Brazilian Journal of Oncology

# Primary breast parenchyma melanoma: case report

## Melanoma primário do parênquima da mama: relato de caso

Eduardo Doria Filho[1], Gion Aléssio Rocha Brunn[1], Diego Noya Brandão[2], Rafael Silva Ribeiro[1], Adriano Mata Pires Freire Carvalho[1], Miguel Ângelo Brandrão[3]


## ABSTRACT

**Introduction:** Primary breast melanoma is a rare condition and most of cases are associated with melanoma overlying the skin of the breast or metastatic disease site. Primary breast parenchyma melanoma (PBPM) is extremely uncommon with only seven cases reported in the last four decades. **Case report:** A 44-year-old woman presented with a progressive growth lesion on the right breast in the last 6 months. Initial core biopsy suggested poor differentiated malignant round cells tumor with immunohistochemical confirming melanoma diagnosis. Patient underwent radical modified right mastectomy with final pathological report revealing the diagnosis of PBPM, 10cm x 9cm x 7cm in size. **Discussion:** After active search on PubMed/MEDLINE database, few case reports were found about PBPM. Radical mastectomy with axillar complete node dissection was the most common initially management. Prognostic was poor in general and only one case presented with no evidence of disease after 1-year follow-up.


**Keywords:** Breast neoplasms; Melanoma; Breast diseases.


## RESUMO

**Introdução:** O melanoma primário da mama é uma condição rara e a maioria dos casos está associada ao melanoma recobrindo a pele da mama ou ao local da doença metastática. O melanoma primário do parênquima da mama (MPPM) é extremamente incomum, com apenas sete casos relatados nas últimas quatro décadas. **Relato de caso:** Uma mulher de 44 anos apresentou lesão de crescimento progressivo na mama direita nos últimos 6 meses. A biópsia inicial sugeriu tumor de células redondas malignas diferenciadas com diagnóstico imunohistoquímico de melanoma. Paciente foi submetida à mastectomia radical modificada direita com laudo anatomopatológico final revelando o diagnóstico de MPPM, medindo 10cm x 9cm x 7cm. **Discussão:** Após busca ativa na base de dados PubMed/MEDLINE, foram encontrados poucos relatos de caso sobre MPPM. Mastectomia radical com dissecção completa de nódulo axilar foi o tratamento inicial mais comum. No geral o prognóstico foi ruim e apenas um caso não apresentou evidência da doença após 1 ano de acompanhamento.


**Descritores:** Neoplasias da mama; Melanoma; Doenças da mama.

1. Clínica AMO (Multidisciplinary Oncology Assistance), Skin Cancer Department - Salvador - Bahia - Brazil.
2. University of Medicine - UNIFACS, Medicine Course - Salvador - Bahia - Brazil.
3. Clínica AMO (Multidisciplinary Oncology Assistance), Director of the Skin Cancer Department - Salvador - Bahia - Brazil.

**Financial support:** none to declare.
**Conflicts of interest:** The authors declare no conflict of interest relevant to this manuscript.
**Correspondence author:** Eduardo Doria-Filho.
E-mail: eduardo.doriafilho@gmail.com / eduardodoria@clinicaamo.com.br

**Received on:** December 02, 2019 | **Accepted on:** August 28, 2020 | **Published on:** January 8, 2021
**DOI:** https://doi.org/10.5935/2526-8732.20200047

## INTRODUCTION

Skin cancer is by far the most common of all cancers. Melanoma, although having a percentage of 1% among all skin cancers, is the leading cause of mortality associated with this tumor site.[1] The World Health Organization (WHO) estimates the incidence of 7.407 new cases in Brazil in 2018, with an associated mortality of 2.078 cases in the same year.[2]

The finding of primary breast melanoma is a particularly rare event, with an incidence of less than 0.5% among all breast cancers and 3-5% of all melanoma cases reported in the literature.[3,4]

Primary breast melanomas can be subdivided into three main clinical manifestations: melanoma of the skin overlying the breast (most cases), metastatic breast melanoma lesion, and primary breast parenchyma melanoma (PBPM), the latter being extremely rare and corresponding to the present report.[5]

This case report was submitted and approved by our local ethics committee.

## CASE REPORT

A 44-year-old female patient sought medical attention in February 2019 due to the appearance of a tumor in the right breast region 6 months before. She reported progressive growth, pain, and swelling in her ipsilateral axillary area. She was first seen in a Brazilian public health care institution – UNACON, Feira de Santana, Bahia – with a specialist in cancer surgery (Figure 1). Core biopsy and imaging exams were indicated to continue diagnostic work up and determine the tumor staging.

The patient underwent a core biopsy of the right breast lesion on 03/08/2019, which revealed a round cell malignancy on pathological exam. Subsequent immunohistochemical examination was performed and showed the melanoma diagnosis. After histological confirmation, she was referred to our specialized cancer care center, in Salvador, Bahia.

