Primary Hyperparathyroidism As Initial Presentation of Stage IV Breast Cancer

Angela Magdaleno DO
Lehigh Valley Health Network, angela.magdaleno@lvhn.org

Angel Lopez MD
Lehigh Valley Health Network, Angel.Lopez@lvhn.org

Thomas A. Diven MD
Lehigh Valley Health Network, Thomas_A.Diven@lvhn.org

Marc A. Vengrove DO, FACP
Lehigh Valley Health Network, Marc.Vengrove@lvhn.org

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Primary Hyperparathyroidism As Initial Presentation of Stage IV Breast Cancer

Angela Magdaleno, DO,[1] Angel Lopez, MD,[2] Thomas Diven, MD,[2] Marc A. Vengrove, DO, FACP[1]

[1]Department of Internal Medicine, Division of Endocrinology, Lehigh Valley Health Network, Allentown, PA, [2]Department of Surgery, Lehigh Valley Health Network, Allentown, PA

INTRODUCTION

- Parathyroid gland malignancies are rare, the most common of which is primary parathyroid carcinoma.
- There are only a few reports of metastatic breast cancer found in functioning parathyroid adenomas
- Literature suggests a predilection for tumors to spread to endocrine organs possibly due to the plentiful blood supply.
- Based on autopsy studies, metastatic involvement of the parathyroid gland among known cancer patients is 0.2-11.9%.
- We present the unique case of a patient presenting with primary hyperparathyroidism, which ultimately lead to a diagnosis of stage IV breast cancer.

ABSTRACT

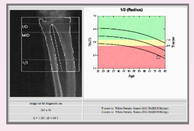
- A 77-year-old female was referred to endocrinology for hypercalcemia.
- Her calcium level was elevated at 10.5 mg/dL (normal 8.5-10.1 mg/dL) with an intact PTH of 171.3 pg/mL (normal 14.0-72.0 pg/mL), consistent with primary hyperparathyroidism.
- She was symptomatic with polyuria, polydipsia, constipation, weakness, and recent 25 lb. weight loss that she attributed to decreased appetite.
- The patient denied taking calcium supplements, personal history of kidney stones, or family history of MEN syndromes.
- Her BMI was 23 kg/m2 and her physical exam was otherwise unremarkable.
- Renal ultrasound was negative for nephrolithiasis.
- DEXA scan confirmed osteoporosis of the left femoral neck (T score -3.5), and left forearm (T score -5.4) as well as osteopenia of the lumber spine (T score -1.8).
- A Sestamibi scan noted persistent focal activity localizing to a 1.3 x 1.2cm soft tissue density nodule posterior to right thyroid lobe, consistent with a parathyroid adenoma.
- She underwent a right superior and inferior parathyroidectomy based on intraoperative appearance of the glands. Her post-operative calcium level 8.7 mg/dL (normal 8.5-10.1 mg/dL) and PTH level 118 pg/mL (normal 18.5 - 88.0 pg/mL). Her PTH normalized to 59.4 pg/mL within 4 months.
- Pathology report detailed the right inferior parathyroid gland was normocellular parathyroid tissue, however the right superior parathyroid gland, weighing 1030mg, revealed hypercellular parathyroid tissue with a 0.5cm deposit of metastatic carcinoma consistent with breast primary.
- Breast exam showed no abnormalities. Mammogram was negative for breast malignancy.
- Subsequently, PET scan revealed metabolically active metastases throughout pleura, thorax, chest wall, bones, and right colon.
- The patient was diagnosed with stage IV hormone receptor positive and Her-2/neu negative breast cancer. She is currently being treated with tamoxifen.

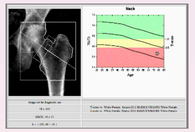
NM PARATHYROID SPECT

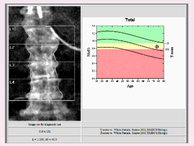
IMPRESSION:

SPECT demonstrates a 1.3 x 1.2 cm nodule posterior to the right thyroid lobe, consistent with a parathyroid adenoma.

DEXA SCAN



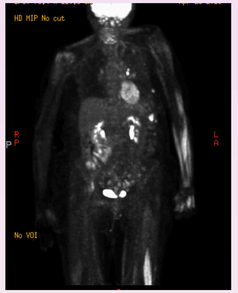




PET CT SCAN

IMPRESSION:

1. Metabolically active metastases with findings suspicious for left pleural metastases with a moderate-sized left pleural effusion. Hypermetabolic nodal disease in the thorax (hilum and mediastinum) concerning for nodal metastases. Multifocal left chest wall metastases. Possible osseous metastasis with focal metabolic activity involving left scapula.
2. Multiple areas of metabolic activity in the right colon with wall thickening on CT images, colonoscopy is suggested to exclude underlying colonic polyps/malignancy.



CONCLUSION

- This case represents a rare presentation of a patient who underwent surgery for primary hyperparathyroidism and ultimately was diagnosed with metastatic breast cancer first noted in the parathyroid adenoma.
- Few case reports in the literature have described known breast cancer with spread to the parathyroid gland.

REFERENCE

Shifrin A, LiVolsi V, Shifrin-Douglas S, et al. Primary and Metastatic Parathyroid Malignancies: A Rare or Underdiagnosed Condition? *J Clin Endocrinol Metab.* 2015; 100(3):E478-E481.

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