Most reported bronchogenic cysts have occurred in pediatric-aged patients, in whom they are often seen in life-threatening emergencies with airway obstruction resulting in atelectasis, air trapping, and respiratory distress. Many bronchogenic cysts are asymptomatic and represent incidental findings on radiograph in adults.¹⁻³ Conversely, more recent series indicate that most adults with bronchogenic cysts ultimately become symptomatic.^{2,5}

Preoperative diagnosis is established primarily by chest radiograph and CT. On radiography, parenchymal bronchogenic cysts are usually sharply defined, solitary, noncalcified, round or oval opacities confined to a single lobe, usually the lower lobe.^{1,3} CT is very useful in demonstrating the structures. Generally, bronchogenic cysts have homogeneous CT attenuation and water density (0-20 Hounsfield units). On the basis of the radiologic appearance, preoperative diagnoses were accurate in only 10% to 40% of the cases.^{2,3} The differential diagnoses in such cases can only be made during the operation.

The possibility of malignant degeneration, future symptoms, and recurrence after aspiration has led many surgeons to advocate complete removal by thoracotomy in all patients.²⁻⁴ When the cyst cannot be removed completely at thoracotomy, partial excision with de-epithelization may be an alternative.

The bronchogenic cyst in the case we present here is particularly interesting because it was asymptomatic, giant, and presented

as hydropneumothorax on chest radiograph. Definitive tissue diagnosis is usually available only after surgical excision. The possibility of bronchogenic cyst should be taken into consideration.

References

1. Matzinger MA, Matzinger FR, Sachs HJ. Intrapulmonary bronchogenic cyst: spontaneous pneumothorax as the presenting symptom. *Am J Roentgenol.* 1992;158:987-8.
2. Patel SR, Meeker DP, Biscotti CV, Kirby TJ, Rice TW. Presentation and management of bronchogenic cysts in the adult. *Chest.* 1994;106:79-85.
3. Suen HC, Mathisen DJ, Grillo HC, LeBlanc J, McLoud TC, Moncure AC, et al. Surgical management and radiological characteristics of bronchogenic cysts. *Ann Thorac Surg.* 1993;55:476-81.
4. Bolton JWR, Shahian DM. Asymptomatic bronchogenic cysts: what is the best management? *Ann Thorac Surg.* 1992;53:1134-7.
5. St-Georges R, Deslauriers J, Duranceau A, Vaillancourt R, Deschamps C, Beauchamp G, et al. Clinical spectrum of bronchogenic cysts of the mediastinum and lung in the adult. *Ann Thorac Surg.* 1991;52:6-13.
6. André CH, Deslauriers D, Deslauriers J. Foregut cyst of the mediastinum in the adults. In: Shields TW, Lo Cicero III J, Ponn RB, editors. *General Thoracic Surgery*. 5th ed. Philadelphia: Lippincott Williams & Wilkins; 2000. p. 2401-13.
7. Maier HC. Bronchogenic cysts of the mediastinum. *Ann Surg.* 1948;127:476-502.

Successful treatment of huge chronic expanding hematoma after thoracoplasty

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Chronic expanding hematoma in the chest is known to be a specific type of chronic empyema. Four cases of chronic expanding hematomas after thoracoplasty have been reported in Japan.¹⁻³ As far as I have been able to determine, no such cases have been reported in other countries. Incomplete treatment for tuberculosis, such as thoracoplasty, is considered to be one of the origins of this disease. Here I describe the successful treatment of a patient with chronic expanding hematoma after a thoracoplasty.

Clinical Summary

A 79-year-old man was admitted with a chest wall swelling. Fifty-two years earlier, at the age of 27 years, the patient underwent thoracoplasty for the treatment of tuberculosis. A year earlier a tumor had been detected in the right axilla, which had gradually protruded. For the purpose of more detailed examination, he was transferred to my hospital. Physical examination revealed a large tumor, 30 × 10 × 10 cm in size, from the right axillar region to the anterior chest region, with skeletal deformity and operative scars due to the thoracoplasty. Chest roentgenogram showed a well-defined complete opacification in the right upper thorax and right upper skeletal deformities due to the thoracoplasty. Magnetic resonance imaging revealed a heterogenous mass growing from the adjacent of remained ribs to the anterior chest (Figure 1). On needle biopsy, there was only a fibrous connective tissue with fibrin infiltrated with a few small lymphocytes and neutrophils. With the permeable values of hemodynamics and respiratory functions, his general condition also indicated that he could tolerate the operation.

