheal lesions, (2 of 22) 9% had hilar lesions and (1 of 22) 4,5% had a paraesophageal lesion. Totally, 65,5% (19 patients) had intraparenchymal (Fig.1), 17,2% (5 patients) paratracheal (Fig.2), 10,3% (3 patients) hilar (Fig.3), 3,5% (1 patient) carinal, 3,5% (1 patient) paraesophageal (Fig.4) cysts (Table II). Fifty percent of intraparenchymal cysts were located in the lower lobes and one located in the left fissure. Four of those intraparenchymal cysts (21%) were found to be infected at the operation (Fig.5).

All patients had undergone surgical procedure. Pulmonary resection was performed for 18 patients with intraparenchymal cysts. Seven (24%) of these pulmonary resection were lobectomy, the remaining 11

(38%) were segmentectomy. Excision, simple suture of tracheal wall was performed for 2 (7%) of paratracheal cysts which had airway communication. Only simple excision was performed (Fig. 6) for the remaining cysts (Table III). As a complication we have observed empyema following right upper lobectomy in one case who was operated due to an infected cyst. Drainage of the empyema cavity and antibiotic therapy were sufficient for that case.

Twelve patients did not come for follow-up. Thirteen patients were followed for an average of 6 months. The remaining 4 patients are on follow-up now. No sequelae was noted and all patients had normal control chest films.

Table I. Summary of Clinical Findings in 29 Patients with Bronchogenic Cysts.

PATIENT NO	AGE (Year)	SEX	SYMPTOMS	DIAGNOSTIC TEST	OPERATIVE FINDINGS
1	49	M	Chest pain	*	4 cm, Left hilar
2	6	M	Cough	*,**	8 cm, right paratracheal
3	33	M	Dyspnea, Fever	*,**	5 cm, right intraparenc.
4	45	M	Cough	*	10 cm, Left intraparenc.
5	17	F	Asyptomatic	*	9 cm, Left carinal
6	15	F	Cough, Fever	*,**	5 cm, Right intraparenc. infected cyst
7	23	F	Asymptomatic	*	8 cm, Left hilar
8	22	F	Cough, Hemoptysis	*	8 cm, Left intraparenc.
9	29	F	Chest pain	*,**	5 cm, Right hilar
10	41	M	Chest pain	*	6 cm, Left intraparenc. infected cyst
11	5	M	Cough	*	4 cm, Right intraparenc.
12	11	F	Cough, Fatique	*	5 cm, Left intraparenc.
13	13	F	Chest pain	*,**	6 cm, Left paratracheal
14	23	M	Hemoptysis	*	7 cm, Right intraparenc.
15	14	M	Asymptomatic	*	4 cm, Right intraparenc.
16	11	M	Cough, Chest pain	*	4 cm, Left intraparenc.
17	51	F	Chest pain	*,**	12 cm, Right paratracheal
18	3	M	Chest pain, Fever	*	10 cm, Right paratracheal
19	28	F	Chest pain	*	4 cm, Right intraparenc,
20	50	M	Back pain	*,***	8 cm, Right paraesophageal
21	10	F	Hemoptysis	*	6 cm, Left intraparenc.
22	24	F	Hemoptysis	*	10 cm, Left intraparenc.
23	20	M	Chest pain	*	6 cm, Left intraparenc.
24	30	M	Asymptomatic	*	6 cm, Left intraparenc.
25	23	M	Asymptomatic	*	8 cm, Left intraparenc.
26	19	M	Chest pain	*	6 cm, Left intraparenc.
27	18	F	Asymptomatic	*	6 cm, Right paratracheal
28	15	M	Asymptomatic	*	10 cm, Left intraparenc.
29	32	M	Chest pain	*,**	6 cm, Left intraparenc.

* Chest X-Ray
** CT Scan of Chest
*** Barium Swallow

Table II. Localization of the Cysts.

	NUMBER OF PATIENTS	%
INTRAPARENCHYMAL	19	65.5
PARATRACHEAL	5	17.2
HILAR	3	10.3
CARINAL	1	3.5
PARAESOPHAGEAL	1	3.5

Table III. The Surgical Procedures Performed.

	NUMBER OF PATIENTS	%
EXCISION	9	31
EXCISION+TRACHEAL SUTURE	2	7
SEGMENTECTOMY	11	38
LOBECTOMY	7	24

Fig. 1. Intraparenchymal bronchogenic cyst located in the left upper lobe.

Fig. 2 . Right paratracheal bronchogenic cyst.

Fig. 3 . Left hilar bronchogenic cyst.

