



Primary Cutaneous Malignant Melanoma of the Breast: A Case Report

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Abstract

Introduction: The incidence of melanoma has remarkably increased over the last years. It commonly involves the extremities in females and the trunk in males. Cutaneous malignant melanoma (CMM) of the breast accounts for less than 5% of all melanomas.

Case Presentation: A 60-year-old man referred with a black pigmented skin lesion (4 × 2 cm) on the periareolar skin in the upper inner quadrant of the right breast without nipple retraction. The patient mentioned that he failed medical follow-up of the lesion, which had been excised for about a year in 2016 as a CMM that resulted in its rapid growth. Examinations revealed a mole (4 cm) on the right areola and also a palpable axillary lymph node. Incisional biopsy reported malignant melanoma. After final confirmation, he underwent a modified mastectomy. The pathology report revealed that nipple and areolae were free of tumor, however, a deep margin and two axillary lymph nodes were involved, which resulted in considered adjuvant radiotherapy. Two months after the surgery, his health condition was normal without any sign of recurrent metastasis.

Conclusions: In this case, the modified mastectomy was inevitably done and no recurrence or complication was observed.

Keywords: Mastectomy, Cutaneous Malignant Melanoma, Skin Neoplasms

1. Introduction

The prevalence of malignant melanoma has risen remarkably over the last decade. It can affect all tissues of the body; however, it commonly involves the extremities in females and the trunk in males (1). Breast cutaneous malignant melanoma (CMM) accounts for less than 5% of all malignant melanomas and includes two categories, including primary and metastatic lesions (2). Various manifestations of CMM have been reported, which are similar to the melanomas arising from other cutaneous tissues and require different therapeutic approaches (3). Although the surgical treatment of the primary CMM of the breast has been challenging (4), recent investigations have revealed that there is no significant difference between the melanoma of breast and melanoma of other tissues (5). Extensive local excision with sentinel lymph node (SLN) biopsy is suggested as the most accepted curative strategy for operable CMM (6). Limited information is available regarding the primary CMM of the breast. In this case study, we reported a case of primary CMM of the breast in a 60-year-old man and discussed its clinical and histopathological characteristics and surgical management using literature review.

2. Case Presentation

A 60-year-old man admitted to the Poursina Hospital in Rasht city, north of Iran, with a black pigmented skin lesion, which was 4 × 2 cm in size on the periareolar skin in the upper inner quadrant of the right breast without nipple retraction (Figure 1). The patient mentioned that he failed medical follow-up of the lesion, which had been present and excised for about a year in 2016 as a CMM that resulted in its rapid growth (about 2 times). He had neither past medical history nor a family history of breast cancer. Examinations revealed a mole (4 cm) on the right areola and also a palpable axillary lymph node. Examinations of the other organs revealed no symptoms of metastatic disease. In addition, his brain Magnetic Resonance Imaging (MRI) result showed no evidence of metastasis. He underwent an incisional biopsy during admission, which reported a malignant melanoma. The specimen consisted of a portion of skin and subcutaneous tissue measuring 1.9 × 1.7 × 1.3 cm in length. The specimen was placed in 10% neutral buffered formalin. Paraffin-embedded tissues were assembled and stained with hematoxylin and eosin. Microscopic findings exhibited skin tissue with the intact epidermis (Figure 2). Reticular dermis and subcutaneous

tissue were infiltrated by a malignant neoplastic lesion composed of the proliferating tumor cells with a clear and dusty cytoplasm containing melanin pigment and round to oval nuclei with conspicuous nucleoli (Clark level: V). Neoplastic cells were arranged in cellular sheets with the nodular appearance and without any vascular invasion. Immunohistochemistry (IHC) results demonstrated that the tumor cells were diffusely immunopositive for the S100 protein and Melan-A and focally for HMB45, whereas epithelial markers, such as cytokeratin (CK) were negative. The percentage of Ki 67 positive cells was 20% - 25%. Perineural invasion was also observed. After the final confirmation, he underwent the modified mastectomy with axillary lymph node dissection and flap repair. The pathology report of the excised sample revealed that the nipple and areolae were free of tumor, however, a deep margin and two axillary lymph nodes were involved by the tumor. Two months after surgery, his health condition was normal without any signs of recurrent metastatic disease. However, due to the involved margin and surrounding lymph nodes, he underwent adjuvant radiotherapy.

3. Discussion

The primary CMM of the breast is a very rare tumor, with an incidence of less than 5% of all malignant melanomas (2). Although recent case reports have studied primary CMM in female patients, we presented a male patient suffering from chronic skin lesion reported as malignant melanoma, which is very uncommon in males.

