Anaplastic Thyroid Cancer with Distant Metastasis to Muscle

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Abstract
We report a case of a 61 year old woman with anaplastic thyroid cancer with distant metastases to the skeletal muscle. This patient with a new diagnosis of anaplastic thyroid cancer had been complaining of six months of diffuse muscle aches. A PET scan revealed diffuse muscle metastases, and a biopsy of the gluteal muscle confirmed anaplastic thyroid cancer. While anaplastic thyroid cancer is known for its local metastasis to muscle via direct invasion, distant metastases to skeletal muscle is not previously reported.

Keywords: Anaplastic thyroid cancer; Muscle; Brain; Pelvis CT scan

Description of the Cases
A 61-year-old woman presented to the emergency department with decreased hearing in her left ear and left leg numbness in the setting of six months of diffuse muscle aches. A head CT showed multiple supratentorial and infratentorial hemorrhagic brain lesions. To determine the primary site of a probable malignancy, a chest, abdomen and pelvis CT scan was obtained, which showed additional masses in the thyroid gland, lung, and adrenal gland. Biopsy of the thyroid mass revealed anaplastic thyroid carcinoma arising from papillary thyroid carcinoma. Given her muscle aches, a PET-CT was done (Panel A), showing extensive hypermetabolic lesions throughout the skeletal musculature concerning for metastatic disease. Next, a biopsy of the left gluteal muscle (Panel B) revealed anaplastic thyroid carcinoma. Anaplastic thyroid cancer, the most lethal thyroid cancer, most commonly metastasizes to the lungs, lymph nodes, pleura, adrenal glands, and brain. When it spreads to muscle, it typically does so by local invasion and not by distant metastases as seen in this patient. Though this patient’s thyroid cancer had high PD-L1 expression and was thus a candidate for immunotherapy, her prognosis was ultimately poor and she elected to go home with hospice.
Panel B: Biopsy of left gluteal muscle showing anaplastic thyroid carcinoma.