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Giant malignant melanoma of the upper limb: a case report and review of the literature

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Abstract

Background Giant malignant melanoma is an exceedingly rare and aggressive form of skin cancer. Although capable of growing beyond 10 cm in diameter, it often follows an indolent course while having an increased metastatic potential. This dual nature poses unique diagnostic and therapeutic challenges. Cases of giant malignant melanoma are rarely reported, particularly on the upper limb, making such occurrences notable for their atypical presentation and clinical significance.

Case presentation We present a 47-year-old Brazilian woman who presented with symptomatic anemia and a 10 × 12 cm bleeding, fungating mass on her right arm. Histopathological evaluation and imaging confirmed the diagnosis of nodular malignant melanoma without evidence of metastasis. She underwent surgical excision of the mass without postoperative complications. The patient was subsequently discharged with a follow-up plan involving oncology for ongoing management and surveillance.

Conclusion This case represents the 20th report of giant malignant melanoma in the literature, and the fourth case specifically involving the arm, underscoring its rarity. It highlights the importance of heightened clinical suspicion and timely intervention in patients presenting with atypical, enlarging skin lesions. Furthermore, it emphasizes the critical role of a multidisciplinary approach in achieving optimal outcomes for such complex cases.

Keywords Giant melanoma, Malignant melanoma, Cutaneous melanoma, Nodular melanoma, Atypical presentation of melanoma, Case report

Introduction

Malignant melanoma (MM) is an aggressive form of skin cancer that originates from the melanocytes [1]. While typically presenting as small, pigmented lesions, rare cases of giant melanoma, defined as tumors > 10 cm in diameter, have been reported [2, 3]. These cases pose unique clinical challenges owing to their size, indolent course, and increased metastatic potential [1, 4]. Giant melanomas can arise in various anatomical positions, with a wide range of histological subtypes, and their management often requires a multidisciplinary approach [3].

Case report

A 47-year-old Brazilian woman with no significant past medical, surgical, or family history presented to the emergency room (ER) for evaluation of a fungating right arm mass. Two days before the ER visit, the patient experienced profuse bleeding from the arm mass, which stopped when a towel was applied to the area. The patient could not estimate the amount of blood lost, but the next day, she experienced a near-fall event, prompting an ER visit. The patient's right arm mass appeared approximately 2 years prior as a small pimple and grew over time. The mass grew more rapidly in the preceding

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3 months with intermittent fever and chills. Fevers subsided with over-the-counter acetaminophen. The mass was described as round in shape, friable, and ulcerating, with intermittent bleeding episodes. It was nontender and fixed in position. The patient also reported losing a significant amount of weight during the same duration, but could not quantify it.

In the ER, the patient appeared comfortable, and her hemodynamics were notable for tachycardia (125 beats/minute). She was afebrile and saturating well on ambient air. Physical examination revealed pale conjunctiva and a 10 ×12 cm fungating cauliflower-like mass on the right arm (Fig. 1). The overlying skin was friable, was ulcerated with necrotic material, and had minimal hair growth. The mass had a pustular and foul-smelling discharge, but there was no palpable lymphadenopathy or organomegaly.

Triage blood test results were significant for mild leukocytosis, low hemoglobin, elevated reticulocytes, and elevated inflammatory markers (Table 1). The remainder of the blood tests, including lactate dehydrogenase, thyroid-stimulating hormone, creatine kinase, troponin, and lactic acid levels were unremarkable. Although blood cultures and urinalysis were negative for acute infection, the patient was started on broad-spectrum antibiotics due to concern for an underlying arm abscess and superimposed cellulitis. The patient was also transfused with four units of packed red blood cells (PRBCs) due to critically low hemoglobin levels.

X-ray of the right humerus showed a large hyperdense soft tissue mass in the distal right upper arm with no acute fractures or dislocation. A computed tomography (CT) scan of the right upper extremity with contrast revealed a large heterogenous soft tissue mass in the superficial aspect of the mid-upper arm. The mass extended into the subcutaneous soft tissues with mild adjacent fat stranding but no muscle or bone involvement. The patient underwent surgical resection of the mass (10 cm ×9 cm), and the histopathology revealed a malignant melanoma with necrosis (nodular melanoma type). CT scan of the chest, abdomen, and pelvis was negative for metastasis. The immunohistochemical staining of the mass cells was positive for Mart-A and S100 (Fig. 2). The patient was diagnosed with a giant MM of the upper limb and was discharged with plans for outpatient follow-up with the oncology clinic. She was discharged with a 5-day course of doxycycline 100 mg twice daily and acetaminophen 975 mg three times daily as needed for pain.