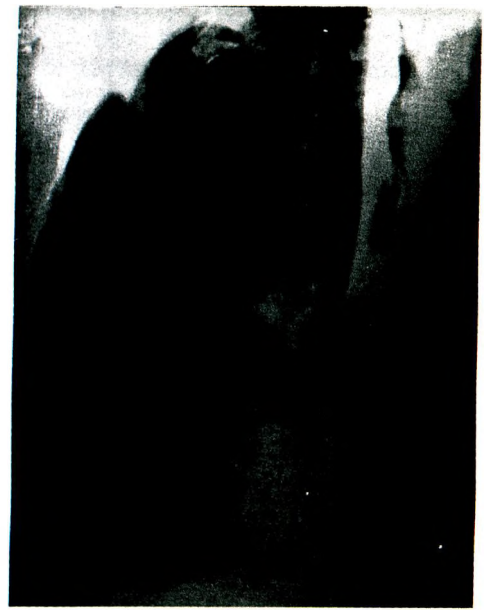

Fig. 4. Paraesophageal bronchogenic cyst seen in esophagogram.

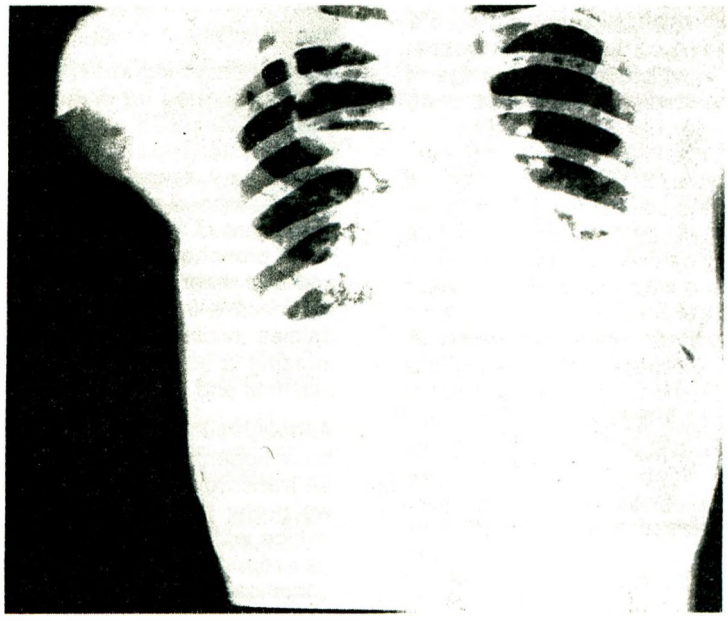

Fig. 5. Infected bronchogenic cyst in the right upper lobe.

