Leiomyosarcoma of the Thyroid Gland

Wendy McConnell, DO
Des Peres Hospital
PGY-4
Case Presentation

- 61 yr old Bosnian female referred for thyroid nodule
- Mass present for several years
- Denied dysphagia or dysphonia
- US showed 5.2 cm nodule right lobe and 2.1 cm calcified nodule in left mid pole and 1.5 cm nodule in left lower pole
- TSH – 3.2
- Thyroid peroxidase AB – 724.8 (Ref 0-9)
PMHx

- Pancreatic cancer – underwent laproscopic distal pancreatectomy and splenectomy in 2011 followed by chemotherapy finished in 10/2011
- DM, HTN, Hyperlipidemia
- No hx radiation exposure, no fhx of thyroid CA, no hx MEN syndromes
Course of treatment

- Scheduled for total thyroidectomy – mass was noted to be invading and adherent to strap muscles and esophagus – left subtotal thyroidectomy performed and frozen section demonstrated a poorly differentiated carcinoma, initial path report suspicion for anaplastic carcinoma and hashimotos, sent for immunohistochemical testing.
Final Path: Leiomyosarcoma – pleomorphic type, high-grade
Sent for PET scan
Referred to St. Louis University Head and Neck Cancer Center for further care and evaluation
PET – SUV in the left thyroid gland 15.7, right gland 4.5, tumor thrombus in left IJ 15.8, mediastinal lymph nodes range 4.4-5.3
Treatment Plan

- Non-surgical due to mediastinal disease
- Referred to her former oncologist
- Started on Doxorubicin, ifosfamide, and mesna
- Plan to complete 3 cycles of chemo and re-image to determine response
Leiomyosarcoma

- Malignant mesenchymal tumors with smooth muscle differentiation
- Can occur in any smooth muscle throughout the body
- Only 3% found in the head and neck region
- Most common areas are uterus, stomach, small intestine, and retroperitoneum
Histology

- Spindle cell in character
- High-grade is considered greater than 5 mitotic figures per 10 high-powered fields
- Invasive with increased cellularity, necrosis, and hemorrhage
Leiomyosarcoma

- Only 14 cases of primary leiomyosarcoma of the thyroid reported
- Etiology unclear – one theory includes site of origin to be arising from smooth muscle-walled vessels in thyroid capsule
- Overall prognosis is poor
- Response rates to various chemotherapeutic regimens generally have been below 40%
- Pleomorphic variant has high proliferative activities and rather aggressive biologic behavior
Differentiating from Anaplastic Carcinoma

- Anaplastic carcinoma has an epithelial origin
- Leiomyosarcoma has a mesenchymal origin
- Leiomyosarcoma will be negative for cytokeratin which is an epithelial marker and positive for vimentin, desmin, and smooth muscle actin
Head and Neck

- Most common area reported is skin and soft tissue
- Case reports in the oral cavity, larynx, sinuses, nasopharynx
- Survival rate in the head and neck reported at 33-50%
- 40% poorly differentiated
- 13% over 5cm at time of diagnosis
Conclusion

- Rare tumor
- No standard treatment modality, however improved survival with surgery
- Important to differentiate from anaplastic carcinoma
- Increase in recognition with immunohistochemical staining
References

- Chetty R, Clark SP, Dowling JP. Leiomyosarcoma of the thyroid: immunohistochemical and ultrastructural study. Pathology 1993; 25:203-205
- Wang TS, Ocal IT, Oxley K, Sosa JA 2008 Primary Leiomyosarcoma of the thyroid gland. Thyroid 18:425-428