Following surgical removal of the mass, the patient did not follow-up on her scheduled appointment. Attempts were made to reach the patient via the contact information she provided, including phone calls and voice messages, but these efforts were unsuccessful. As a result, the patient's perspective on their experience and treatment outcomes could not be obtained for this report.

Table 1 Complete blood count with reticulocyte count on admission

WBC	12.7
RBC	1.61
Hgb	4.2
Hct	13.5
MCV	83.9
MCH	26.1
MCHC	31.1
RDW	12.7
Plt	590
MPV	9.3
Retic count	2.34
Retic Abs	0.0456
Retic He	19.1
IRF	19.9

Hgb, hemoglobin; IRF, immature reticulocyte fraction; MCH, mean corpuscular hemoglobin; MCHC, mean corpuscular hemoglobin concentration; MCV, mean corpuscular volume; MPV, mean platelet volume; Plt, platelets; RBC, red blood cells; RDW,; Retic Abs, absolute reticulocyte count; Retic count, reticulocyte count; Retic He, reticulocyte hemoglobin equivalent; WBC, white blood cells

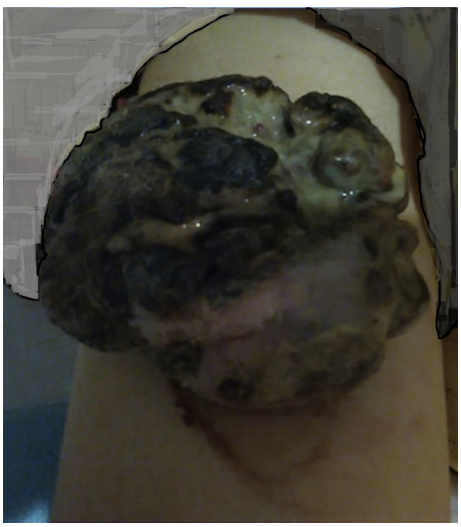

Fig. 1 A clinical image showing a giant malignant melanoma measuring 10 ×12 cm in diameter. Ulceration and residual blood can be observed on closer inspection

Discussion

First described by Bazex *et al.* in 1970, "giant melanoma" is a rare type of cutaneous melanoma with unique clinicopathological features [1]. Although no official cut-off diameter has been established yet, the term "giant