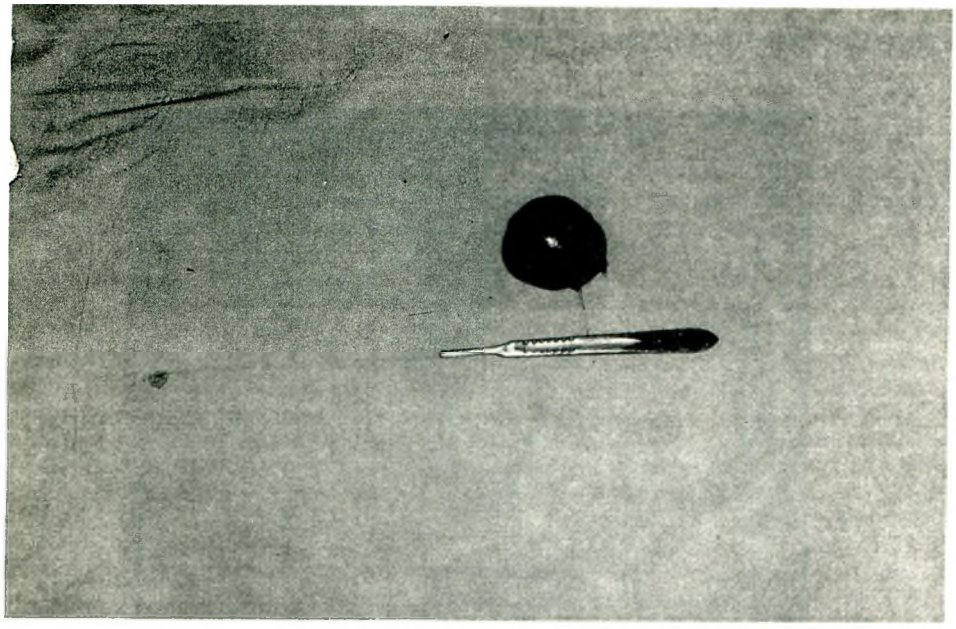

Fig. 6. Bronchogenic cyst after surgical removal

DISCUSSION

About bronchogenic cysts, which were first described by Maier, different series are reported by many researchers (1). Location of the cysts and symptomatology show differences in these series. Of the total number of patients with bronchogenic cysts, 65,5% were intraparenchymal and 34,5% show mediastinal localization in our series in which the average age of the patients was 23,4. The study which consists of 46 patients whose average age was 24 recorded by Roger and Osmer showed that 70% of bronchogenic cysts were intraparenchymal, 30% were mediastinal cysts (5). The finding in the study are so similar to our results. On the other hand, an Armed Forces Institute of Pathology Analyses, analysed 77 bronchogenic cysts and noted that 86% of bronchogenic cysts were mediastinal, only 14% were intraparenchymal cysts (6). In the series which consist of 26 children recorded by Mario di Lorenzo, 65% of bronchogenic cysts were localized in the mediastinum (1). Fifty percent of intraparenchymal bronchogenic cysts were localized in the lower lobes of right and left lung in the same number. In the study of Roger and Osmer, it was found as two thirds. Bronchogenic cysts can also show atypical locations such as cervical, subcutenous, subdiaphragmatic, pericardial, intradiaphragmatic. But we did not see such locations in our series (3,4,7).

Bronchogenic cysts are commonly asymptomatic (1,2,5). But if the patient has symptoms, they are different, In our series, the most frequent symptoms in order were, chest pain (10 of 22), cough (7 of 22), hemoptysis (4 of 22), fever (3 of 22) and dyspnea (2 of 22). In 1 case the cyst was localized paraesophageally, therefore patient has suffered from back pain. In the patients with hemoptysis, the location of the cysts wee intraparenchymal. Mario di Lorenzo and Sirivella and Ford described cough as the most frequent symptom and chest pain as the third symptom in their series (8). The airway compression which is a life threatening and well known presentation of carinal bronchogenic cysts seen especially in neonates and infants, cardiac arrhytmia, SSVC, pericardial compression and bronchial atresia can develop secondary to bronchogenic cysts but in our series, none of them was observed (4,9-12).

Chest roentgenography, CT scan and esophagogram were performed for diagnosis. Chest roentgenogram shows differences according to location and the size of the cysts. Typically the cyst was visible as a smooth, solitary, round mass in the parenchyma or in the neighbourhood of the mediastinal silhouette in roentgenogram of 22 of 29 patients and therefore diagnosis of bronchogenic cyst was thought. CT scan localized and differentiated the cysts from other mediastinal masses on 7 cases (Fig.7). Other diagnostic modalities available today such as magnetic resonance imaging is not superior to CT scan in evaluating mediastinal and hilar lung masses (13).

Although successful drainage of a mediastinal carinal bronchogenic cyst by mediastinoscopy, and successful transbronchial needle aspirations were reported; we prefer the surgical excision as the treatment of choice with regard to the infrequent malignant changes reported and to alleviate symptom and prevent complications (14-17).

The approach was through postera-lateral thoracotomy for all our cases and complete excision was possible. In 2 cases because of airway communication, besides simple excision tracheal suture was done. In one case which was an infected cyst, empyema developed post-operatively and required surgical drainage.

Thirteen patients were followed up at an average of 6 months and faced with no problems. All cases were cured completely.

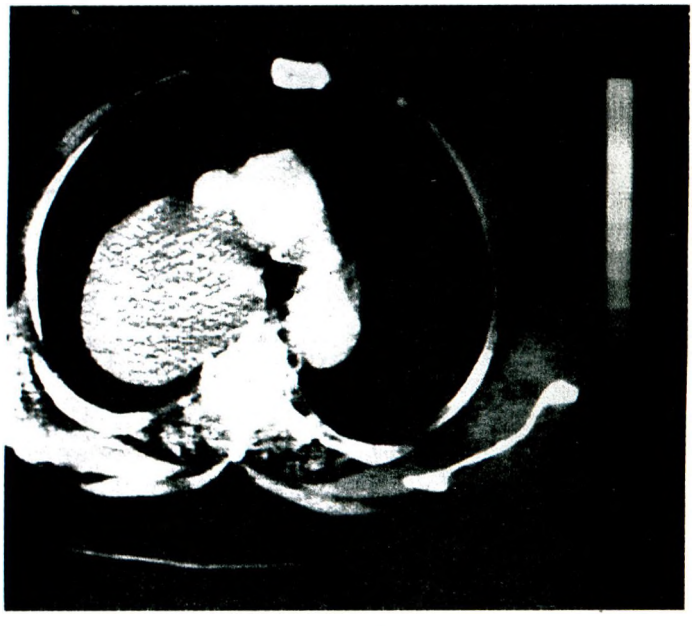

Fig. 7. CT Scan of thorax showing a cystic mass in the right paratracheal area.

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