

Primary Melanoma of the Breast Parenchyma: An Oncoplastic Approach

Emma Snashall, MRCS*

Tamara Kiernan, FRCS†

Aenone Harper-Machin, FRCS
(plast)*

Rieka Taghizadeh, FRCS (plast)*

Summary: Primary melanoma of the breast parenchyma (PMPB) is a rare and aggressive disease, with only a few cases reported in the literature. We present the case of a 50-year old woman who underwent mastectomy and immediate breast reconstruction using a free DIEP flap following recurrence after breast conserving surgery. This report highlights the importance of an oncoplastic approach for this diagnosis and the benefit of immediate autologous breast reconstruction. (*Plast Reconstr Surg Glob Open* 2020;8:e3276; doi: [10.1097/GOX.0000000000003276](https://doi.org/10.1097/GOX.0000000000003276); Published online 18 December 2020.)

INTRODUCTION

Malignant melanoma is an aggressive tumor with unpredictable biological behavior and typically involves the skin. However, it can also occur in non-cutaneous sites representing approximately 4%–5% of all primary melanomas.¹

Primary melanoma of the breast parenchyma (PMPB) is a rare entity, with only a few cases reported in the world literature.² Initial management is typically surgical with a wide local excision of the tumor and sentinel lymph node biopsy. However, there is a sparsity of evidence regarding the optimal treatment strategy for these patients due to a lack of sufficient cases.

The benefits of breast reconstruction in improving quality of life and body image in relation to primary breast cancers are well documented.³ However, there are currently no cases reporting the surgical outcome following excision of a PMPB, and no suggestion of reconstructive pathways.

We present a patient with confirmed primary melanoma of the breast parenchyma. A comprehensive therapeutic management strategy is discussed with reference to reconstruction and outcome. This is the first known case report to provide details of an oncoplastic approach to management of this diagnosis.

CASE REPORT

A 50-year-old woman presented to the breast clinic with a 4-week history of a lump in the right breast. Core biopsy

performed at triple assessment stained positive for melan A, HMB45, and S100—markers known to be consistent with the diagnosis of malignant melanoma.^{4,5} A full-body examination performed by dermatology did not identify any cutaneous lesions suspicious of melanoma. Occult ocular melanoma was also excluded by ophthalmological assessment. The patient was referred to the plastic surgery melanoma team for further management whereby a wide local excision of the mass and a sentinel lymph node biopsy was performed.

Histology showed the tumor to be close at the superior margin (closest to the skin) necessitating a wider excision. The sentinel lymph node was negative and histology from the second excision showed no residual malignancy. Due to breast asymmetry, the patient underwent contralateral symmetrizing mastopexy later in the year.

Routine follow-up was undertaken, according to national guidelines for cutaneous melanomas. At 15 months following her initial surgery, the patient presented with recurrence in the right breast and right-sided axillary lymphadenopathy. Fine needle aspiration confirmed the presence of metastatic melanoma. Distant metastasis was excluded with a PET CT scan and a referral was made to the oncoplastic breast team for further surgery with consideration of immediate breast reconstruction.

Following discussion at the multidisciplinary oncoplastic breast meeting, a consultation with the patient was conducted, emphasizing the unpredictability and aggressive nature of melanoma. A decision was made for a skin sparing mastectomy, right axillary node clearance, and immediate reconstruction with a deep inferior epigastric perforator flap (DIEP). There were no postoperative complications following the DIEP reconstruction and the patient was discharged on day 4. After 2 weeks, both the reconstruction and abdominal donor site had healed (Figs. 1 and 2).

From the *Department of Plastic Surgery, St Helens and Knowsley NHS Trust, Merseyside, UK; and †Department of Breast Surgery, St Helens and Knowsley NHS Trust, Merseyside, UK.

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Fig. 1. Pre-operative image before mastectomy and reconstruction.

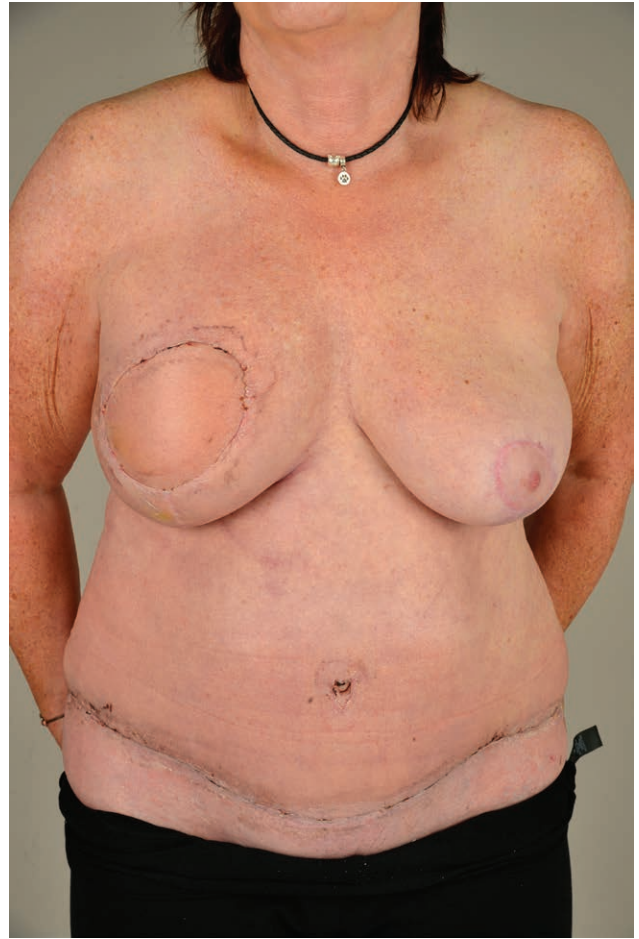


Fig. 2. Two weeks following DIEP reconstruction.

