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Differentiating a Metastatic Breast Cancer and an Eccrine Tumour

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Abstract

A 61 year old female presented to an outpatient clinic with a 2-year history of a slow-growing scalp lesion. She took methotrexate for arthritis. A biopsy of the lesion was taken and analysed. Immunohistopathologically, the tumour was positive for ER 8/8, PR 8/8, GATA3 (diffuse), GCDFP-15 (focal), MNF116, AE1/3, CK7 and Chromogranin and negative for CK20, S100, HMB45, WT1, TTF1, PAX-8, CDX2 and Calcitonin, suggesting a metastatic carcinoma of possible breast origin. On recommendations from MDT discussion, MRI and PET imaging were arranged. FNA was taken from two lymph nodes - no primary breast cancer was found. The Occipital occipital scalp lesion was excised with a local rotational flap and a right level right-level V neck V-neck dissection. Histology Histologically, the specimen showed a high grade eccrine tumour with maximum 20 mm lymphovascular invasion.

This case highlights the importance of an accurate diagnosis in formulating a management plan.

Key Words

Breast cancer; Metastasis; FNA; Rotational Flap; Neck dissection.

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Background

Breast cancer continues to be the second most common cancer affecting women with a lifetime risk of 13%. Cutaneous nodules are currently seen in local recurrence and sometimes as metastases to a different area. Differentiating these from a primary skin tumour can be challenging. We describe a case report of a patient presenting with a slow growing scalp lesion and the difficulty in establishing the correct diagnosis and the importance of doing so.

Case presentation

A 61 year old female presented at outpatient clinic with a 2-year history of a slow-growing scalp lesion. She has a past medical history of psoriasis and arthritis. Medication included gabapentin, hypermellose, paracetamol and methotrexate. She was born in Pakistan and has lived in the UK since 1985. On examination there was a 4 cm painful, firm, indurated slow growing occipital scalp lesion. A biopsy was taken and analysed for its histopathological subtype and for the immunohistochemistry. The specimen shows the tumour to be positive for ER 8/8, PR 8/8, GATA3 (diffuse), GCDFP-15 (focal), MNF116, AE1/3, CK7 and Chromogranin and negative for CK20, S100, HMB45, WT1, TTF1, PAX-8, CDX2 and Calcitonin. The morphological features and

immunohistochemistry of the specimen are those of a metastatic carcinoma of possible breast origin. Further clinical and radiological correlation was recommended to find the primary site of the metastatic lesion. In view of the possibility of an underlying breast primary the patient underwent a triple assessment, clinical assessment and imaging using ultrasonography and magnetic resonance imaging, finding no evidence of a malignancy. On advice from the breast Multi Disiplinary Team (MDT) the patient underwent Magnetic resonance imaging (MRI) scanning bilaterally. The MRI found no features of breast malignancy. A whole body Positron emission tomography scan was arranged and found a small right supraclavicular node, highly suggestive of metastatic disease and an additional posterior mediastinal node below the carina. Fine Needle Aspirates (FNA) of both lymph nodes found no malignant cells. Taking all this into consideration a diagnosis of a primary eccrine tumour was made and not of a breast primary. The cancer of unknown primary MDT discussed the case and concluded a primary Ackerman tumour of the skin. In view of this it was decided at the head and neck MDT to proceed with excision of the scalp lesion plus neck dissection. In addition to this management the patient was to have subsequent 3 monthly surveillance of the sub carinal node. The Occipital



scalp lesion was excised with a local rotational flap and a right-level V-neck dissection with conservation of non-lymphatic structures using a procedure first described by Bocca. Histology showed a high grade eccrine tumour with maximum 20 mm lymphovascular invasion. Maximum diameter of the lesion was 45mm. ER/PR positive, GATA3 (diffuse), GCDFP-15 (focal). 2 lymph nodes out of 17 were positive for metastatic disease from a right neck dissection from level V, with evidence of extra capsular spread. Staging pT3 N2. The patient was given post-operative radiotherapy to the neck to reduce relapse.

Discussion

Approximately 25% of breast cancers metastasize to the skin.¹ Distinguishing this from a primary skin tumour can be diagnostically challenging - both lesions share the same morphology and immunoprofile including the expression of ER and PR. The scalp is one of the common sites for primary skin ductal eccrine adenocarcinoma. In contrast, it is uncommon for breast cancer to metastasize to the scalp and the cutaneous lesions are typically multifocal with rapid clinical course.² Wallace et al found that standard immunochemistry such as ER, PR and GCDFP-15 could not differentiate between cutaneous metastatic breast cancer and eccrine tumours.³ Wick et al found that infrequency of GCDFP-15 in eccrine gland tumours and paucity of CEA in breast cancer could be useful in predetermining differential diagnosis.⁴ Busam et al studied 30 cases and found that ER and PR continue to show no difference between the two groups, yet epidermal growth factor may be useful.⁵ In conclusion ER PR, CK7 and CK 20 is not useful.¹ The GCDFP-15, CEA, EGFR CK 5/6 and p63 are the most useful in differentiating these two groups.¹ This is essential as the management of both neoplasms have different implications. A female with metastatic cutaneous lesions from a primary breast cancer is likely to require oncological intervention with chemotherapy. This management would be dependent on the treatment of the primary tumour, as the patient may be in the beginning, middle or end, of her management for the breast cancer. Early diagnosis and treatment is key.⁶ Eccrine tumours

have a high recurrence rate if treated with conventional surgery. There are promising studies using MOH's surgery for excision. Experience and published data on the medical management of eccrine tumours are sparse, but suggest there is a role for radiotherapy followed by surgery. It was essential for this patient to therefore have the correct diagnosis prior to any surgical intervention.

Learning points

- A correct and accurate diagnosis needs to be gained in order to create the most appropriate management plan.
- Differentiating between a breast metastatic cutaneous lesion and a primary eccrine tumour requires immunohistochemistry. The most useful markers for this are GCDFP-15, CEA, EGFR CK 5/6 and p63.
- This case highlights the importance of an accurate diagnosis in formulating a management plan.

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