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Case Report

Unexpected Foci of Metastasis in a Patient with Thyroid and Breast Cancer: Which One's Metastasis?

Tiroid ve Meme Kanseri Olan Bir Hastada Beklenmeyen Metastaz Odakları: Hangisinin Metastazı?

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Abstract

Thyroid cancer, a common endocrine malignancy, has shown a notable rise in the occurrence in recent times and is commonly linked with breast cancer. While it generally presents a positive prognosis, the cancer's aggressiveness and the stage at which it is diagnosed play crucial roles in determining the outcome. The objective of this case report is to emphasize the metastatic progression and uncommon metastatic locations in a patient diagnosed with thyroid cancer and concurrent unstaged breast cancer, who did not receive follow-up care for 20 years. The report also includes positron-emission tomography findings.

Anahtar Kelimeler
tiroid kanseri
meme kanseri
metastaz
PET/BT

Özet

Yaygın bir endokrin malignite olan tiroid kanseri, son zamanlarda görülme sıklığında belirgin bir artış göstermiştir ve genellikle meme kanseri ile bağlantılıdır. Genellikle olumlu bir prognoz gösterse de, kanserin agresifliği ve teşhis edildiği evre, sonucu belirlemede önemli rol oynar. Olgu sunumumuzla amacımız, tanı anında evrelenmemiş ve 20 yıldır takip edilmeyen tiroid kanseri ve eşlik eden meme kanseri olgusunda metastatik süreci ve nadir metastatik bölgeleri positron-emission tomography bulguları eşliğinde vurgulamaktır.

Introduction

Thyroid cancer (TC) is a common endocrine malignancy that has shown a rapid increase in incidence in recent years and is frequently linked to breast cancer (BC). Based on clinical observations, breast and thyroid cancer often manifest concurrently. Consequently, there may be shared etiological factors between thyroid and breast cancer (1). Investigating this relationship is crucial for gaining a deeper insight into the underlying mechanism of the simultaneous occurrence of these two malignancies (2).

Research indicates that thyroid and mammary gland cancers exhibit common characteristics such as iodine uptake and transport, thyroid function levels, thyroid hormone receptors, obesity, and sex hormones. The clinical attributes contributing to TC resemble those associated with BC, including factors like low dietary iodine and hypothyroidism. Estrogen and hormones, pivotal in breast cancer development, may also have implications for thyroid cancer (3,4).

The primary objective of our case report is to underscore the metastatic process and rare metastatic sites in a case involving TC and concurrent BC. This case was not staged at the time of diagnosis and lacked follow-up for 20 years, with accompanying F-18 fluorodeoxyglucose (18F-FDG) positron-emission tomography (PET/CT) findings.

Case Report

65-year-old female patient was diagnosed with thyroid follicular carcinoma and underwent a right lobectomy operation approximately 20 years ago. Following this, she underwent chemotherapy and radiotherapy treatments subsequent to a mastectomy for left BC a decade later. Seven years post the initial diagnosis, an F-18 FDG PET/CT study identified metastatic nodular lesions in nearly all lung segments and metastatic lytic and lytic-expansive lesions

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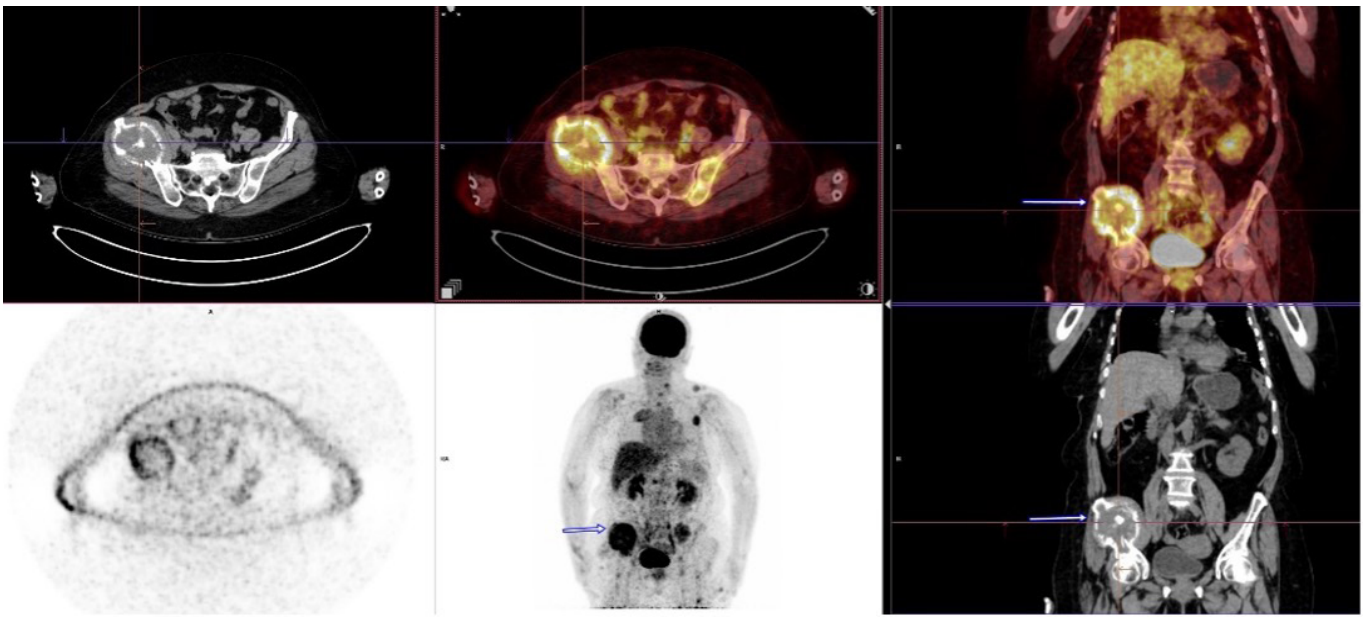