Histology showed involvement of 1/11 lymph nodes in addition to extracapsular spread. As per melanoma guidelines for stage 3 disease, the patient was referred to the oncology team for commencement of immunotherapy treatment. No sign of recurrence was noted at 1-year follow-up. The patient has had a good aesthetic outcome and scored highly in the Breast Questionnaire (Fig. 3).

DISCUSSION

The incidence of PMBP is exceptionally rare, in keeping with a recent review by Mastoraki et al² that revealed only 15 confirmed cases in the literature. The behavior of this tumor type is largely unknown, and treatment pathways are therefore not as well established. The initial therapeutic management of PMPB appears to follow the guidelines for breast carcinomas, suggesting a wide local excision and sentinel lymph node biopsy as the treatment of choice.²

In our patient, recurrence of melanoma was noted both within the breast and in the axillary lymph node basin 1 year following a wide excision despite a negative initial sentinel lymph node result. This portrays the aggressive and unpredictable nature of this disease. Similarly, other case reports of PMBP have also demonstrated high rates of

metastasis and recurrence.^{6,7} Koh et al⁷ reported multiple distant metastases presenting at 23 months from surgery despite a negative sentinel lymph node biopsy. Similar to our case, their patient was referred to oncology to commence immunotherapy. Due to the insufficient number of reported cases in recent years and, in particular, since the advent of immunotherapy, the behavior of this tumor and its long-term prognosis remains difficult to predict.

With advances in breast reconstruction and the recognized benefit it offers in terms of quality of life and satisfaction,⁸ it is essential to offer all patients a reconstructive treatment plan for any oncological surgery involving the breast. To our knowledge, this is the first known case report to describe the use of immediate free flap reconstruction following a diagnosis of PMBP. Only 1 other case has reported on reconstruction with an implant-based technique following mastectomy for this diagnosis⁹; however, no details were discussed regarding complications or aesthetic outcome of the surgery.

Advances in modern melanoma management, in particular since the use of immunotherapy, have resulted in longer survival in patients with metastatic disease. We propose that even patients presenting with stage 3 disease should be offered the gold standard of breast reconstruction as part of their treatment plan. This is further

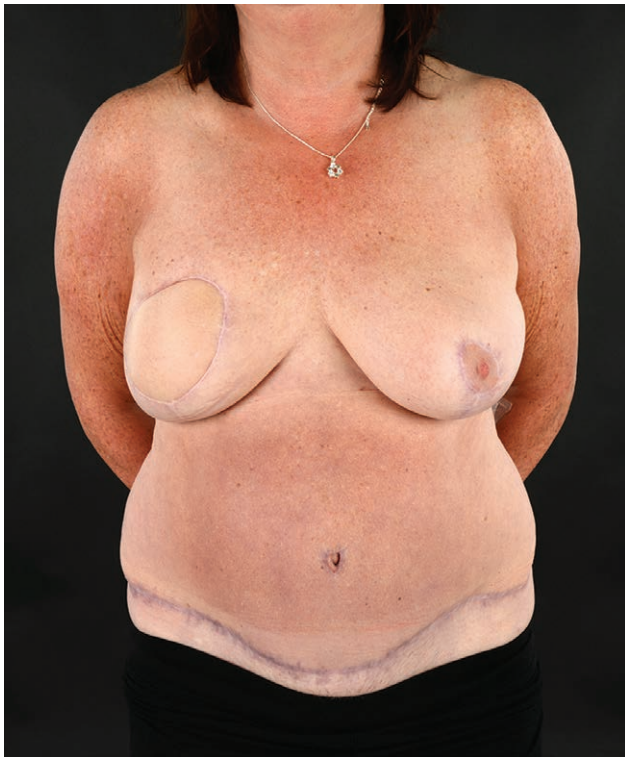


Fig. 3. One year following DIEP reconstruction.

supported by Huang et al, who suggest that all cases of primary breast melanoma should be treated with an oncoplastic approach and provided access to immediate breast reconstruction.¹⁰ This requires careful consideration by the oncoplastic breast multidisciplinary team, in particular with relation to potential complications. In our department, DIEP breast reconstruction is associated with only a 1% failure rate and a negligible complication rate, making this surgery a safe and valid option for most patients. In this case, the Breast Questionnaire revealed a high level of patient satisfaction with the reconstruction. Despite a complex surgical treatment plan, these patients can enjoy an enhanced quality of life and preserved body image for the duration of their survival after this diagnosis.

SUMMARY

Primary melanoma of the breast parenchyma (PMPB) is a rare entity, with only a few cases reported in the

literature. We present the case of a 50-year-old woman with a diagnosis of PMPB who underwent mastectomy and immediate breast reconstruction using a free DIEP flap following recurrence after initial breast conserving surgery. There were no postoperative complications, and patient satisfaction according to the validated Breast Questionnaire was high. There was no evidence of recurrence at 1-year follow-up. This report highlights the aggressive behavior of this diagnosis but also emphasizes the requirement for an oncoplastic approach to treatment and the benefit of immediate breast reconstruction.

Emma Snashall

ST5 Plastic Surgery
St Helens and Knowsley NHS Trust
Warrington Road
Prescot, Liverpool
UK L35 5DR

E-mail: emmasnashall@googlemail.com

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