

Primary Malignant Melanoma of the Breast: A Case Report

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Received: 12 Aug 2024

Accepted: 16 Sep 2024

Published: 21 Sep 2024

J Short Name: AJSCCR

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Citation:

Issara Krongthong. Primary Malignant Melanoma of the Breast: A Case Report. *Ame J Surg Clin Case Rep.* 2024; 8(2): 1-3

1. Abstract

Primary Malignant Melanoma of the Breast (PMMB) is a rare type of malignancy. Only a few case reports were published. In this literature, we report a case of a 44-year-old Thai female with malignant melanoma of the breast. She was treated with wide local excision with sentinel axillary lymph node biopsy. The patient then underwent second-stage nipple reconstruction, and a 2-year follow up had been conducted after the surgery showing satisfying nipple architecture, tip projection and no evidence of the disease.

2. Introduction

Malignant melanoma is a malignant disease usually arising in the skin, but more rarely it can arise from epithelial and mucosal locations. Though it accounts for less than 10% of skin cancer cases, it is the deadliest form of skin cancer due to its aggressive nature and high mortality rate (22). Primary Malignant Melanoma of the Breast (PMMB) is even rarer, accounting for less than 0.5% of breast cancer and 3%-5% of malignant melanoma of all tissue types [1]. Referring to the one of most comprehensive study on PMMB in women, back in the 1970s, 115 cases of cutaneous melanomas affecting the breast with 14 cases exclusively involved the nipple-areolar complex (NAC), mastectomy did not offer any advantage over local excision of the primary lesion. However, regional axillary lymph node dissection was recommended. (15 Papachristou). Internal mammary lymph nodes dissection may be unnecessary according to a publication by Lee et al. [2]. In 1977, a condensed series comprising 12 PMMB cases revealed no occurrences of lymph node metastasis in internal mammary nodes. (15 Lee YT) After all, PMMB is a rare disease with a poor prognosis. Surgical procedures are the main treatments, involving radical local exci-

sion and axillary sentinel lymph node dissection in selected cases. Adjuvant and primary advanced treatment strategies for women with PMMB follow the guidelines applying to melanoma [3-13]. The clinical and pathological features, diagnosis, treatments and follow-ups are discussed in correlation with the literature.

3. Case Report

A case of a 44-year-old Thai female without significant medical history or family history of cancer, presented to Chulabhorn Hospital (Bangkok, Thailand) in July, 2021 with a hyperpigmented skin lesion on her left breast (Figure 1). The patient indicated that she had noticed the patch 10 years prior but it had been expanding in the last 2 years. Clinical examination revealed a 1.7x1.3 cm hyperpigmented patch in the inner lower quadrant of the left breast. There was no change in the appearance of the local skin, no discharge from, or retraction of the nipple. The right breast appeared normal and had no palpable mass. No palpable nodules or masses at axillary, cervical and supraclavicular lymph nodes on both sides. A thorough examination on other sites of skin and mucous membranes showed no signs of malignant lesions. Incisional biopsy was performed in the clinic and the tissue was sent to the lab for a pathological report. The report showed a malignant melanoma, superficial-spread type, Clark Level IV with maximal depth of 2 millimeters, no ulcerative lesion, mitotic activity 0-1/HPF. Computed tomography (CT) scan with intravenous (IV) contrast of the chest showed no evidence of metastasis. Therefore, primary malignant melanoma of the left breast is most likely the principal diagnosis. Patient underwent a 2-centimeter margin wide local excision (WLE) extended to involve the left nipple-areolar complex (NAC) with left axillary sentinel lymph node biopsy assisted with the per-

