

Rad-Path Case Presentation

April Hyon, MS4

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Case: 55 year old male

- ▶ HPI: Presented to the ED after falling 10 feet off a roof. CT chest/abd/pelvis showed hematoma in tissues overlying gluteal musculature. Anterior mediastinal mass found incidentally.
- ▶ Reports chronic back pain, chronic dyspnea. No chest pain, nausea/vomiting, or weight loss. No h/o myasthenia gravis. No personal or family h/o cancer.
- ▶ PMH: GERD, COPD, tobacco use disorder, cervical degenerative disc disease
- ▶ PSH: cervical spine surgery

Chest CT w/ contrast



- ▶ 10.9 x 12.1 cm x 7.4 cm anterior mediastinal mass
- ▶ Multifocal central necrosis and heterogeneous calcifications

DDx for Anterior Mediastinal Mass

- ▶ Thymoma
- ▶ Thymic carcinoma
- ▶ Lymphoma
- ▶ Germ cell tumor (e.g. teratoma)
- ▶ Thyroid neoplasm

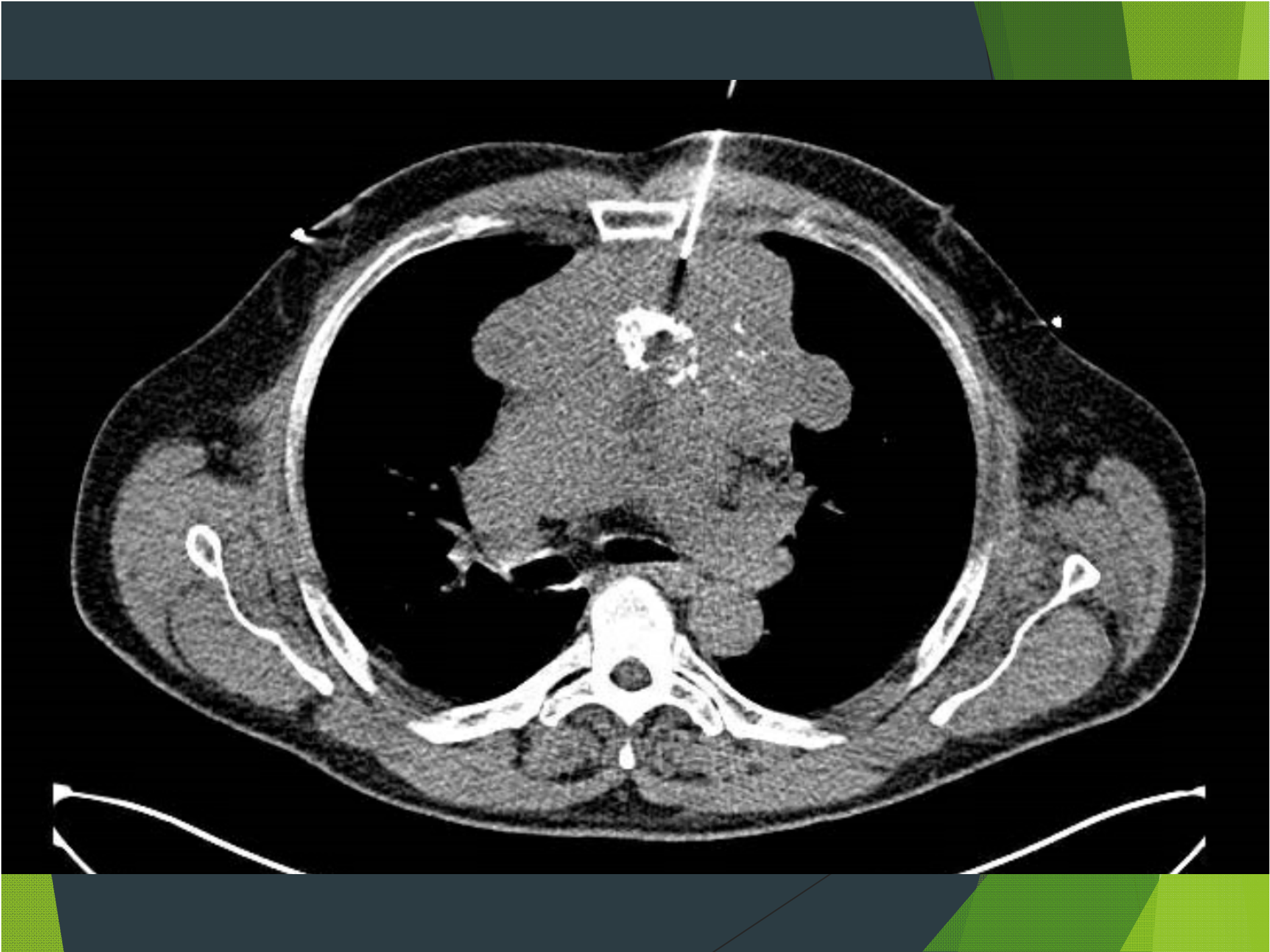
Labs for Mediastinal Mass

- ▶ AFP, beta-hCG (for germ cell tumors)
- ▶ Acetylcholine receptor antibody (for myasthenia gravis, associated w/ thymoma)
- ▶ All negative

