

# Unusual Presentation of Giant Malignant Melanoma in the Deltoid: A Case Report and Review of the Literature

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## Abstract

The term *giant melanoma* was previously characterized as a significantly large melanoma, often exceeding 10 cm in diameter. The present case report presents our experience in managing a giant malignant melanoma in the deltoid region in a 79-year-old patient. Due to the size of the lesion, surgical resection with reconstruction using the pectoralis major muscle flap to cover the defect was chosen. The results showed that experimental treatment regimens and new therapeutic agents and techniques should be considered, since giant melanomas are often associated with several negative prognostic factors. Therefore, more studies are necessary for a better understanding of this pathology, which requires a multidisciplinary team for its treatment.

## Keywords

- ▶ melanoma
- ▶ deltoid muscle
- ▶ case reports
- ▶ surgical flaps

## Introduction

The term *giant melanoma* was previously characterized as a significantly large melanoma, often exceeding 10 cm in diameter. Furthermore, the term *thick melanoma* is used to describe a large malignant melanoma, with a Breslow thickness exceeding 4 mm. However, melanomas of large dimensions are infrequent. The largest case ever documented globally reached dimensions of 22 × 25 × 7 cm in the United States.<sup>1</sup> Thus, the purpose of the current case report is to present our experience in managing a giant malignant melanoma in the deltoid region in a 79-year-old patient and to conduct a review of the literature.

## Case Presentation

A 79-year-old male patient, a farmer with low level of schooling, noticed the appearance of a small lesion on the left deltoid. He reported that the lesion had been increasing

in size to the point of hindering the movement of the left upper limb. The patient had always worked as a farmer and did not use sunscreen. There was no history of smoking or diseases such as hypertension or diabetes. Upon physical examination, a large, hardened lesion was evident in the left deltoid, fixed to deep planes and with inflammatory signs extending over the left pectoral region, limiting the movement of the left upper limb. The initial diagnostic hypothesis was of sarcoma. Laboratory tests were performed, which did not show significant alterations. A computed tomography (CT) scan of the chest revealed a large lesion involving the deltoid muscle, extending to the parietal pleura with compression of lateral cervical nervous and vascular structures, without evidence of pulmonary metastases.

Due to the size of the lesion, surgical resection with reconstruction using the pectoralis major muscle flap to cover the defect was the chosen approach. The procedure was performed without particularities and lasted about

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3 hours. The postoperative period was uneventful, and the patient was discharged 4 days after the procedure.

At the 7-day follow-up appointment after discharge, the patient presented histopathological findings demonstrating a navicular clear skin patch measuring 20 × 12 cm, with abundant subcutaneous tissue and 13 cm in thickness. On the surface, a raised and grayish lesion measuring 5.0 × 4.3 cm was observed, located 4 cm from the deepest surgical margin. Upon sectioning, a grayish, dull, and elastic nodular lesion measuring 11 cm in the largest axis was observed, positioned 0.1 cm from the deep margin. Based on the immunohistochemical profile, the diagnosis was of invasive and ulcerated skin melanoma, with a Breslow thickness of 10.0 mm, Clark level V, mitotic index of 10/10 CGA, with resection margins free of involvement.

The patient was followed up for 30 days by the surgical team, then discharged and referred to the clinical oncology team for ongoing treatment follow-up.

## Discussion

Giant cutaneous malignant melanomas are rarely observed in the clinical practice, and they have rarely been described in the literature. In a systematic review of the literature, di Meo et al.<sup>2</sup> found only 16 cases of giant malignant melanoma, with only 3 arising from the arms. In none of the cases did this lesion affect the deltoid region. A search in the Brazilian literature revealed no similar cases of melanoma with these dimensions. In the global literature, we found two cases with similar dimensions, highlighting the rarity of this condition.<sup>3,4</sup> In the present case, the lesion measured 20 × 12 cm in the deltoid region.

At the initial presentation, a preliminary diagnosis of soft-tissue sarcoma was established. A deep, firm, large, soft-tissue mass should raise suspicion of malignant soft-tissue tumor.<sup>5</sup> Ulceration and bleeding from a soft-tissue sarcoma is not unusual due to blood supply compromise in an enlarging tumor. However, there were several clues that would cause one to suspect that this lesion was of the skin in origin, such as the fact that the tumor was adherent to the skin. Prolonged sun exposure due to the patient's occupation was a possible risk factor in this case.

Given the rarity of giant melanomas, it is difficult to draw any conclusions regarding staging and management strategy. According to protocols, the standard for melanomas with Breslow thickness > 2 mm is resection with 2-cm margins.<sup>6</sup> However, the lesion's location and depth make resections with such margins challenging, as preserving limb functionality is also important for the quality of life of the patients, especially in the case of older individuals, who may experience depressive symptoms in the face of limb amputation. Therefore, surgical planning involving a multidisciplinary team becomes crucial.

Based on the anatomopathological findings, it was evident that the case in question presented a high risk of developing metastases, and examinations that would be considered gold standard in cases of locally-advanced

melanoma, such as brain magnetic resonance imaging (MRI), positron-emission tomography-computed tomography (PET-CT), and axillary and cervical ultrasound,<sup>6</sup> were not performed preoperatively due to the often long time required for such exams. Therefore, the decision was made to only perform a chest CT scan to identify compromised structures, along with preoperative laboratory and cardiac exams, to avoid further delay in the surgical procedure, as the lesion was impairing the quality of life of the elderly patient by causing functional limitations.

Zhang et al.<sup>7</sup> described the perforator flap from the pectoral region in an anatomical study of perforators from the thoracoacromial artery. They detailed the existence of one or two main perforators located within a 4-cm area at the junction of the acromioclavicular and midclavicular lines, enabling the execution of the pedicled thoracoacromial artery perforator flap. With this anatomical knowledge, a large skin island can be maintained, and the muscle can be partially or completely excised, as was performed in the present case. For reconstruction, a flap of the left pectoralis major measuring 2 × 10 cm was marked, extending from the fourth intercostal space to the extended subcostal region. This was performed to provide coverage for the defect created in the deltoid, thereby preserving the functionality of the left upper limb.

Therefore, experimental treatment regimens and new therapeutic agents and techniques can be considered, as giant melanomas are often associated with several negative prognostic factors (size, exophytic growth, ulceration, nodal disease) and a very unfavorable prognosis, in addition to reduced quality of life caused by mutilations. Age must be taken into consideration in limb resections, and the attempt to maintain the limb must be encouraged. Therefore, more studies are necessary for a better understanding of this pathology, whose treatment involves a multidisciplinary team.

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RSV: manuscript writing; LBS: data analysis and interpretation.

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### Clinical Trials

None.

### Conflict of Interests

The authors have no conflict of interests to declare.

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