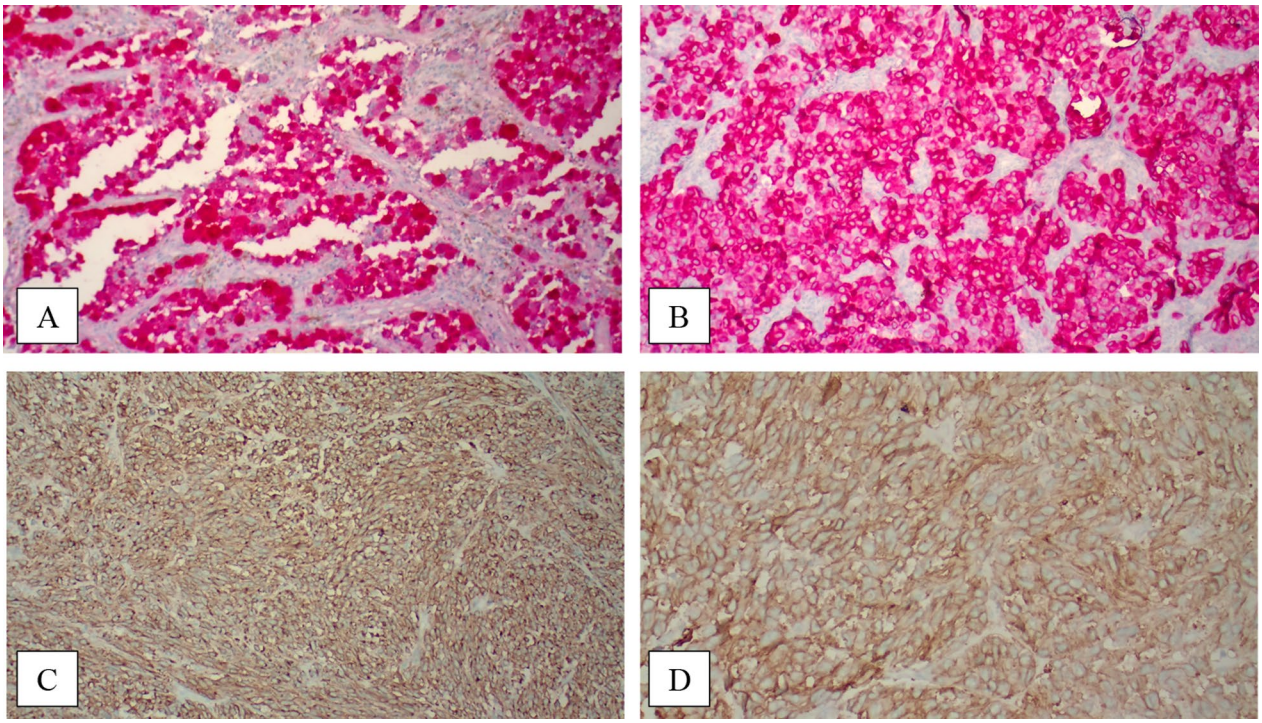

Fig. 2 Histopathology of nodular melanoma in a low-powered field (**A**) and high-powered field (**B**). Immunohistochemical staining of the melanoma cells positive for S100 in low-powered field (**C**) and high-powered field (**D**)

melanoma" often describes melanomas with a diameter of greater than 10 cm, independent of Breslow depth [2–6]. Herein, we describe an interesting case of a giant malignant melanoma in a woman with no pertinent history. Given the lack of local and distant metastases, the right arm mass was resected, and the patient had an uneventful postsurgical course. She was later discharged with plans for outpatient follow-up at the surgical and medicine clinics.

Cutaneous melanoma (CM), also known as malignant melanoma, is a type of skin neoplasm that results from uncontrolled growth of melanocytes [1, 2]. CM is the most aggressive variant of skin cancer and has poor prognosis. The four major types of CM are superficial spreading melanoma, nodular melanoma, lentigo maligna melanoma, and acral lentiginous melanoma. Superficial spreading melanoma is the most common type of CM, where the melanocytes initially spread on the surface of the superficial skin before penetrating deeper into the skin. Superficial spreading melanoma starts as a macule that grows into a plaque in an intraepidermal horizontal or radial fashion, with variegated coloration. On histology, clear malignant melanocytes have a pagetoid spread over the epidermis. Nodular melanoma appears as a nodule with a short horizontal, but aggressive vertical, growth. It is brown–black in color, often exophytic, and erodes and bleeds, such as in this case. Lentigo maligna melanoma begins as melanoma *in situ* that grows over several years, mostly on the face of elderly individuals. Acral-lentiginous melanoma initially presents as pigmentation with irregular borders and then evolves into a nodule. It is usually seen on the palms, soles, fingernails, or toenails [7].

Giant melanomas typically occur on the scalp, arms, abdomen, or back. In a systematic review of the literature, di Meo *et al.* [2] found 16 cases of giant malignant melanoma, with only three arising from the arms. Honeyman and Wilson reported the only presentation of a giant melanoma on the upper limb with no regional lymphatic or metastatic spread after surgical excision [8]. We report the 20 th case of giant malignant melanoma in the literature and the fourth case of arm tropism (Table 2). While both this case and that of Honeyman and Wilson involve giant melanoma located on the upper limb, the key differences lie in the stages of presentation and the approach to post-surgical management. In the case presented by Honeyman and Wilson, early detection and surgical intervention allowed for a positive outcome, with the patient having no regional lymphatic or metastatic involvement. Individuals with giant melanomas usually present at a later stage, as they tend to neglect the lesion until the mass increases in size and bleeds. Some patients

Table 2 A summary of the 14 out of the 19 total cases of giant malignant melanoma reported in the literature