Biopsy Approach

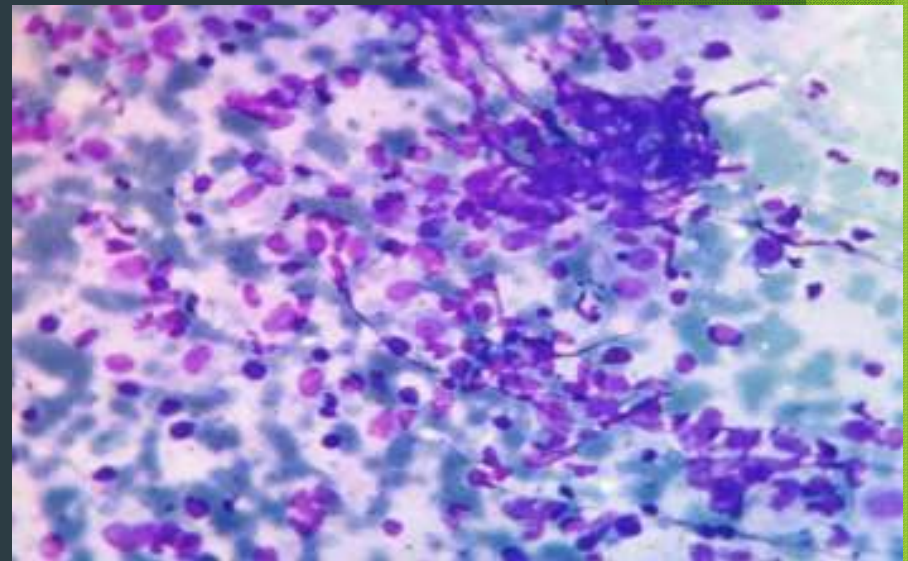
- ▶ CT-guided approach chosen
 - ▶ Nonenhanced CT alone is sufficient for safe biopsy planning in most patients who have previously undergone diagnostic contrast-enhanced CT
 - ▶ Parasternal approach
- ▶ Ultrasound guidance can be used for real-time, continuous monitoring of the needle, at the bedside of critically ill patients, and for patients who cannot tolerate a supine position





FNA Smear

- ▶ Diff-Quik stain
 - ▶ Used for immediate cytological evaluation
 - ▶ Fragments of tissue with small round blue cell morphology in a background of blood

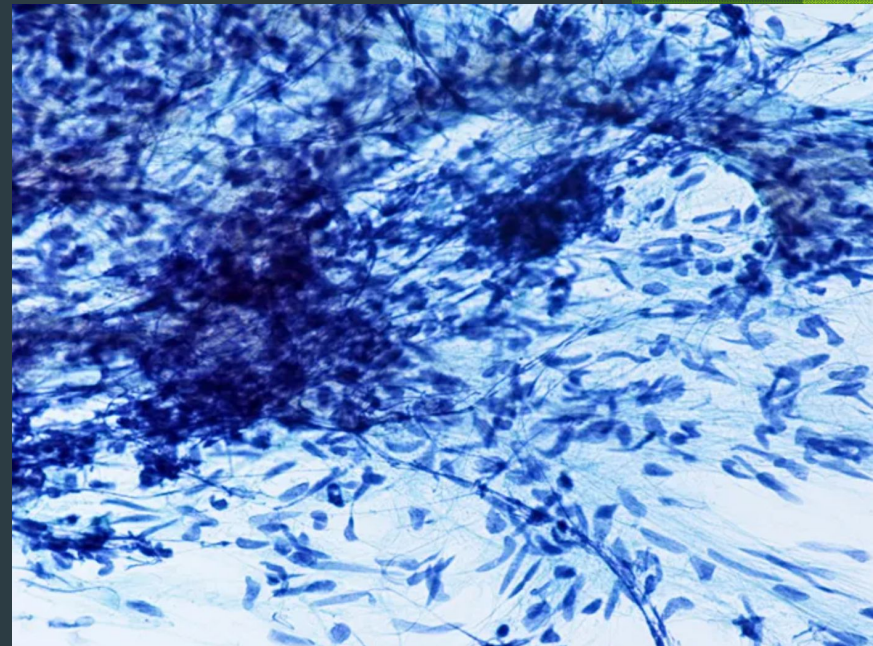


https://www.researchgate.net/figure/Malignant-Thymoma-showing-mixed-population-of-oval-and-spindle-cells-in-the-background-of_fig4_305827213

(FNA Smear cont.)

