PRIMARY MALIGNANT MELANOMA OF BREAST – A CASE REPORT

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ABSTRACT

Melanomas in the breast are usually metastatic. Primary cutaneous melanoma rarely affects the breast, accounting for less than 5% of all malignant melanomas. The prognosis for patients with this rare tumour of the breast is somewhat poor. Early diagnosis, correct surgical resection and comprehensive adjuvant therapy are the key procedures that may improve the patient survival rate. Few such cases have been reported in the literature. Here we report a case of primary malignant melanoma of left breast in a 70 year old female patient.

Keywords: Breast, malignant melanoma, primary

INTRODUCTION

Malignant melanoma predominantly occurs in the skin, mucous membranes and the choroid. Metastasis from cutaneous malignant melanoma represents the majority of cases of melanoma involving the breast. However a few cases of primary malignant melanoma in the breast have been reported.1-2 Primary cutaneous malignant melanoma of the breast shows similar clinical features to melanomas arising from other cutaneous areas. It follows different metastatic patterns than do primary carcinomas of the breast and requires a different therapeutic approach.3 Observations of the clinicopathological features, special stains like fontana & melanin bleach and immunohistochemical staining methods are required to identify primary malignant melanoma of the breast and to rule out other tumors. Surgical resection is the commonly adopted treatment method for malignant melanoma, supplemented by chemotherapy, radiotherapy and immunotherapy resulting in a comprehensive treatment strategy.4

Here we report a case of primary malignant melanoma of the breast in a 70 years old female.

CASE REPORT

A 70 years old woman was admitted in our institute, presenting with left sided painless breast lump since 3 months. The mass recently grew rapidly in size. Her past history,
family history and obstetric history were unremarkable. Clinical examination showed a black coloured exophytic mass of 3x2 cm involving left sided nipple and areola with multiple palpable lymphnodes involving left axilla, largest measuring 4x3 cm in size. Contralateral breast and axilla were unremarkable. Mammography showed a 2.4x0.9 cm sized malignant mass lesion involving periareolar region of left breast parenchyma and overlying skin with nodal mass involving the left axilla. Computerised Tomography (CT) scan of thorax revealed complete collapse of L1 vertebra suggesting possibility of vertebral metastases. Magnetic Resonance Imaging of brain and CT scan of abdomen were unremarkable. The patient had no history of previous removal of any pigmented lesions. Clinical examination and extensive workup of the patient including endoscopic procedures did not reveal a primary lesion in skin, mucosal sites including oropharyngeal and anorectal region or ocular sites.

A biopsy was performed which revealed pleomorphic tumor cells with prominent nucleoli infiltrating both epidermis and dermis (Figure 1A). Most of the tumor cells showed cytoplasmic brown pigments which stained black with Fontana stain (Figure 1B) and removed by melanin bleach (Figure 1C). Diagnosis of malignant melanoma was given in biopsy report. Left sided modified radical mastectomy was performed. On gross examination, a brown to black coloured nodular growth was observed involving nipple & areola measuring 3.0x2.8x1.1 cm (Figure 1D). Breast parenchyma was unremarkable. Microscopic examination showed sheets of pleomorphic tumor cells with prominent nucleoli and cytoplasmic brown pigment (Figure 2A). Tumor involves epidermis, papillary dermis and reticular dermis. Subcutaneous fat and breast parenchyma were free of tumor. Immunohistochemistry study showed positivity for HMB-45, Melan-A and S-100 (Figure 2B, 2C & 2D). Epithelial marker AE1 was negative. Four out of total sixteen submitted axillary lymphnodes showed metastatic melanoma with perinodal spread into the fat. Surgical resection margin was free of tumor, largest measuring 3.8x2.6x2.3 cm. Final diagnosis was malignant melanoma, Clark stage-IV, TNM stage - IV. The post operative event of the patient was uneventful. Adjuvant chemotherapy and radiotherapy were planned with strict follow up.

