THYMOMA: Simple Histological Definition

A cytologically-bland or indeterminate epithelial neoplasm with a variable investment of lymphocytes, which shows differentiation towards thymic epithelium; overt nuclear anaplasia excludes tumors from this category.

THYMOMA: Clinicopathologic Characteristics

- Primarily a tumor of adults; rare examples in pediatric patients
- Slight female predominance
- Symptoms and signs are absent in 50% of cases (found by x-ray); others present with cough, chest pain, dyspnea, or paraneoplastic phenomena
- Associated syndromes include myasthenia gravis, pure red cell aplasia, acquired hypogammaglobulinemia, and others
- Roughly 50% of tumors are invasive
THYMOMA: Histological Variants (Bernatz Scheme)

- Lymphocyte-predominant (>66% lymphocytes)
- Mixed lymphoepithelial (>33 and ≤ 66% lymphocytes)
- Epithelial-predominant (≤ 33% lymphocytes)
  - Spindle-cell (subtype of epithelial-predominant)
<table>
<thead>
<tr>
<th>Masaoka stage</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Encapsulated tumor</td>
</tr>
<tr>
<td>IIA</td>
<td>Microscopic capsular invasion</td>
</tr>
<tr>
<td>IIB</td>
<td>Macroscopic invasion into fatty tissue</td>
</tr>
<tr>
<td>III</td>
<td>Invasion into great vessels, pericardium, or lung</td>
</tr>
<tr>
<td>IVA</td>
<td>Pleural and/or pericardial dissemination</td>
</tr>
<tr>
<td>IVB</td>
<td>Lymphatic or hematogenous metastases</td>
</tr>
</tbody>
</table>
DIFFERENTIAL DIAGNOSIS OF THYMOMA BASED ON THE BERNATZ (“AMERICAN”) CLASSIFICATION SYSTEM

- **Lymphocyte-predominant**: Small lymphocytic, follicular, and lymphoblastic lymphomas; small cell neuroendocrine carcinoma; primitive neuroectodermal tumor; embryonal rhabdomyosarcoma
- **Mixed lymphoepithelial**: Non-Hodgkin and Hodgkin lymphomas with mixed cellular compositions; seminoma
- **Epithelial-predominant**: Large-cell lymphoma; syncytial Hodgkin lymphoma; germ cell tumors; neuroendocrine tumors; follicular thyroid neoplasms
- **Spindle-cell**: Fibrohistiocytic tumors; hemangiopericytoma; solitary fibrous tumor

“Pseudosarcomatous” (Metaplastic) Thymoma

- Described by Suster et al. in 1997, as a distinctive variant of thymoma that had likely been included among thymic “carcinomas” up to that time
- Six cases were described of an unusual type of primary thymic epithelial neoplasm characterized by a biphasic epithelial/spindle cell morphology that closely resembled a carcinosarcoma
- The patients were two women and four men 28-70 years of age. The tumors presented clinically as asymptomatic anterior mediastinal masses found incidentally on routine chest radiographs. All patients were treated by complete surgical excision
- Followup showed no examples of recurrence or metastasis, supporting the benign nature of the proliferations
### Micronodular Thymoma with B-Cell Hyperplasia (“Castlemanoid Thymoma”)

- Described by Suster & Moran in 1999
- Approximately 50 cases have been reported since then
  - These tumors occur in adults (mean age 58 years), usually as asymptomatic and discovered incidentally on routine chest radiographs or during other thoracic surgical procedures
  - The lesions measure from 3 to 10 cm in greatest dimension; they are well circumscribed and encapsulated and may be partially cystic

- Histologically, micronodular thymoma is characterized by a proliferation of small tumor nodules separated by abundant lymphoid stroma with prominent germinal centers, which, on low power examination, simulate the appearance of Castleman's disease
- None of the reported patients with micronodular thymoma have had systemic symptoms or signs; none of the tumors has recurred
Complete surgical removal, if at all possible

- Uniform postoperative irradiation for Moran Stage II tumors and higher
- Chemotherapy for stage III & IV lesions
- Survival of stage I & II tumors is >90% at 5 yrs; approximately 50% for stage III lesions and 15% for stage IV