Author(s)	Year	Age/sex	Initial presentation	Location	Length of growth	Surface area	Breslow thickness	Extension of involvement
Green J, Nye J, Turner K, *et al.*	2023	22 months/M	Followed up with every 6 months	Multifocal congenital melanocytic nevus (left side of face and neck and back)	From birth to 22 months	—	6.5 mm	Posterior cervical lymph node
Wekha G, Ebiju I, Ayesiga I, *et al.*	2023	67 years/F	Ulcerated, foul-smelling lesion	Right foot (medial aspect of mid third of the right dorsum of foot)	3 years	8.6 × 5.1 × 10.4 cm	—	T4 N2 M1, Stage IV
Yu C, Cheng X, Li H, *et al.*	2022	4 years/M	Recurrence of mass	Left lumbar area	4 months	5 × 4 cm	—	Left inguinal lymph nodes and right lung metastasis
Fusheng D, Yanping D, Jiejie P	2022	69 years/M	Recurrence of mass and pain	Right eyelid	> 2 months	6 × 5 × 2.8 cm	—	—
Khim O, Leong J, Sani M, *et al.*	2021	62 years/M	Progressively enlarging mass	Left arm (anteromedial aspect)	5 months	10 × 15 cm	—	—
Brzesinski P, Jasonek J, Karcz M, *et al.*	2019	63 years/F	Bleeding	Scalp (top of head)	Years before	11 × 10 × 4 cm	—	—
Bartos V and Stofova Z	2016	56 years/M	Progressively growing lesion with extensive ulceration, intermittent bleeding, and pain	Toes and instep of the left foot	3 years	8 × 4 cm	15 mm	pT4b N2c MX, Stage III B
Honeyman CS and Wilson P	2016	57 years/F	Pain	Right forearm	2 years	14 × 7 × 12 cm	70 mm	T4 N0 M0
Imamura T, Nakamura Y, Teramoto Y, *et al*	2016	52 years/F	Enlarging mass	Right upper arm	1 months	8 × 8 × 7 cm	70 mm	Right axillary lymph nodes
Ching JA and Gould L	2012	70 years/F	Evaluation of lesion	Left scalp	3 months	14.5 × 10.4 cm	18 mm	T4b N3 M1, Stage IV
Krujiff S, Vink R, Klaase J	2011	56 years/F	Evaluation of lesion	Back	Weeks	8 × 6 cm	48 mm	With right and left axilla nodal involvement, suspected distant metastasis
Kim JH, Jeong SY, Shin JB, *et al.*	2009	56 years/F	Pain	Left thumb	3 years	7 × 4 × 3.5 cm	> 4 mm	With left axilla nodal involvement, M0
Pai R, Kini H, Kamath S, *et al.*	2008	53 years/M	Enlarging mass	Left upper eyelid	1 years	5 × 4.5 × 4 cm	45 mm	Preauricular lymph node
Morris LL and Danta G	1968	15 years/F	Amenorrhea	Right temporal lobe	2 months	6 cm	—	—

F, female; M, male; MX, metastasis cannot be evaluated; pT, pathological primary tumor; T N M, tumor node metastasis

reported pain at the lesion site while others presented with a disfiguring painless mass. Giant melanoma usually presents as a malodorous, firm, exophytic, and ulcerating mass, with necrosis and purulence. By contrast, our patient presented with symptomatic anemia, and a mass in the right upper arm that progressively increased in size over 2 years. Kim *et al.* [9] had a similar presentation of an aggressive tumor growing rapidly over time. However, while their case involved a melanoma with concomitant bone destruction and axillary lymph node metastasis, our patient had no signs of distant metastases or regional

lymph node involvement at the time of diagnosis, making her prognosis more favorable.

Excisional biopsy is the most effective diagnostic study for the confirmation of malignant melanomas. Because Breslow depth is essential for prognosis, it is imperative that the entire lesion be excised prior to analysis [10]. The surgical approach to melanoma, including the importance of excisional biopsy and adequate margins, plays a pivotal role in prognosis. According to the German guidelines on melanoma treatment, surgical excision with adequate margins is critical for reducing recurrence risks and improving survival outcomes [11]. A 1 cm margin is recommended for tumors ≤ 2 mm in thickness, while a 2 cm margin is preferred for thicker lesions. Tumor thickness >1 mm indicates the need for sentinel lymph node biopsy, which helps guide prognosis and treatment decisions. In cases of incomplete resection or inoperable regional lymph nodes, radiotherapy is recommended to reduce recurrence. Tumor size, location, and surgical margins are key prognostic factors in determining survival rates and recurrence risks. In addition to biopsy, the use of imaging modalities such as CT/positron emission tomography (PET) scans aids in the evaluation of suspected distant metastases [12]. Although the lesion was localized with no signs of metastasis, surgical excision was critical to prevent potential local recurrence and to ensure that any possible spread was addressed promptly. In our patient's case, excision with wide margins was necessary to reduce the risk of recurrence, as the tumor's size and location posed a significant risk for local spread. Laboratory tests, such as a complete blood cell count (CBC), lactate dehydrogenase (LDH) level, and serum S100 protein levels, help to not only confirm the diagnosis of melanoma but also may provide supportive evidence for distant metastases [11]. Histopathology is often used to verify a diagnosis; concentrated deposition of melanin pigment in the stroma surrounding malignant cells is confirmatory [13], and positive staining for Melan A, HMB-45, SOX-10, and S100 [14] definitively supports a diagnosis of malignant melanoma.

