

Evidence Discussion (ONC 10.5-10.8)

Thymoma and Thymic Carcinoma

Suspected/Diagnosis (10.5): See CH 20.1 and ONC 15.6. Masses in the anterior mediastinum can be due to a number of neoplastic (thymoma, lymphoma, thymic carcinoma, thymic carcinoid, germ cell tumors or metastases) as well as non-neoplastic conditions (goiter, cysts, lymphangiomas, aortic aneurysms). 1 These masses can be brought to medical attention due to local or systemic symptoms as well as an incidental finding on imaging (CXR, CT chest). This section focuses on thymomas and thymic carcinomas while other sections can be utilized for management of Mediastinal Mass (CH-20.1) or Bronchopulmonary/Thymic Carcinoid (ONC-15.6).

Initial work-up/Staging (10.6): Thymomas and Thymic carcinomas originate in the thymus and are epithelial tumors. Thymomas are rare tumors (though most common primary tumor of anterior mediastinum) that typically spread locally with 5 year survival rates of 90% while thymic carcinomas are very rare, more invasive and often present with metastases with 5 year survival rates of 55%. 2 Initial imaging for thymoma includes CT chest with contrast that usually shows a well-defined rounded or oval mass without adenopathy. If there is extensive mediastinal involvement, CT neck/abdomen with contrast can be performed. If CT imaging is inconclusive, PET/CT or MRI chest with and without contrast may be indicated, with MRI preferred in thymic carcinoma. 3, 4 For preoperative planning, MRI chest is also indicated. Thymic carcinomas can also be imaged according to Non-Small Cell Lung Cancer ONC-8.3).

Restaging/Recurrence (10.7): If induction chemotherapy is given, PET/CT can be obtained prior to surgical resection as studies have shown a correlation of radiographic response to pathologic response to help guide resectability. 5 For recurrence, CT chest with CT neck/abdomen as clinically indicated. PET/CT or MRI chest indicated if CT chest is inconclusive. For individuals on chemotherapy for metastatic disease, CT neck/chest/abdomen with contrast can be given every 2 cycles. Thymic carcinomas can also be imaged according to Non-Small Cell Lung Cancer (ONC-8.4).

Surveillance/Follow-up (10.8): Thymoma surveillance should be with CT chest with contrast and any previously involved areas every 6 months for 2 years then annually for 10 years due to the risk of late recurrence. 6 Thymic carcinoma surveillance includes CT chest with contrast every 6 months for 2 years then annually for the next 5 years. 7

References:

1. NCCN Guidelines Version 1.2024, Thymomas and Thymic Carcinomas (MS-3)
2. NCCN Guidelines Version 1.2024, Thymomas and Thymic Carcinomas (MS-2)
3. Sadohara J, Fujimoto K, Muller NL et al. Thymic epithelial tumors: comparison of CT and MR imaging findings of low-risk thymomas, high-risk thymomas, and thymic carcinomas. *Eur J Radiol.* 2006; 60: 70-79.

4. Treglia G, Sadeghi R, Giovanella L, et al. Is (18)F-FDG PET useful in predicting the WHO grade of malignancy in thymic epithelial tumors? A meta-analysis. *Lung Cancer* 2014;86:5-13. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/25175317>.
5. Lococo F, Chiapetta M, Triumbari, E. et al. Current Roles of PET/CT in Thymic Epithelial Tumors: Which Evidences and Which Prospects? A Pictorial Review. *Cancers* 13 (23) 2021.
6. NCCN Guidelines Version 1.2024, Thymomas and Thymic Carcinomas (MS-7)
7. NCCN Guidelines Version 1.2024, Thymomas and Thymic Carcinomas (MS-9)