Metastatic Breast Cancer Masquerading in the Thyroid

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Abstract

Objectives: Present a case of metastatic breast cancer initially diagnosed on pathology following hemi-thyroidectomy in a patient presenting with a solitary thyroid nodule.

Study Design: Case Report

Methods: Literature review of unusual and atypical presentations of metastatic breast cancer involving the head and neck.

Results: We present a case of metastatic invasive lobular carcinoma diagnosed on pathology following routine right hemithyroidectomy for toxic nodular thyroid goiter. Based on current and past literature review, this is the first documented case of metastatic lobular carcinoma diagnosed in this manner.

Conclusions: Documentation of a case of metastatic breast cancer masquerading in the thyroid is worthy of mention as it serves as a reminder to Otolaryngologists of the vast differential diagnoses of patients presenting with thyroid disease.

Case Presentation

A 49-year-old female presented in April 2012 with the chief complaint of right thyroid nodule in the setting of long-standing hyperthyroidism. An ultrasound obtained in December 2011 revealed a large vascular complex nodule within the right thyroid lobe measuring 5.4 x 3.5 x 3.3 cm (Figure 1).

Of note, the patient first presented to our office in 2003 and examination revealed a right thyroid mass with symptoms of heat intolerance. Thyroid function tests revealed underlying hypothyroidism with elevated thyroid peroxidase (TPO) antibodies. Subsequent FNA of the mass was reported as a nodule with no evidence of malignancy.

In 2006, she was noted to be thyrotoxic and a technetium scan identified two hyperfunctioning nodules in the right thyroid. She was advised by her endocrinologist to undergo right hemi thyroidectomy. However, the patient declined surgical intervention until her presentation.

The patient’s past medical history was largely unremarkable aside from a history of abnormal Pap smears. She had no history of radiation exposure or family history of thyroid disease. Routine screening mammography in March 2012 revealed no abnormalities.

The patient underwent right hemi thyroidectomy in May 2012. Histopathological analysis revealed a benign thyroid nodule with rare scattered cells of metastatic carcinoma within lymphovascular spaces, consistent with invasive lobular carcinoma of mammary origin (+ER/-PR, Her-2/neu negative, + mammmaglobin). There were individual malignant cells and nests of discohesive cells within lymphatic spaces in between the thyroid follicles.

Figure 1: Large vascular complex nodule within the right thyroid lobe measuring 5.4 x 3.5 x 3.3 cm (12/2011)

Figure 2: H&E Stain Demonstrating lobular carcinoma disseminated as single cells and small groups between thyroid follicles, most of them within lymphatic spaces.

Figure 3: A. E-Cadherin Stain: Negative in lobular carcinoma between follicles. Thyroid follicular cells are normally positive. B. Estrogen Receptor Stain: Strongly positive

Post-Operative Course

The patient obtained a breast MRI that was reported as “No suspicious areas of enhancement to suggest a primary malignancy.” Similarly, a post-operative PET scan noted no abnormalities within the breasts.

Concurrently, the patient was also experiencing abnormal uterine bleeding and underwent endometrial biopsy which also demonstrated metastatic lobular carcinoma. Surgical resection of the both ovaries and the fallopian tubes confirmed metastatic lobular carcinoma. Given the unusual setting and presentation of her disease, a screening EGD and colonoscopy was performed revealing metastatic breast cancer within a gastric nodule.

The patient is currently undergoing Aromasin and Afinitor therapy and remains asymptomatic.

Discussion/Conclusions

Invasive lobular carcinoma (ILC) accounts for 6%-9% of breast cancers (1,2). It spreads as single-cells and cords and due to this infiltrative growth pattern, ILC is more difficult to detect at mammography than other types of breast cancer(3,4).

The correlation between breast cancer and thyroid disease is well documented. Almost every form of thyroid disease, including nodular hyperplasia (5), hyperthyroidism (6), and thyroid cancer (7,8), has been identified in association with breast cancer. Additionally, in a recent study, anti-thyroid peroxidase antibodies were found to be significantly higher in breast cancer patients (9) as was the case for our patient.

Given the fact there were rare scattered groups of malignant cells within the thyroid, fine needle aspiration cytology would have been unlikely to diagnose the cancer within the thyroid in this case.

In conclusion cancer of the breast may present for the first time as a nodule in the thyroid.

References