Tumor extirpation was performed under a clinical diagnosis of chronic empyema. The fibrous hard adhesion was evident but new vascularizations were not so severe; the total blood loss was 530 mL. The tumor was encapsulated in part by connective tissue and

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Figure 1. Axial image of magnetic resonance imaging.

measured $25 \times 10 \times 10$ cm and weighed 650 g (Figure 2). Microscopic observation showed that the resected mass was a brownish fragile tissue covered with partial fibrous capsule containing ossiform materials and was diagnosed as organizing hyalinized old hematoma without any microscopic evidence of a neoplasm. The postoperative course was uneventful, and the patient has since been well for more than 6 months.

Discussion

Chronic expanding hematomas occur on various locations.⁴ In most cases, the hematoma continues growing slowly as a space-occupying mass for long periods after surgical treatment or injury. There are some reports of a huge mass presenting as chronic expanding hematoma in intrathoracic cavity or extrathoracic cavity after thoracic surgery, thoracoplasty, or tuberculous pleuritis.¹⁻⁴ Chronic expanding hematoma remains a rare disease but should be considered in the differential diagnosis in cases of an expanding mass when there is a history of tuberculous pleuritis and thoracoplasty. Chronic expanding hematoma should be differentiated from soft tissue neoplasms, as both may present as a painless, slowly expanding mass; on radiologic findings, several kinds of soft tissue sarcoma commonly reveal hemorrhagic or cystic changes. This disease in the chest is recognized as a specific type of chronic empyema, so-called organizing empyema. This lesion is usually a nonpurulent lesion with no bacteria, including mycobacteria.

Four cases of chronic hematomas after thoracoplasty have been reported in Japan. One possible mechanism of chronic hematoma is that microscopic hematomas forming after the initial hemorrhage do not resolve naturally and slowly grow due to repeated organization and hemorrhage from new fragile microvessels beneath the fibrous capsule. Labadie and Glover⁵ proposed that the

Figure 2. Macroscopic findings of the tumor.

breakdown products derived from erythrocytes, hemoglobin, leukocytes, and other solid blood elements induce mild inflammation, and such continued inflammation causes increased permeability of the vascular wall and bleeding from dilated microvessels beneath the fibrous capsule. Incomplete treatment for tuberculosis, such as artificial pneumothorax and thoracoplasty, is also considered to be one of the causes of this disease.

The extrathoracic mass in this case arose adjacent to the remaining ribs after thoracoplasty. Incomplete removal sometimes leads to recurrence. Complete removal of chronic expanding hematoma is not easy because of abundant new vascularizations beneath the capsule and the presence of a fibrous hard adhesion to the chest wall. Massive bleeding during separation of adhesion is reported to be occasionally dangerous to patients, but intraoperative blood loss in this case was 530 g, which was a smaller bleeding volume than expected, and the chronic hematoma was completely removed. Microscopic observation in this case was encapsulated hematoma with calcification, and there was no sign of bacterial or tuberculous infections.

In a case of gradual growth of a mass at the site of the previous thoracoplasty, the existence of a chronic expanding hematoma should be considered.

References

1. Uramoto H, Nakanishi R, Eifuku R, et al. Chronic expanding hematoma in the chest. *J Cardiovasc Surg*. 2000;41:143-6.
2. Hanagiri T, Muranaka H, Hashimoto M, et al. Chronic expanding hematoma in the chest. *Ann Thorac Surg*. 1997;64:559-61.
3. Takeo S, Hora N, Ohtsu Y, Motohiro A, Ichinose Y, Ohta M. Giant extrathoracic hematoma after thoracoplasty—a case report. *Jpn J Surg*. 1991;21:360-3.
4. Reid JD, Kommareddi S, Lankerani M, Park MD. Chronic expanding hematomas. A clinicopathologic entity. *JAMA*. 1980;244:2441-2.
5. Labadie EL, Glover D. Physiopathogenesis of subdural hematoma: Part 1, Histological and biochemical comparison of subcutaneous hematoma in rats with subdural hematoma in man. *J Neurosurg*. 1967; 45:382-92.