The diagnosis of malignant melanoma requires immunohistochemical staining. S100 protein is a sensitive indicator of malignant melanoma, which has been expressed in approximately half of breast cancer patients (7), and it was diffusely immunopositive in tumor cells of our patient. Moreover, Ki-67 staining that is used for differentiating benign from malignant tumors (8) was detected in 20% - 25% of the tumor cells.

Wide local excision based on the primary tumor depth has been introduced as the most effective treatment for operable CMM (6). In general, tumors smaller than 2 mm in thickness are treated with margins < 2 cm, whereas tumors between 2 mm and 4 mm in thickness and thicker than 4 mm are treated with a 2-cm margin. However, limited data is available to support the use of a 2-cm margin for lesions thicker than 4 mm (9). In our case, based on the pathological finding (Clark level: V) from the incisional biopsy and palpable lymphadenopathy, the modified mastectomy with axillary lymph node dissection was done. Multicenter selective lymphadenectomy trial (MSLT)-1 showed that the completion lymphadenectomy

improved overall 5-year survival of the lymph node-positive patients (10).

Furthermore, due to the high risk of systemic metastasis and spreading to the regional lymph nodes in thick melanomas (6), the complete lymph node dissection and further evaluations of the margins involvement after wide local excision were performed.

Adjuvant radiotherapy was used after wide excision of mucosa and submucosal layers, because there were positive margins and the removal of pectoralis muscle was not possible. Although adjuvant radiotherapy has been shown effective in decreasing the local-regional failure, the survival rate of patients has remained unknown (1). Compared with breast cancer, the importance of chemotherapy or hormonal therapy has not yet been completely understood. Thus, no additional treatment modalities were done for our patient.

Our case was followed up for 2 months postoperatively. However, no sign of recurrence was observed. Due to the rarity of primary CMM of the breast as well as the lack of evidences about the postoperative evaluation in these patients, we only focused on physical examinations. Accordingly, further studies should be conducted in order to indicate the long-term survival rate of CMM patients and the evaluation methods in the follow-up visits. In this case, due to his gender and the wide local excision as an initial plan, the modified mastectomy was inevitably done and no recurrence or complication was observed.

Supplementary Material

Supplementary material(s) is available [here](#) [To read supplementary materials, please refer to the journal website and open PDF/HTML].

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Footnotes

Authors' Contribution: Seyyed Adel Maleknia wrote the manuscript, reading and approving the final version of the manuscript before submission. Neda Karkeabadi wrote manuscript and revising its content, reading and approving the final version of the manuscript before submission. Nasrin Nikravangolsefid wrote the manuscript and revising its content, reading and approving the final version of the manuscript before submission. Mahdi Pursafar wrote



Figure 1. A black pigmented skin lesion on the periareolar skin in the upper inner quadrant of the right breast.

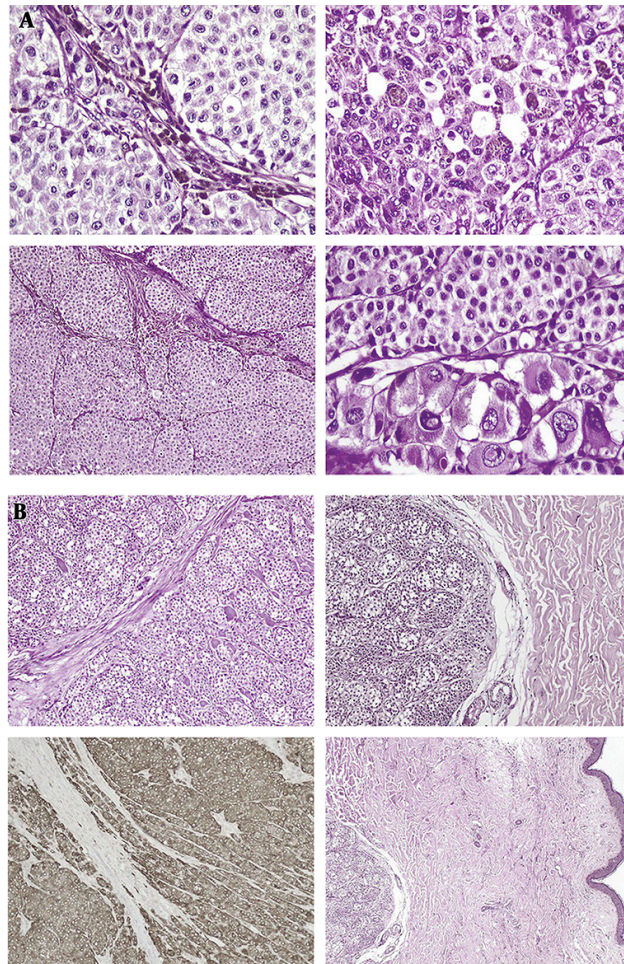


Figure 2. Histopathological findings of the right breast lesion (four cuts of different parts of breast tissue). A, Section 1; B, section 2.

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