▶ Pap stain

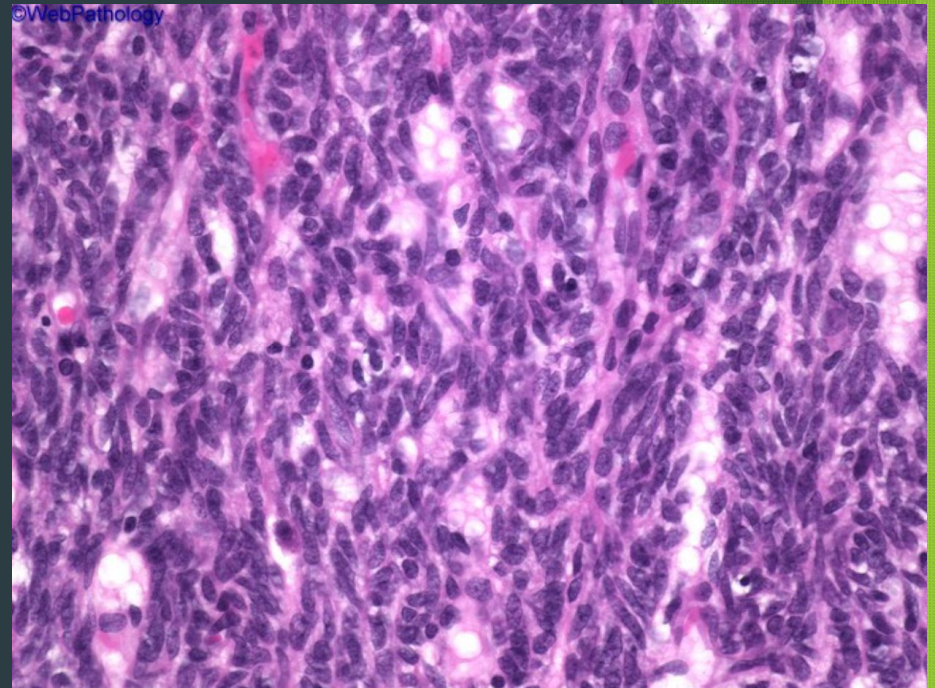
- ▶ Nuclear features better preserved
- ▶ Clusters of crowded, mildly atypical epithelial cells exhibiting spindled morphology, with minimal cytoplasm and indistinct nucleoli



https://www.researchgate.net/figure/Malignant-Thymoma-showing-mixed-population-of-oval-and-spindle-cells-in-the-background-of_fig4_305827213

Core Biopsy

- ▶ H&E used to stain cell block sections
- ▶ Same population of cells which have relatively bland nuclei, with areas of apparent infiltration into adjacent fibrous tissue. Mitotic activity not evident.



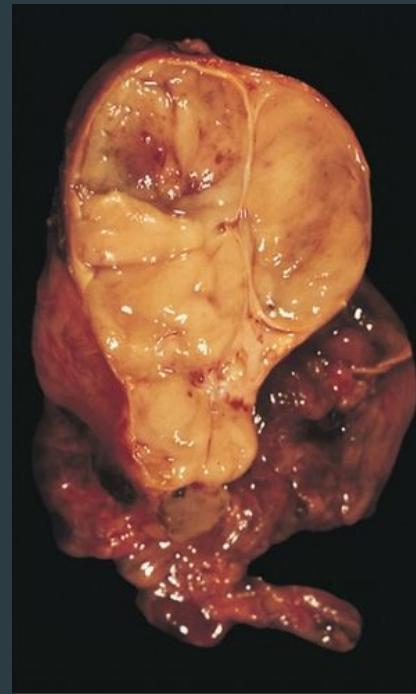
<https://www.webpathology.com/image.asp?n=9&Case=402>

Immunohistochemistry

- ▶ Used to exclude thymic carcinoma
- ▶ PAX8 positive
 - ▶ Thymic epithelial marker
 - ▶ Supports thymic neoplasm, but does not differentiate thymoma from thymic carcinoma
- ▶ CD-5 negative
 - ▶ Supports diagnosis of thymoma

Treatment & Prognosis

- ▶ Surgical resection
- ▶ 5-yr survival rate 90%,
10-yr survival rate 80%
- ▶ Consider post-operative
radiation



References

1. <https://pubs.rsna.org/doi/full/10.1148/rg.253045030>
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3. <http://www.pathologyoutlines.com/topic/mediastinumthymoma.html>
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5. https://librepathology.org/wiki/Thymus#Normal_histology