

## Case Report

# A rare case report of primary malignant melanoma of the breast

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## Abstract

Malignant melanoma is a highly malignant tumor that is derived from melanocytes. The incidence of malignant melanoma has risen markedly over the last decade. Malignant melanoma mostly occurs in the skin, mucous membranes and the choroid. The cases of primary melanoma of the breast are quite rare. Observation of the clinical pathological features, immunohistochemical staining methods and tissue origin are required to identify primary malignant melanoma of the breast. This case report of primary malignant melanoma is presented because of its rarity.

## Key words

Primary Malignant melanoma, Malignant tumor, Breast, Rare.

## Introduction

Malignant melanoma is a highly malignant tumour that is derived from melanocytes. The incidence of malignant melanoma has risen markedly over the last decade. It occurs anywhere on the body, however, is commonly found in the skin, mucous membranes and the choroid. Primary malignant melanoma of the breast is particularly rare, with an incidence of <5% of all malignant melanomas [1, 2]. As primary malignant melanoma of the breast is an important entity and should be considered in any

patient with a pigmented lesion that has changed. The most commonly used treatment method for malignant melanoma is surgical resection. In addition of surgery chemotherapy, radiotherapy and immunotherapy treatments will be quite useful. This case report of primary malignant melanoma is presented because of its rarity.

## Case report

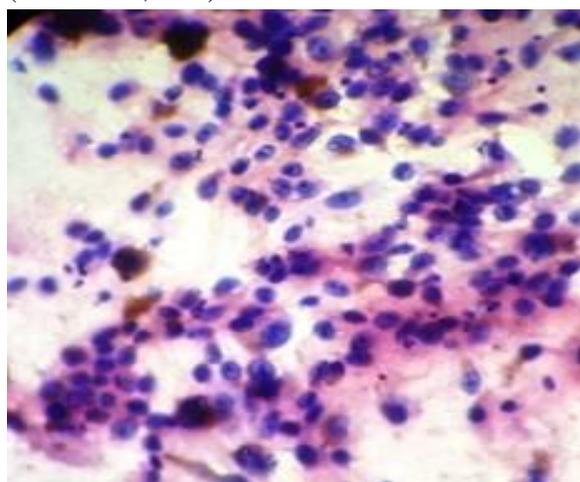
45-year-old female came to the Out-patient Department of General Surgery of Dhiraj General Hospital due to the presence of a mass in

the right breast since 1 year. The patient indicated that the mass had recently grown rapidly and also had swelling in right axillary region for last three months. The patient had no notable medical history or family history of carcinoma. Clinical examination revealed a 5x4-cm firm irregular mass in the right breast. There was no change in the appearance of the local skin, no discharge from, or retraction of, the nipple. There was also presence of right axillary swelling measured 9 x3.5 cm and black nodule measured 2 x1 cm (**Photograph - 1**).

**Photograph – 1:** Swelling in the breast, axilla and black metastatic nodule.



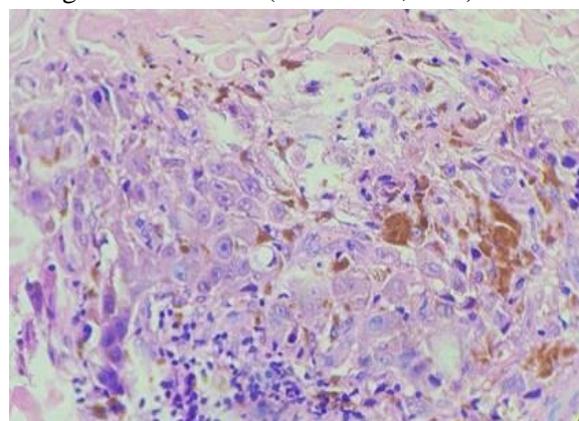
**Photograph – 2:** Cellular smear with malignant cells and intra as well as extracellular pigment (H&E stain, 40X).



