Malignant Thymoma with Myasthenia and Embolic Metastasis
Report of a Case

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NEOPLASMS OF THE THYMUS ARE NOT common. As with any relatively rare disease, an understanding of its natural history expands as larger series are accumulated, the patients followed up for longer periods of time, and as unusual aspects are reported.

Two authorities on neoplasms arising in the thymus have stated that they were not aware of any instance of typical thymomas metastasizing.1,2 Since that time, one of the authors3 has reported such a case, and several others have been recorded** This report is of a thymoma, with typical clinical and histologic features, in which a discrete, embolic metastasis was detected.

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CASE REPORT
Clinical History
A 58-year-old white crane operator was first seen in the Neurology Department of the University of Chicago Clinics because of difficulty in talking and a 35 pound weight loss over a two-month period. He had weakness on the orbicularis oculi, axial, and neck muscles; and had pronounced dysphagia, dysarthria, and dysphonia. Intravenous administration of edrophonium chloride restored muscular strength promptly, but transiently. Adequate strength for mastication could not be maintained on oral neostigmine so he was placed on ambenonium chloride (Mytelase).

In the succeeding 11 months, he continued to have some generalized weakness, but was able to maintain his weight, and appeared in relatively good health. Suddenly, over a period of two hours, he developed progressive difficult breathing.

He was admitted to the University of Chicago Hospital in marked respiratory distress. His blood pressure was 150/180 and his pulse was 90 per minute. He was cyanotic with rapid, shallow respirations. Inspiratory movements were limited.

CASE REPORT

Clinical History

FIGURE 1: Grossly the thymoma was surrounded by a smooth, thick fibrous capsule and was not adherent to adjacent structures. The interior was cystic and hemorrhagic.

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and rales were heard in the lower lobes of both lungs. Neurologic examination revealed severe ptosis, generalized muscular weakness, dysarthria and dysphonia. Hemoglobin concentration was 16.4 grams per cent, red blood cell count 4.73 million per mm$^3$, hematocrit 47 per cent. The erythrocyte sedimentation rate was 35 mm. per hour, white blood cell count 15,000/mm$^3$ with 97 per cent neutrophils.

In spite of parenteral administration of neostigmine, vasoconstrictors, and antibiotics, he developed increasing respiratory distress and expired approximately 15 hours after admission.

**Necropsy**

**Gross:** Except for cachexia relevant findings were limited to the thorax. In the right pleural cavity, 150 ml. of clear serous fluid was present. Multiple emboli were found in pulmonary arteries bilaterally, but no source was detected. The right lung weighed 800 grams and the left 600 grams. Both lungs were edematous and contained many areas of confluent bronchopneumonia.

In the anterior, superior mediastinum, slightly to the right of and overlying the superior vena cava there was a 1.5 x 3 x 4.5 cm. mass (Fig. 1) which appeared to arise from the right lobe of the thymus. The tumor was lobulated and had a dense fibrous capsule. The inferior margin was in contact with the pericardium and the superior pole extended toward the innominate artery. The interior was hemorrhagic and cystic and contained dense fibrous trabeculae which merged with the fibrous capsule. A left hilar node, which showed no connection to the tumor, was enlarged and its interior had an appearance similar to that of the tumor in the thymus.

**Microscopic Findings:** Acute necrotizing bronchopneumonia and acute and chronic bronchitis were present throughout the lungs bilaterally. A solitary focus of atypical squamous metaplasia (Fig. 2) was found in the left main bronchus.

The mediastinal tumor was intermixed with remnants of thymus containing Hassall's corpuscles. The neoplasm was formed by an admixture of cells (Fig. 3), some resembling lymphocytes and others larger and epithelial-like. These latter cells were plump and polygonal with ill-defined cytoplasm in some areas, and in others spindle-shaped with distinct nuclei and

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**Figure 2:** A focus of typical squamous metaplasia (dysplasia) present in the left main bronchus (X33).

**Figure 3:** The primary tumor composed of intermixed lymphocytic and epithelial-like cells characteristic of thymoma (X105).
FIGURE 4: Aggregates of tumor cells and erythrocytes within two thin walled vessels (X205). Prominent eosinophilic cytoplasm. Extension through the capsule was seen in the superior portion of the tumor, and here the epithelial cells were somewhat more bizarre and larger than

FIGURE 5: A metastasis almost completely replaced the left hilar node. The histologic appearance was identical to that in the primary tumor (X165).
elsewhere and were accompanied by fewer lymphocytes. Clusters of malignant cells were found within the lumen of two small, thin-walled vessels near the capsule of the tumor (Figs. 4, 5). The hilar lymph node was almost completely replaced by carcinoma histologically identical to the thymoma in the superior mediastinum (Fig. 6).

Sections of striated muscles revealed diffuse lymphorrhagia (Fig. 7).

**DISCUSSION**

This patient’s thymoma arose in remnants of the thymus and was composed of a characteristic diploblastic population of lymphocytic and epithelial cells. Both the clinical findings of axial and facial muscular invasion and discrete embolic metastasis and neostigmine, and histologic findings of muscular lymphorrhagia attested to an associated myasthenia. The tumor extended through its dense fibrous capsule, indicating a capacity for local aggressiveness, and manifested both intravascular invasion and discrete embolic metastasis to a hilar lymph node.

**REFERENCES**


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