The patient visit three different physicians at our clinic (two surgical oncologists and one medical oncologist) in search for suspected skin lesions or previous scars and none were found, decreasing the possibility of previous skin tumor in other sites. She had never undergone any surgical procedure on her skin.

Complementary imaging with breast magnetic resonance (MRI) and PET-CT were indicated for better evaluation and management (Figures 2 and 3). On 03/11/2019, the breast MRI showed multiple non-symmetrical conglomerated nodes enhancements affecting upper quadrants of the right breast, measuring about 10cm x 6cm x 7cm, and emphasized the presence of right axillary lymph node enlargement in levels I and II.

On 04/01/2019 the PET-CT scan showed a hypermetabolic mass with infiltrative aspect in her right breast (maximum standard uptake value - SUVmax 3.1) with enlargement of retro pectoral and right axillary lymph nodes (SUVmax 3.2), associated with sub centimetric lymph nodes at the right internal thoracic base.

On April 5$^{th}$ of 2019, the patient underwent a radical modified right mastectomy (Madden technique) with complete node dissection of the right axillary base. Additionally, superior extension to the tissue around the brachial plexus was made because of clinically positive lymph nodes in this region on the preoperatory evaluation. Discharge from hospital occurred on day one after surgery without any major complications.

Final pathological report revealed the diagnosis of a primary breast parenchyma melanoma (PBPM), 10cm x 9cm x 7cm in size, with free margins. Intense lymphatic invasion and mitosis index of 7 in 1mm$^2$ were found. Invasion of the retro-papillary ducts in the nipple was evidenced; however, there were no signs of malignancy in the epidermis and dermis. Eighteen lymph nodes were evaluated, fifteen of them with malignant disease present and one with capsular effusion.

The patient was alive and without evidence of disease return after four months of follow up.

## DISCUSSION

Primary breast parenchyma melanoma with or without skin involvement is a rare condition worldwide.[6]

Despite its rare incidence, cutaneous melanoma from other sites proved to be the major solid malignancy that metastasizes to the breast in a retrospective MD Anderson Cancer Center study in 2007 (39.6% of cases, second lung with 24.3% of cases).[7]

Cutaneous melanoma on the skin overlying the breast is a pathology well described in spite of its relative rarity. It is estimated to correspond to 5% of all cases of cutaneous melanoma,[4] and there are currently some reports in the literature about this subgroup of patients.[8,9]

After active search on PubMed/MEDLINE database, few case reports were found about primary parenchyma melanoma involvement without evidence of cutaneous involvement in the breast. Overall, seven cases have been reported in the last four decades.[3,5,6,10-13] The age of patients ranged from 26-76 years, and in the majority of the cases a radical mastectomy with axillar complete node dissection was needed. Only one case was shown with size tumor above 5cm like the present case. [3] The outcome was variable from no evidence of disease after 1-year follow-up in one study[5] to death within 2 months after treatment in another publication.[10] Two of the seven reported cases presented as amelanotic melanoma.[12,13]

The clinical management of patients with PBPM presents major prognostic and therapeutic challenges, considering the rarity of the pathology