intratumoral injection of 5 milliliters of Isosulfan Blue 10 minutes prior to the excision (Figure 2). The excision left the skin with a 4x4 cm rhomboid-shaped defect which was then corrected with local Limberg flap. Pathology of the primary breast lesion revealed malignant melanoma, superficial-spreading type, Breslow thickness 1 millimeter, no angiolymphatic invasion and all margins were uninvolved by the malignant melanoma. Axillary lymph nodes were two-out-of-two negative for metastatic melanoma. The patient was then staged T1bN0M0 which is equivalent to stage IB by the 8th edition of American Joint Committee on Cancer (AJCC). Therefore, no adjuvant therapy was indicated according to national and international guidelines. (ESMO, NCCN). At 7-month follow up, the patient noticed a new 1-centimeter lump at her left axilla. A fine needle aspiration to the nodule was performed, revealing a benign lymphoid hyperplasia. The patient was then sent for an MRI of both breasts and axillas, showing extreme fibro glandular tissues of both breasts, probably benign findings, BI-RADS III. A whole-body FDG-PET/CT scan was also performed revealing no sight of malignancy. At 14 months postoperatively, the patient underwent nipple reconstruction (Figure 3 = prior to reconstruction). Follow up at one month later resulted as Figures 4-6. We followed the patient up to two and a half years postoperatively (9 months post nipple reconstruction), the shape of both breasts were nearly identical, the projection of the reconstructed nipple pointed a little lower than the contralateral one and there was about 5 percent loss of the superficial skin flap (Figures 7). A whole-body FDG PET/CT scan was re-done at 30 months post operatively, neither local recurrence nor FDG avid cutaneous lesion were found. The patient is alive with no signs of the disease and satisfied with her breasts and nipples.



Figure 1: Thai female without significant medical history or family history of cancer, presented to Chulabhorn Hospital (Bangkok, Thailand) in July, 2021 with a hyperpigmented skin lesion on her left breast.



Figure 2: Patient underwent a 2-centimeter margin wide local excision (WLE) extended to involve the left nipple-areolar complex (NAC) with left axillary sentinel lymph node biopsy assisted with the peritumoral injection of 5 milliliters of Isosulfan Blue 10 minutes prior to the excision.



Figure 3: At 14 months postoperatively, the patient underwent nipple reconstruction.



Figure 4: Follow up at one month later resulted.



Figure 5: Follow up at one month later resulted.



Figure 6: Follow up at one month later resulted.

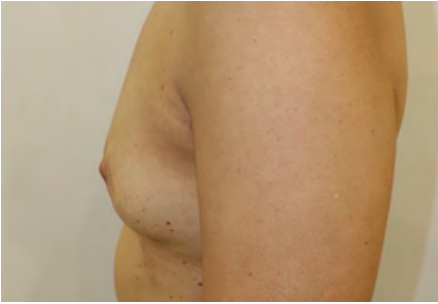


Figure 7: We followed the patient up to two and a half years postoperatively (9 months post nipple reconstruction), the shape of both breasts were nearly identical, the projection of the reconstructed nipple pointed a little lower than the contralateral one and there was about 5 percent loss of the superficial skin flap.

4. Discussion

Malignant melanoma is known to be aggressive due to its high incidence of metastasis and high mortality rate. Though primary malignant melanoma of the breast (PMMB) is relatively rare compared to other malignant diseases, its aggressive nature and high mortality rate making early diagnosis and effective treatment at a stage when a cure is readily achievable the most important success factors (23). This patient has malignant melanoma of breast skin which makes it more difficult to correctly diagnose as the location may strongly points to primary breast cancer. If the tissue sample is inconclusive, the use of immunostains such as HMB45, Melan A, MITF, S-100 and Sox10 may help label and support the diagnosis of malignant melanoma (33). The treatment of primary malignant melanoma of the breast is the same as that for other malignant melanoma located elsewhere on the body (34). The primary surgical method is wide local excision, with a recommended margin of 2 cm to ensure surgical reliability. As of ESMO consensus on the guideline for cutaneous melanoma, the predicted rate of sentinel lymph node metastasis for 8th AJCC's stage T1b is between 5% and 10%, it is sufficient to discuss sentinel lymph node biopsy to the patient. (ESMO 2020) Mastectomy doesn't enhance the patient's prognosis and only performing sentinel lymph node biopsy can reduce the need for unnecessary lymph node dissection, which then lowers the risk of developing lymphedema. A comprehensive

axillary lymph node dissection becomes necessary when preoperative axillary lymph node metastasis is identified and confirmed or a positive lymph node status from the biopsy. (Kurul S, 34). We evaluated the patient's breast following the wide excision, as there was only a minor change to the left breast contour, the use of skin flap for nipple reconstruction is adequate. We made an arrow flap nipple on the left breast with the size and location based on the contralateral one. We followed the patient to two and a half years post excision and nipple reconstruction, the patient is satisfied with the nipple contour and tip projection. Follow-up is still being conducted to evaluate the recurrence and further assess the nipple contour in the long term. In conclusion, primary malignant melanoma of the breast is rare but very aggressive. Early diagnosis and effective treatments are the most important factors to increase survival. Finally, reconstructing the breast to its near-original contour is no less important than the treatment itself as it improves both the physical appearance and overall well-being.