DISCUSSION

Malignant melanoma is a highly malignant tumour originating from melanocytes. Its aetiology is not fully understood. Exposure to solar ultraviolet radiation is the major environmental risk factor and the presence of host factors including skin pigmentation, sensitivity to the sun and large numbers of nevus are strongly associated. It is commonly found in the skin, mucous membranes and the choroid. However it can occur anywhere on the body. Malignant melanoma of the breast can be primary melanoma of the breast skin or parenchyma and melanoma metastasis to the breast from extra mammary site. Primary melanoma of the breast is particularly rare, with an incidence of <5% of all malignant melanomas and offers diagnostic challenge both to the histopathologist and the clinician.

A thorough history, physical examination, histopathology and inclusion of immunostains are crucial to arrive at an accurate diagnosis in such difficult cases. Before a diagnosis of primary melanoma of the breast can be established, an extra mammary melanoma that
Figure 1. Pathological findings.

Figure 2. Immunohistochemistry findings.
could be the source of metastasis in the breast should be excluded, and a predisposing associated lesion in the breast should be identified.\textsuperscript{14 - 5,7}

The diagnosis of malignant melanoma is occasionally difficult and, therefore, requires the use of immunohistochemical staining for its identification. Positive expression of S-100 is an exceptionally sensitive indicator for malignant melanoma; however, it is also expressed in 50% of breast cancer cases. Therefore it must be observed in combination with a positive expression of HMB-45 and melan-A for the diagnosis of primary melanoma of the breast.\textsuperscript{7 - 8}

In the present study, the first symptom that was noted by the patient was the tumour in the left breast. Based on the clinical examination, histopathological features and results from immunohistochemical staining, the patient was diagnosed with a primary malignant melanoma of the breast.

The treatment of primary malignant melanoma of the breast is the same as that for other malignant melanoma located elsewhere on the body. The primary treatment method is surgical resection, with an appropriate combination of chemotherapy, radiotherapy, immunotherapy and targeted therapy.\textsuperscript{1,9} Wide local excision is the predominant surgical approach. It is generally hypothesised that a cutting edge of 2 cm ensures the reliability of the surgery. A comprehensive axillary lymph node dissection is required when preoperative axillary lymph node metastasis is identified and confirmed. A sentinel lymph node biopsy reduces the requirement for an unnecessary lymph node dissection.\textsuperscript{10 - 11}

The role of adjuvant chemotherapy or radiotherapy, either singularly or in combination, remains unknown with regard to their efficacy in malignant melanoma. Chemotherapy is commonly used for pre- and postoperative adjuvant therapy and for those who are not suitable for, or refuse, surgery or for those patients who exhibit widespread metastases. Adjuvant radiotherapy may be performed when removal of the lesion is not possible, there are positive margins, the lymph node size is $>3$ cm, the number of lymph nodes involved exceeds four or when there is local recurrence or distant metastases.\textsuperscript{12 - 13}

Malignant melanoma is an immunogenic tumor and high dose interferon alpha has gained approval for adjuvant treatment of malignant melanoma. Interferon has shown to improve relapse-free survival but a definitive benefit in overall survival is debatable.\textsuperscript{10}

In recent years, numerous novel biological and molecular targeted therapies have been adopted for the treatment of malignant melanoma. Clinical studies have identified that ipilimumab (a monoclonal antibody that blocks cytotoxic T lymphocyte-associated antigen 4) and vemurafenib (oncogenic BRAF-inhibitor agent) improve the overall response rate, and prolong the progression-free survival and overall survival for advanced malignant melanoma patients. However, the specific efficacy is currently being investigated and evaluated.\textsuperscript{14 - 15}

CONCLUSION

Malignant melanoma of the breast is a rare tumour. Moreover, distinguishing whether a cutaneous malignant melanoma of the breast is primary or metastatic is important for the treatment strategies and the overall prognosis. The diagnosis of primary malignant melanoma of breast depends on histopathological assessment and immunohistochemical staining combined with a detailed clinical history and careful physical examination. Early
Primary malignant melanoma of breast

diagnosis, correct surgical resection and comprehensive adjuvant therapy are significant factors for improving the patient survival rate.

CONSENT

The authors obtained written, informed consent from the patient for the publication of this article.

COMPETING INTERESTS

There is no conflict of interest.

REFERENCES

