Congenital Thymic Cyst Attached to the Pericardium*

Case Report and Review of the Literature

STEPHEN PODOLSKY, M.D., EDWARD W. EHRLICH, M.D.
AND JOHN M. HOWARD, M.D., F.C.C.P.

Philadelphia, Pennsylvania

While a variety of cystic lesions may occur in the neck and mediastinum, those which arise from the thymus are exceedingly rare. The thymic cysts reported in the early literature were generally found in syphilitic infants and were often termed Dubois' abscesses. There are few reports of luetic thymic cysts during the present century, although the occasional cyst resulting from infection has invariably been associated with syphilis.

Krech, Storey, and Umiker1 divided thymic cysts into three groups: congenital, inflammatory, and neoplastic.

Although excision of tumors of the thymus has become more frequent in recent years, very few non-syphilitic thymic cysts have been reported. A survey of the literature up to 1960 has disclosed only 35 resections of congenital thymic cysts. Five others have been described at necropsy. Half of the reported cysts have been found during the first two decades of life (Table 1).

Table 1—Age of Patients with Thymic Cyst: Collected Series

<table>
<thead>
<tr>
<th>Age at Diagnosis</th>
<th>Number of Patients</th>
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<tbody>
<tr>
<td>0-10</td>
<td>12</td>
</tr>
<tr>
<td>11-20</td>
<td>8</td>
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<td>21-30</td>
<td>7</td>
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<tr>
<td>31-40</td>
<td>3</td>
</tr>
<tr>
<td>41-50</td>
<td>4</td>
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<tr>
<td>51 and over</td>
<td>6</td>
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The patient reported here is of particular interest because a classical roentgenographic picture of a pericardial cyst was simulated. Another unusual feature of the present case is that she is the oldest patient so far reported with a congenital cyst of the thymic gland.

Case Report

A 59-year-old unemployed woman was admitted to Hahnemann Hospital on April 13, 1960. A chest x-ray film taken in June, 1959, by a mobile-x-ray unit had demonstrated a suspicious area overlying the right lung. Another film taken several months later demonstrated a lesion which was believed to be a pericardial cyst.

A review of her symptoms was essentially negative. Physical examination was not remarkable. Planigraphy demonstrated the lesion to be definitely in the right pericardial region and apparently cystic with a moderately calcified wall. Bronchoscopy and cytologic studies for cancer were negative. Smears and cultures of her bronchial secretions for tuberculosis and fungi were also negative. The electrocardiogram was within normal limits as were all other routine studies.

On April 20, 1960, right thoracotomy was performed. A soft tissue mass, approximately 6 x 8 cm. in diameter was attached to the pericardium overlying the region of the right atrium, but it could be separated by sharp dissection. The mass was covered by mediastinal

Figure 1: Gross specimen of thymic cyst.

*From the Department of Surgery, Hahnemann Medical College and Hospital.
pleura, and had a vascular pedicle arising from within the anterior superior mediastinum. The mass was removed uneventfully and was found to be an encapsulated soft tissue tumor filled with greasy, reddish-brown necrotic material (Figs. 1 and 2).

Histologic examination showed the structure to be completely covered by a grayish-white fibrous connective tissue capsule with a grossly visible nodule of lymphoid tissue (2 x 1 x 1 cm.) in one pole (Fig. 3). The cyst had a thin mesothelial lining beneath which was a narrow zone of normal lymphocytes separated by fine fibro-connective trabeculae. Some areas of the wall showed dense hyalinized connective tissue with numerous cholesterol clefts and focal collections of foreign body type giant cells (Fig. 4).

**DISCUSSION**

Loupalt in 1897 recorded the first congenital thymic cyst, a necropsy finding in an 18-year-old girl. The cyst weighed 69 grams and was located in the mediastinum, a position which was subsequently proved to be the most common site (Table 2).

<table>
<thead>
<tr>
<th>Table 2—Anatomic Location of Thymic Cysts</th>
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<tr>
<td>Mediastinal</td>
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<tr>
<td>Cervical</td>
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<tr>
<td>Both Areas</td>
</tr>
</tbody>
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The first attempt at excision of such a lesion was made in 1901 by Polloson and Piery. The cyst was "fist size" and was partially removed from the cervical area of the one and one-half-year-old boy.

In 1929, Pezcolley reported the partial excision of a combined cervical and mediastinal cyst which had presented as a small (1 cm.) mass in the suprasternal notch of a young girl. The operation was not completed because of hemorrhage. The first American patient was reported by Speer in 1938, a necropsy finding in a 25-year-old man.

The first complete excision of a cervical thymic cyst was reported by Hyde, Sellers, and Owen in 1944. Reports appeared simultaneously in the American and British literature in October, 1947, of the first mediastinal cysts to be excised at thoracotomy.

Although Bettega and associates called attention to the possibility of confusing thymic cysts with pericardial cysts, and Perasalo and Tala had a patient in whom
a thymic cyst was adherent to the aorta and upper right pericardium, the only previous report of a thymic cyst actually simulating cardiomegaly was made by Coulshed and associates. Their patient, a 12-year-old boy with stabbing precordial pain, unrelated to effort, was followed for two years before thoractomy was performed because the abnormal right cardiac convexity was clearly enlarging.

Except for a description of the development of myasthenia gravis four years after the excision of a cyst of the thymus, there has been no report linking the two conditions. At re-operation, the above patient was found to have thymic hyperplasia without tumor.

There are numerous theories as to the exact etiology of these cysts. Like the thymus gland itself and the lower parathyroids, they are believed to arise from the third branchial pouch. It may be hypothesized that by virtue of a congenital defect, a patent thymic or thymo-pharyngeal duct persists until fluid accumulates or hemorrhagic distention occurs. To the contrary, thorough histologic studies of a thymic cyst led Bettega and associates to the conclusion that these cysts arise from microrcystic degeneration of Hassall’s corpuscles.

The lesions are most frequently detected as anterior mediastinal masses by chest x-ray examination or by palpation above the suprasternal notch. Twenty-two of the 40 reported cysts have occurred in males.

The cysts are rarely symptomatic, especially in the adult. When symptoms develop they are usually those of pain or fullness in the chest. Other symptoms referable to compression of adjacent structures such as the recurrent laryngeal nerve may occur. With regard to extremes of location, these cysts have been reported from below the angle of the right jaw (anterior to the sternocleidomastoid) to far down in the anterior mediastinum. In the majority, the cysts have an epithelial or epithelial-like lining. Fifteen have been reported as multilocular, 12 as unilocular. None has had a malignant component.

References


PROTECTIVE EFFECT OF INHALATION OF OXYGEN

The administration of oxygen at 2 atmospheres absolute pressure protects dogs with acute interruption of the main left coronary circumflex artery against ventricular fibrillation. Electrocardiographic and histologic evidence suggests that more of the cells in the ischemic mass are maintained in a viable state in the animals thus protected. The technique has been applied in human beings for periods up to three and one-half days with no deleterious effects.