Figure 1: F-18 FDG PET/CT imaging reveals the presence of multiple bone metastases, as indicated by the blue arrows and blue stars.

in the skeletal system (Figure 1,2). The histopathological analysis of tru-cut biopsy samples from the lung and bone indicated findings consistent with carcinoma metastasis originating from the thyroid.

Based on the tru-cut biopsy pathology results, the patient underwent a left lobectomy as a complementary procedure. The pathology findings indicated "Follicular nodular disease", neoplasm and confirming the origin of the primary tumor in the right lobe. Subsequently, the patient received 200 mCi and 230 mCi of radioactive iodine (RAI) treatments within one year due to elevated thyroglobulin (Tg) levels observed during follow-up.

The PET/CT scan conducted one year later on the patient, who had undergone hormonal therapy for BC, showed progression in the existing lesions and the presence of subcutaneous lesions on the scapula and suprapubic region (Figure 3). The pathology report of the incisional biopsy from the subcutaneous lesion in the suprapubic region indicated findings consistent with metastasis from thyroid carcinoma.

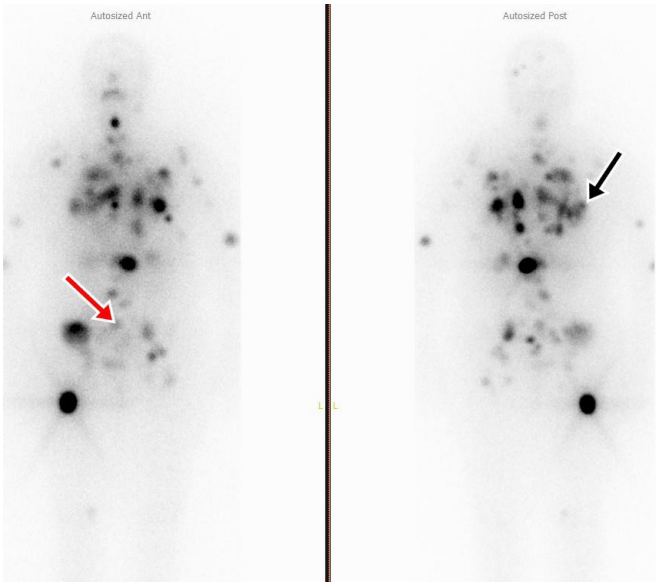

Figure 2: Multiple bone metastasis (red and black arrow).

Discussion

In recent years, numerous studies have highlighted a potential bidirectional relationship between breast cancer and thyroid cancer (1, 5-7). In our specific case, the sequence of diagnoses involved thyroid cancer followed by breast cancer, with subsequent metastasis development during the follow-up period. Notably, a PET/CT scan revealed significant iodine retention. To determine the origin of the metastasis and its association with a specific tumor type, a biopsy was conducted. This investigation was crucial due to the shared characteristics of TC and BC in terms of dietary iodine uptake and utilization (8).

