

## CASE REPORT

Radiation Medicine: Vol. 18 No. 5, 311–313 p.p., 2000

### A Case of Thymic Cyst Associated with Thymoma and Intracystic Dissemination

Masaki Hara,\* Hiromasa Suzuki,\* Satoru Ohba,\* Motoharu Satake,\*  
Hiroyuki Ogino,\* Masato Itoh,\* Yosuke Yamakawa,\*\* and Hisashi Tateyama\*\*\*

We report a rare case of anterior mediastinal thymic cyst together with a thymoma and its intracystic dissemination. More attention should be given to intramural nodules, especially in patients with an anterior mediastinal thin wall cystic lesion.

*Key words:* thymic cyst, thymoma, intracystic dissemination, CT, MRI

#### CASE REPORT

A 57-YEAR-OLD asymptomatic man was referred to our hospital for further evaluation of a right anterior mediastinal mass that was incidentally detected on an annual health screening chest radiograph. His medical history, physical examination, and laboratory findings were normal except for a slightly elevated uric acid level of 8.4 mg/dl (normal, 3.4–7.8 mg/dl). Postero-anterior and lateral chest radiographs demonstrated a large right upper anterior mediastinal mass.

Unenhanced CT showed a 7.1 cm×4.5 cm sharply margined right anterior mediastinal mass composed of a cyst (CT number, 20 HU) with intracystic round soft tissue (CT number, 49 HU) elements (Fig. a). Contrast-enhanced CT obtained 90 seconds after the injection of contrast material demonstrated both a round mass 3.7 cm in diameter and some flat-shaped masses that were homogeneously contrasted up to 77 HU (Fig. b).

Transaxial MR images demonstrated both the cyst and the solid components similarly to those observed on CT. T1- and T2-weighted images showed the solid components as homogeneous intermediate and

heterogeneous intermediate high signal intensity against the cystic area, respectively (not shown). Enhanced coronal MR images obtained 15 minutes after the injection of contrast material demonstrated a septum within the cystic area (Fig. c). Both round and flat solid lesions were noted within the caudal part of the cyst.

Surgical exploration revealed a well-encapsulated bilocular (9.0×6.0×4.0 cm) thin-walled cystic mass within the right inferior lobe of the thymus. The caudal cavity had both a round mass and some flat masses (Fig. d, e).

Microscopic findings of the specimen showed bilocular cysts lined with squamous or cuboidal epithelium, containing small foci of the normal thymus (Fig. f) and neoplastic thymic elements in the fibrous wall. The neoplastic thymic nodules in the cysts, which showed no epithelial cell lining on the surface, were composed of polygonal epithelial cells and many lymphocytes (Fig. g). The other nodules of the fibrous wall of the cysts disclosed almost the same microscopic findings. The pathological diagnosis was a predominantly lymphocytic thymoma in the pre-existing thymic cyst.

#### DISCUSSION

Thymic cysts are relatively uncommon, but their numbers are increasing with the advent of new modalities such as CT and MRI. Thymic cysts are most commonly classified into congenital or acquired.<sup>1-4</sup>

Congenital cysts are probably derived from remnants of the fetal thymopharyngeal duct, and their walls are lined with epithelium with normal thymic tissue without inflammation. They may be unilocular or multilocular, containing clear to straw-colored or chocolate-colored