Given its rarity and malignant potential, there is no consensus regarding the management of giant melanomas. Treatment is determined on a case-by-case basis and is dependent on tumor staging and the degree of metastases. There have been documented cases in which surgical amputation or resection was performed due to rapid growth of the tumor, followed by adjuvant dacarbazine chemotherapy [15]. di Meo *et al.* reported an interesting case of abdominal giant melanoma that was successfully treated with surgery and adjuvant dacarbazine. Due to the lack of clear management guidelines for giant melanomas, some scholars recommend adopting the National Comprehensive Cancer Network (NCCN) guidelines for the treatment of small melanomas, consisting of resection with wide margins, as well as lymph node dissections to evaluate for metastases [5, 16].

While surgical excision remains the cornerstone of melanoma treatment, adjuvant therapies have shown promising potential to reduce recurrence, particularly in high-risk patients. Recent advancements in melanoma treatment, including immunotherapy and targeted therapies, have significantly improved outcomes for patients, especially those with metastatic or high-risk localized melanoma. Many patients have reported positive experiences with adjuvant therapies that not only extend survival but also improve quality of life [17]. Immunotherapy, such as immune checkpoint inhibitors (e.g., pembrolizumab, nivolumab), works by enhancing the body's immune response to target and destroy melanoma cells. Targeted therapies that focus on specific genetic mutations, such as BRAF inhibitors (e.g. vemurafenib, dabrafenib), offer another layer of treatment.

Calteux *et al.* [3] emphasized the challenges posed by scalp melanomas, where surgical excision requires delicate care to preserve critical structures while ensuring adequate margins. Although our patient's melanoma was located on the upper arm, which allowed for a more straightforward surgical approach, both cases underscore the importance of achieving clear margins to reduce recurrence. Ganko and Copertino [18] reported a case that required extensive intervention, including lymph node dissection and adjuvant interferon-alpha-2a treatment. Our patient benefited from a less complicated resection, offering an example of how the location of the tumor can influence surgical outcomes. This case with surgical intervention done early also highlights the role that timely diagnosis and intervention can play in improving prognosis, as late diagnoses often necessitate more aggressive treatments.

Due to the expeditious growth and metastatic nature of these tumors, patients who present late in their disease course typically have an extremely poor prognosis [18]. It is essential that skin lesions of patients with suspected abnormal growth be biopsied immediately to prevent the development of widespread metastases. Lymph node involvement decreases the survival rates of patients by nearly half. These patients have a survival rate of 20–70%, with a 10% survival rate in patients with metastatic disease [5, 16]. In the case of our patient, while surgery successfully removed the primary tumor, the incorporation of adjuvant therapy could have provided an additional layer of protection. The role of adjuvant therapies in reducing recurrence rates and improving survival highlights the importance of a multidisciplinary approach in melanoma management, where surgical intervention is

complemented by cutting-edge treatments to offer the best possible prognosis [17].

Given that our patient underwent surgical excision of a giant melanoma on the right upper arm without signs of distant metastasis or regional lymph node involvement, her follow-up care should be structured according to the NCCN guidelines for low to intermediate risk of recurrence, with closer monitoring due to its rarity and the size of the melanoma [16]. Patient education on self-monitoring, sun protection, and lifestyle changes is crucial, alongside ongoing psychological support to help manage any anxiety or concerns about recurrence. Coordination of care with dermatology, oncology, and other specialists ensures comprehensive monitoring, allowing for early intervention if signs of recurrence or systemic disease appear.

Literature on patient perspectives in similar cases mentions a range of emotional responses, which our patient likely also had [17, 19]. The emotional and psychological impacts of giant melanoma, as described in both Alicea *et al.* [16] and Brzeziński [17], emphasize the need for comprehensive care that addresses not only the physical aspects of melanoma treatment but also the mental health challenges associated with the disease. While our case did not allow for direct psychological assessment, she might have experienced anxiety and concern over the diagnosis of giant melanoma to potential relief following surgical or therapeutic intervention. Those patients often report feelings of gratitude for the thoroughness of care, along with fears about recurrence or the long-term impact of treatment. Challenges with recovery, such as physical discomfort and changes in body image, are commonly noted in melanoma patients. More importantly, there is increased awareness of the importance of skin health and monitoring. Patients often express hope that their experience will contribute to awareness and research, particularly for less common presentations of melanoma.