Skin metastasis is a rare occurrence in thyroid follicular cancer, with most cutaneous metastases typically manifesting on the scalp skin (9,10) according to the literature. In this particular case, metastatic lesions originating from the thyroid were identified in the skin-subcutaneous tissue located in the suprapubic region and the posterior aspect of the right scapula. The treatment approach for subcutaneous metastases in this patient involved complete excision of the lesion as recommended by the thyroid board at our institution, subsequent RAI therapy, and referral to medical oncology for ongoing monitoring of BC

Conclusion

Accurately determining the origin of metastases in patients with both types of cancer is crucial for guiding treatment decisions and predicting prognosis.

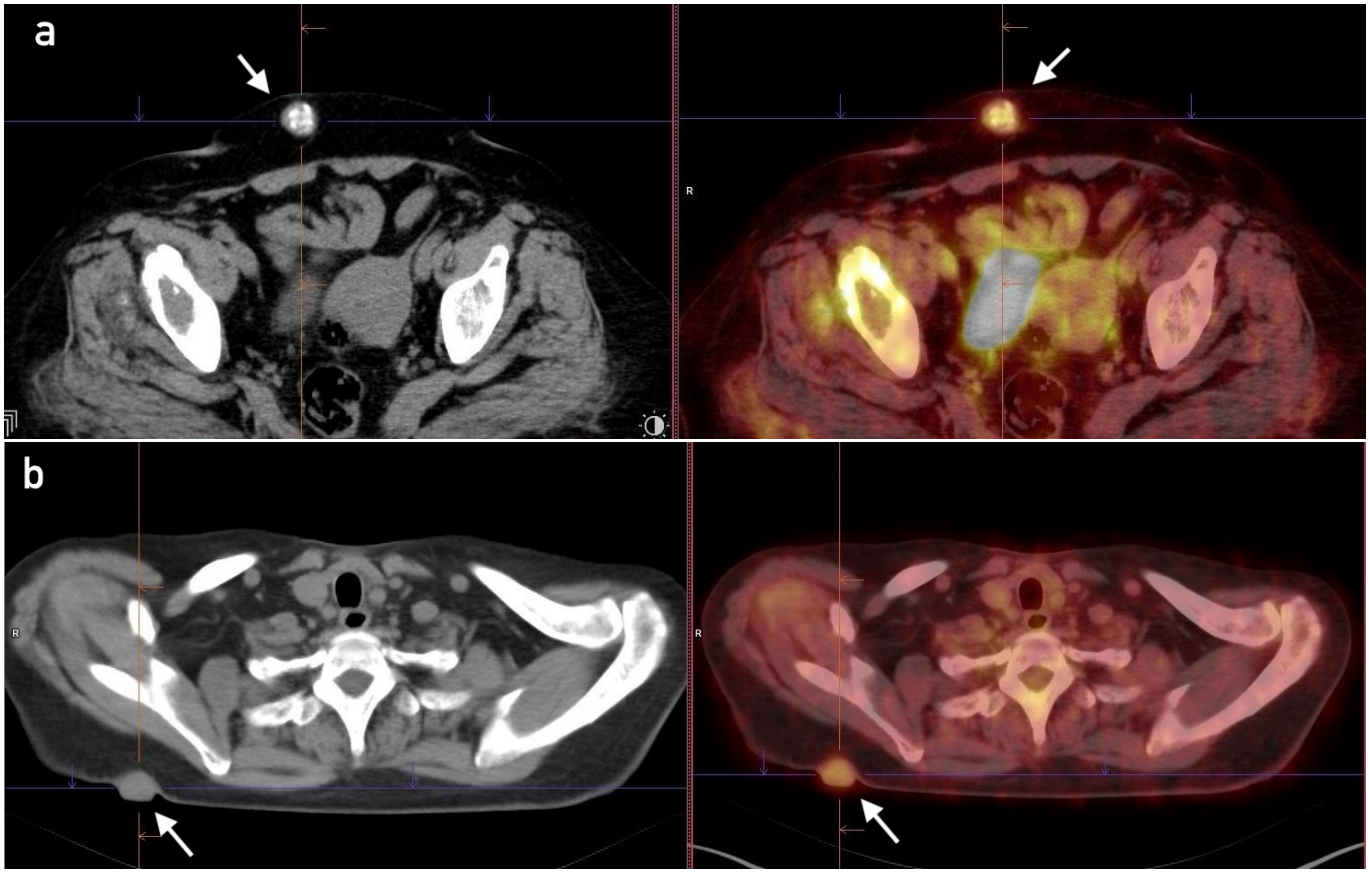

Figure 3: a) Metastasis to the suprapubic region**, b)** metastasis to the subcutaneous tissue on the posterior aspect of the right scapula (white arrows).

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