---

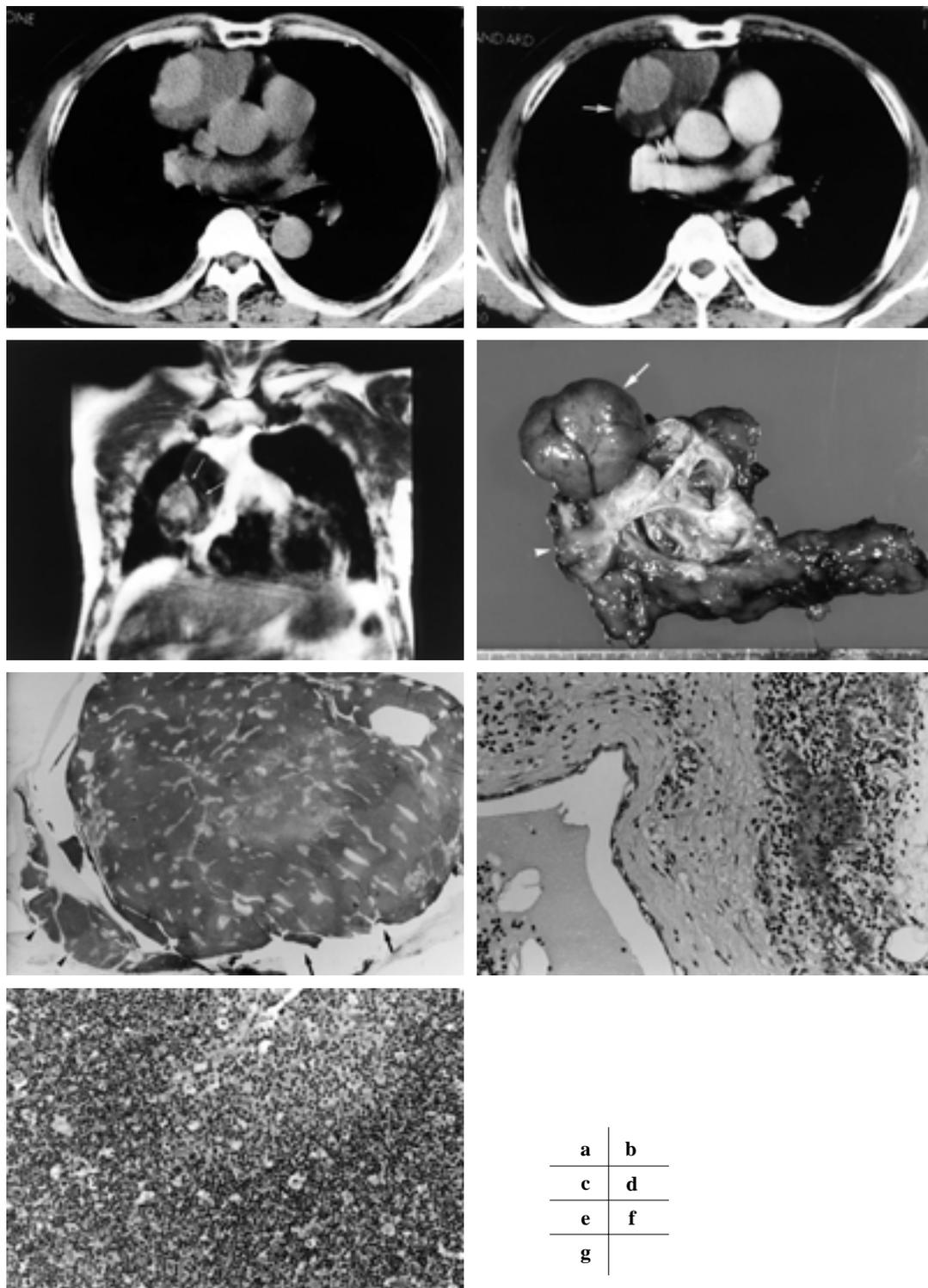
Received March 14, revision accepted May 30, 2000.

\* Department of Radiology, Nagoya City University Medical School, Nagoya

\*\* Second Department of Surgery, Nagoya City University Medical School, Nagoya

\*\*\* Second Department of Pathology, Nagoya City University Medical School, Nagoya

Reprint requests to Masaki Hara, M.D., Department of Radiology, Nagoya City University Medical School, 1 Kawasumi, Mizuho-cho, Mizuho-ku, Nagoya 467-8601, JAPAN.