Conclusion

Giant melanoma is rarely observed in clinical practice, with only 19 previous cases reported in the English literature. This case describes a large fungating necrotic mass on the right forearm presenting as severe anemia, with mass resection and biopsy showing nodular-type melanoma. In a case where a small melanocytic tumor is initially dismissed by a patient because of varied presentation and eventually suspected as a giant melanoma, surgical excision of the entire mass should be performed and metastasis should be assessed with additional imaging. For primary melanomas without metastasis, it is imperative that on histopathologic examination, the Breslow depth should be measured for prognostication.

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Author contributions
KV and LB conceptualized the idea of this case report and contributed equally to its writing. KV and LB share first authorship. TF and TW helped with data curation, collection of pertinent patient data, and writing. IA and NH edited, fact-checked, and proofread the final version of the manuscript.

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Declarations

Ethics approval and consent to participate
Our institution does not require ethical approval/waiver for case reports.

Consent for publication
Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Competing interests
There are no competing of interest to declare.

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References

1. Bazex A, Dupré A, Christol B, *et al*. Giant melanoma in children and a tumor with a sarcomatous structure. Bull Soc Francaise Dermatol Syphiligr. 1970;77(3):428–30.
2. di Meo N, Stinco G, Gatti A, *et al*. Giant melanoma of the abdomen: case report and revision of the published cases. Dermatol Online J. 2014. https://doi.org/10.5070/D3207023137.
3. Calteux N, Berchem G, Schmid N, *et al*. Giant melanoma of the scalp: case report. Bull Soc Sci Med Grand Duche Luxemb. 2013;1:40–6.
4. Yuksel ME, Tamer F. Nodular malignant melanoma in the nasolabial fold. Our Dermatol Online. 2017;8(3):352–3.
5. Ching JA, Gould L. Giant scalp melanoma: a case report and review of the literature. Eplasty. 2012;12:e51.
6. Grisham AD. Giant melanoma: novel problem, same approach. South Med J. 2010;103(11):1161–2.
7. Garbe C, Schadendorf D, Stolz W, *et al*. Short German guidelines: malignant melanoma. J Dtsch Dermatol Ges. 2008;1(6):S9-14.
8. Honeyman CS, Wilson P. Patient with giant upper limb melanoma presenting to a UK plastic surgery unit: differentials and experience of management. BMJ Case Rep. 2016. https://doi.org/10.1136/bcr-2015-212253.
9. Kim JH, Jeong SY, Shin JB, *et al*. Giant acral melanoma on the left thumb of a Korean patient. Ann Dermatol. 2009;21(2):171–81.
10. Wekha G, Ebiju I, Ayesiga I, *et al*. A rare presentation of a giant malignant melanoma in a 67 year old female Ugandan: a case report. Int J Surg Case Rep. 2023;26(109):108569–79.
11. Garbe C, Hauschild A, Volkenandt M, *et al*. Evidence and interdisciplinary consensus-based German guidelines: surgical treatment and radiotherapy of melanoma. Melanoma Res. 2008;18(1):61–7.
12. Khim OG, Leong JF, Sani MH, Mohamed Haflah NH. Unusual presentation of giant upper limb malignant melanoma. Cureus. 2021. https://doi.org/10.7759/cureus.16996.
13. Yoshimoto T, Okamoto T, Fukuda K. Giant gastric metastasis of malignant melanoma. Oxford Med Case Rep. 2021;2021(7): e50.
14. Bartoš V, Štofová Z. Giant primary melanoma of the skin arising on the left foot. Our Dermatol Online. 2016;7(1):54–8.

15. National Comprehensive Cancer Network. NCCN clinical practice guidelines in oncology: melanoma. Fort Washington: National Comprehensive Cancer Network; 2011.
16. Alicea GM, Villanueva J, Webster MR, Rebecca VW. Progress in melanoma treatment: patient's perspectives. Pigment Cell Melanoma Res. 2023. https://doi.org/10.1111/pcmr.13138.
17. Brzeziński P. Giant melanoma on the scalp—clinical image. Our Dermatol Online. 2019;10:e2.1-2.
18. Ganko AG, Copertino N. Late diagnosis of a giant, pedunculated, cutaneous melanoma: a rare case study in an Australian tertiary centre. J Surg Case Rep. 2023. https://doi.org/10.1093/jscr/rjad594.
19. Green J, Nye J, Turner K, Greives MR, Mowrey K, Herbert AA, *et al*. Malignant melanoma within a giant congenital melanocytic nevus in a pediatric patient. SKIN. 2023;7(1):608–11.

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