The computed tomography (CT) scan demonstrated malignant lesion in the right breast with multiple axillary, lung and pleural, liver and bone metastasis. There was also presence of

moderate pleural effusion and mild ascitis. FNAC was performed from breast and axillary swellings. The cytomorphology showed cellular smears with presence of malignant cells with marked pleomorphism, abnormal mitotic figures and eccentric nuclei with prominent nucleoli. There was also presence of intra as well as extracellular pigment (**Photograph - 2**). All these findings suggestive of primary malignant melanoma but histopathological examination were advised for final confirmation. An excisional biopsy of the breast mass was sent to the histopathology department. Hematoxylin and eosin staining demonstrated that the mass tissue was comprised of a large distribution of diffuse small cells. Those cells were round or oval, with large nuclei and nucleoli, and abundant cytoplasm. There was also presence of intra as well as extracellular pigment (**Photograph - 3**). Immunohistochemistry demonstrated that the tumour cells were immunopositive for S-100 and HMB-45 (**Photograph - 4, 5**). Based on the cytomorphologic, histopathologic and immunohistochemical features, a diagnosis of malignant melanoma was proposed. Careful examination of the skin and mucous membranes failed to reveal a malignant melanoma. Therefore this patient was diagnosed with a primary malignant melanoma of the right breast with extensive metastasis.

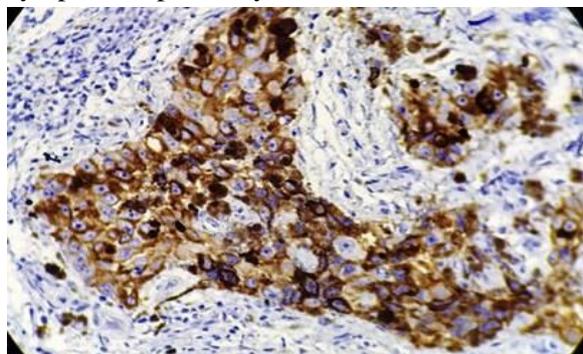
**Photograph – 3:** Melanocytes with marked pleomorphism and nuclear atypia consistent with malignant melanoma (H&E stain, 40X).



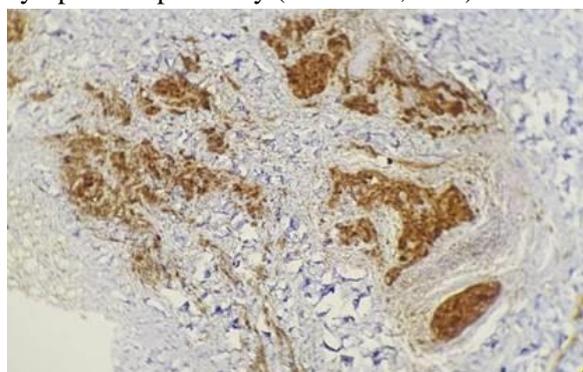
## Discussion

In the current era the incidence of malignant melanoma is increasing day by day.

**Photograph – 4:** HMB 45 stain with strong cytoplasmic positivity (IHC stain, 40X).



**Photograph – 5:** S100 stain with nuclear and cytoplasmic positivity (IHC stain, 10X).



Malignant melanoma mostly occurs in the skin, mucous membranes and the choroid. The cases of primary melanoma of the breast are quite rare. Observation of the clinical pathological features, immunohistochemical staining methods and tissue origin are required to identify primary malignant melanoma of the breast.

The etiology of malignant melanoma is still not known. It is generally hypothesised to be associated with excessive exposure to ultraviolet radiation from the sun. Furthermore, it is associated with ethnicity, the endocrine and immune systems, chronic stimulation and improper surgery may cause the progression of nevus into malignant melanoma.

The clinical presentation of breast melanoma includes a change in size, pigmentation, ulceration and bleeding in a pre-existing naevus.

In our case the patient had history of breast mass with presence of axillary swelling and cutaneous metastatic nodule. The diagnosis of malignant melanoma is usually confusing and complex therefore, requires the use of immunohistochemical staining for its identification. Positive expression of S-100 is an exceptionally sensitive indicator for malignant melanoma. In our case HMB 45 and S 100 both were positive and based on the cytomorphologic, histopathologic and immunohistochemical features, a diagnosis of malignant melanoma was given.

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 [1, 3]. Malignant melanoma is an immunogenic tumour and adjuvant immunotherapy is associated with high-risk tumours. Interferon, interleukin-2 and other biological response modifiers for malignant melanoma have a moderate effect. It is reported that immunotherapy in combination with chemotherapy may improve the efficiency of patient treatment; however, the long-term effects require further investigation [4-6]. Prognosis of primary malignant melanoma depends on tumour size, Clarke's level, Breslow Thickness, location, ulceration and metastases [7].

## Conclusion

Although radiological investigations and cytological features will give clue for the diagnosis of primary malignant melanoma, histopathological examination with IHC stain remains gold standard method for final confirmation.

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