**Fig. a:** Unenhanced CT demonstrates a sharply margined right anterior mediastinal mass composed of a cyst (CT number, 20 HU) with intracystic round soft tissue (CT number, 49 HU) elements.  
**b:** Contrast-enhanced CT obtained 90 seconds after the injection of contrast material shows both a round mass 3.7 cm in diameter and flat - shaped masses (*arrows*), which were homogeneously contrasted up to 77 HU.  
**c:** An enhanced coronal MR image obtained 15 minutes after the injection of contrast material demonstrates a septum within the cystic lesion (*arrows*). There are solid lesions within the caudal part of the cyst.  
**d, e:** Surgical exploration revealed a well-encapsulated bilocular thin-walled cystic mass within the right inferior lobe of the thymus. The caudal cavity has both a round (*arrows*) and some flat masses (*arrowheads*).  
**f:** Microscopic findings of the specimen show a bilocular cyst lined with squamous or cuboidal epithelium with small foci of mural thymic tissue.  
**g:** The neoplastic thymic components are composed of polygonal epithelial cells and many lymphocytes.

fluid after an intracystic hemorrhage.<sup>1,2</sup> Acquired thymic cysts are multilocular (multilocular thymic cyst, MTC) and have variously thickened walls with severe acute and chronic inflammation that are lined partially by epithelium.<sup>3</sup> They commonly result from the cystic transformation of medullary duct epithelium-derived structures with acquired inflammation.<sup>3</sup>

This case consisted of bilocular thin-walled cysts lined with squamous or small cuboidal epithelium including yellowish clear fluid. The walls of the cysts also had a normal thymus without inflammation. From these pathological findings, this patient was pathologically diagnosed with congenital thymic cyst.

Thymic cyst complicated by thymoma or malignant tumors is rare, and only a few case reports have been found concerning either congenital or acquired thymic cysts.<sup>5-7</sup>

Although thymomas rarely result in extensive cystic degeneration with clear material, cystic thymoma was another possible diagnosis for this patient.<sup>8</sup> Their gross appearance, such as a cystic mass with mural nodules, mimics those of our patient. However, the complete absence of epithelial lining within the cystic wall is an important feature of cystic thymoma that could differentiate it from thymic cyst with thymoma.<sup>8</sup>

Mural nodules consist of a large round mass and small flattened spindle-shaped nodules that show identical pathological findings. Because of the disparity between them in size and shape, intracystic dissemination from the large round mass was considered more likely than multicentric thymomas within the cyst.

Because flat and spindle-shaped mural nodules are

difficult to observe using CT and MRI, we should pay careful attention to thin-walled anterior cystic masses because they often tend to be managed without procedures.

In summary, this is the first report of a congenital thymic cyst in which a thymoma and its intramural dissemination were shown using CT and MRI.

#### REFERENCES

- 1) Rosado-de-Christenson ML, Galobardes J, Moran CA. Thymoma: radiologic-pathologic correlation. *Radiographics*, 12: 151–168, 1992.
- 2) Shimosato Y, Mukai K. Tumors of the thymus and related lesions. In *Tumors of the Mediastinum. Atlas of Tumor Pathology, 3rd Series, Fascicle 21* (Armed Forces Institute of Pathology, Washington, D.C.), pp. 33–237, 1997.
- 3) Suster S, Rosai J. Multilocular thymic cyst: an acquired relative process study of 18 cases. *Am J Surg Pathol*, 15: 388–398, 1991.
- 4) Strollo DC, Rosado-de-Christenson ML. Tumor of the thymus. *J Thorac Imag*, 14: 152–171, 1999.
- 5) Yamamura H, Mase T, Shioi K, *et al.* A case of thymic cyst and thymoma with myasthenia gravis. *Kyobu Geka*, 50: 975–977, 1997.
- 6) Liang SB, Ohtsuki Y, Sonobe H, *et al.* Multilocular thymic cysts associated with thymoma: a case report. *Path Res Pract*, 192: 1283–1287, 1996.
- 7) Leong AS-Y, Brown JH. Malignant transformation in a thymic cyst. *Am J Surg Pathol*, 8: 471–475, 1984.
- 8) Suster S, Rosai J. Cystic thymomas: a clinicopathologic study of ten cases. *Cancer*, 69: 92–97, 1992.