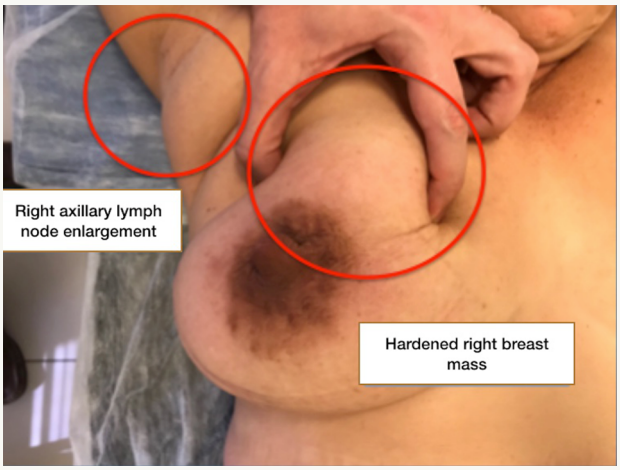


**Figure 1.** Hardened right breast tumor mass with enlarged right axillary lymph nodes

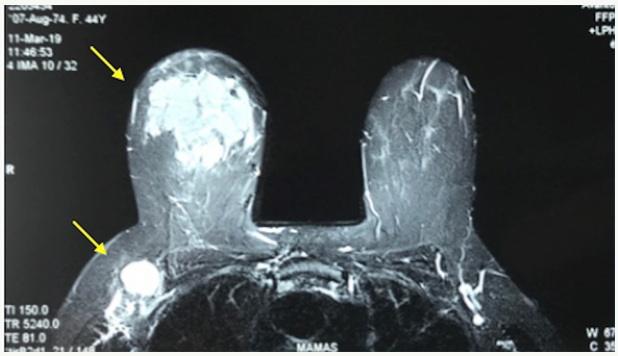

**Figure 2:** Breast magnetic resonance image (MRI)

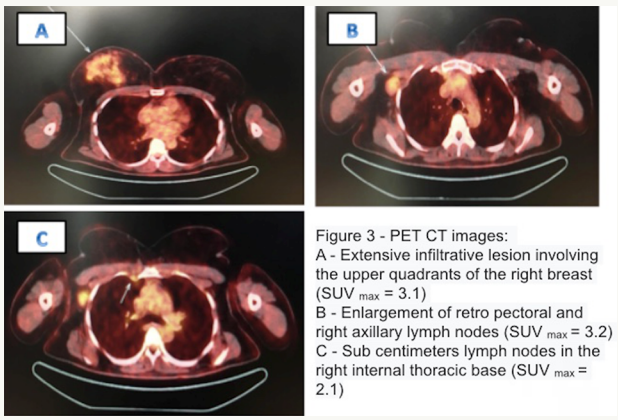


**Figure 3:** PET CT images

and the lack of international literature to support conducts. Furthermore, the reported case has major limitations on systemic adjuvant treatment imposed by the national health care system to which she is inserted, and there is no access to immunotherapy or targeted therapy, if applicable. We believe that radical surgical management, as the only option we had, was beneficial for the case. The initial clinical presentation with a large tumor size and rapid growth implied the need for local control.

In conclusion, we report a case of primary breast parenchyma melanoma that was managed with radical surgery. This case report and the data in the literature indicate that PBPM is a very rare condition with a poor prognosis. Radical surgical excision is the primary treatment. Comprehensive adjuvant therapy and neo-adjuvant strategies can positively improve the outcomes of these patients.

## REFERENCES

1. American Cancer Society (ACS). Key statistics about melanoma skin cancer [Internet]. Atlanta: ACS; 2019; [access in Ano Mês dia]. Available from: https://www.cancer.org/content/dam/CRC/PDF/Public/8823.00.pdf
2. World Health Organization (WHO). Brazil – Source: GLOBOCAN 2018 [Internet]. Geneva: WHO; 2018; [access in Ano Mês dia]. Available from: https://gco.iarc.fr/today/data/factsheets/populations/76-brazil-fact-sheets.pdf
3. Drueppel D, Schultheis B, Solass W, Ergonec H, Tempfer CB. Primary malignant melanoma of the breast: case report and review of the literature. Anticancer Res. 2015 Mar;35(3):1709-13.
4. Kurul S, Taş F, Büyükbabani N, Mudun A, Baykal C, Camlica H. Different manifestations of malignant melanoma in the breast: a report of 12 cases and a review of the literature. Jpn J Clin Oncol. 2005 Apr;35(4):202-6.
5. Rassouli M, Voutsadakis IA. Primary noncutaneous malignant melanoma of the breast. Breast J. 2016 Nov;22(6):688-91.
16. Koh J, Lee J, Jung SY, Kang HS, Yun T, Kwon Y. Primary malignant melanoma of the breast: a report of two cases. J Pathol Transl Med. 2019 Mar;53(2):119-24.
17. Williams SA, Ehlers RA, Hunt KK, Yi M, Kuerer HM, Singletary SE, et al. Metastases to the breast from nonbreast solid neoplasms: presentation and determinants of survival. Cancer. 2007 Aug;110(4):731-7.
8. Tan M, Howard A, Cyr AE. Malignant melanoma of the breast: a case report and review of the literature. Tumori. 2013 Jan/Feb;99(1):e11-3.
9. Alzaraa A, Sharma N. Primary cutaneous melanoma of the breast: a case report. Cases J. 2008 Oct;1(1):212.
10. He Y, Mou J, Luo D, Gao B, Wen Y. Primary malignant melanoma of the breast: a case report and review of the literature. Oncol Lett. 2014 Jul;8(1):238-40.
11. Bernardo MM, Mascarenhas MJ, Lopes DP. Primary malignant melanoma of the breast. Acta Med Port. 1980 Jan/Feb;2(1):39-43.
12. Roy S, Dhingra K, Mandal S, Khurana N. Unusual presentation of metastatic amelanotic melanoma of unknown primary origin as a solitary breast lump. Melanoma Res. 2008 Dec;18(6):447-50.
13. Biswas A, Goyal S, Jain A, Suri V, Mathur S, Julka PK, et al. Primary amelanotic melanoma of the breast: combating a rare cancer. Breast Cancer. 2014 Mar;21(2):236-40.