



Unusual location of subungual amelanotic melanoma in 39-year-old patient: a rare case report

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Introduction and importance: Melanoma represents only 1% of all skin cancers. Acral lentiginous melanoma (ALM) which usually arises from feet, is the rarest main subtype of melanoma. Subungual melanoma (SUM) is a rare variant of ALM. Amelanotic melanoma (AM) is found only in 4–27.5% of melanomas, and the mean age for patients affected by AM exceeds 50 years. Late diagnosing leads to unfavourable prognosis.

Case presentation: The authors present a case of subungual amelanotic melanoma that affected the nail unit of the right thumb which is a rare case, especially when the patient is only 39 years old. The lesion enlarged over a year and was misdiagnosed many times and treated with no response. Sentinel node biopsy was positive and the patient was moved to a specialized hospital for treatment.

Clinical discussion: Diagnosing subungual amelanotic melanoma is challenging, not only because it is the rarest, but also it mimics many benign and malignant neoplasms due to the lack of pigmentation, in addition to the absence of clinical diagnostic features. AM exhibits a high growth rate helping in limiting the window for early detection.

Conclusions: Lately diagnosed subungual amelanotic melanoma usually associates with an increased risk of metastases, So it should be considered as a cause of any non-healing lesion. Early diagnosing gives patients the best chance for survival.

Keywords: amelanotic, case report, finger, melanoma, nail, subungual

Introduction

Skin cancer is typically classified into non-melanoma skin cancer (NMSC) which is more common, and malignant melanoma (MM)^[1]. NMSC includes basal cell carcinoma (BCC) and squamous cell carcinoma (SCC) as main types^[2]. Melanoma was first documented in the fifth century by Hippocrates^[3]. Melanoma represents only 1% of all skin cancers, causing over 80% of their deaths^[4]. Acral lentiginous melanoma (ALM) which originates on the palms and soles^[5], is the rarest subtype of melanoma cases, accounting only 4–10% of all of them^[6]. ALM lesions are often misdiagnosed as fungal infections, warts, or diabetic foot ulcers so it is usually lately diagnosed^[5]. Subungual melanoma (SUM) is typically a variant of ALM^[7]. It is thought that ALM is not associated with sun exposure as other melanomas and it is more common to originate from the feet than the hands^[8]. Late and invasive SUM cases usually impose aggressive treatment,

HIGHLIGHTS

- Subungual and amelanotic melanoma cases are extremely uncommon subtypes of melanoma, which is the rarest and most lethal main type of skin cancer.
- Subungual melanoma is frequently found on feet more than the hand nails.
- Amelanotic melanoma's lack pigmentation resembles numerous diseases, making it challenging to make an accurate diagnosis.
- Early diagnosis is important to give patients the best chance to survive.

especially when 50% of subungual melanoma patients came with metastases^[7]. When microscopical examination revealed amelanotic or hypomelanotic melanoma that called amelanotic melanoma (AM) which happens in about 4–27.5% of all melanoma cases^[9]. Notably, AM exhibits a higher growth rate in comparison with pigmented melanomas, making it more challenging to diagnose and limiting the window for early detection^[10]. AM tends to manifest in sun-exposed skin and it is easily misdiagnosed as inflammatory diseases and many benign or malignant neoplasms^[11], so it is associated with poor prognostic outcomes^[10]. Here we present a case of subungual amelanotic melanoma which is a rare case especially when our patient is only 39 years old. That lesion was misdiagnosed and treated many times with no response. It is absolutely rare for AM to arise from a hand finger and it is really important to put subungual amelanotic melanoma as a diagnosis of any finger non-healing lesion.

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Figure 1. Subungual lesion on the thumb.

Case presentation

A 35-year-old woman presented at the dermatology clinic with a painful progressive subungual lesion on the right first finger that had enlarged over a year, with no itching, burning, or bleeding but it started to be painful over time. She has no surgical history, no history of alcohol or tobacco use, and no family history of melanoma or other skin cancers. She denied any history of trauma to the affected digit. The patient was alert and all vital signs were stable. Examination revealed a circle pink-white ulcerated lesion that involved nearly half of the right thumb, it was tender and erythematous (Fig. 1). Examination had also revealed unilateral axillary lymph nodes enlargement. Over the last year this lesion had been firstly misdiagnosed as paronychia and was treated without any response then it was treated as a fungal infection but it did not respond to either topical or oral antifungals, then a nail avulsion was performed without improvement. then it was also misdiagnosed as cutaneous leishmaniasis because it is very common in our country and it was treated with Meglumine antimoniate (Glucantime) for six doses with no treatment response. Blood tests included Complete blood count, glucose, electrolytes, creatinine, urea, Alanine transaminase, Aspartate aminotransferase, bilirubin, albumin, and cholesterol, all were within normal limits. X-ray of the right hand was performed to exclude if there is any bone fracture but the X-ray demonstrated that osteolysis had affected the distal phalange of the right thumb (Fig. 2). When the biopsy of the subungual nodule of the right thumb finger was performed, a bleeding nail bed was noted. Microscopical



Figure 2. Osteolysis had affected the distal phalange of the right thumb.

examination of serial sections revealed diffuse infiltration of atypical melanocytes with large vesicular nuclei and abundant nucleoli, with many atypical mitosis (Fig. 3). All findings were consistent with the diagnosis of acral amelanotic malignant melanoma (AMM). Immunohistochemistry tests were not performed because they are not available in our country. Sentinel node biopsy was positive. Then the patient moved to another city and continued her treatment in a specialized hospital so it was hard to follow her up.

Discussion

Skin cancer is mainly categorized into two types: NMSC and melanoma^[2]. NMSC is the most commonly diagnosed type^[1], and is generally diagnosed as BCC and SCC, representing 70% and 25% of most NMSC cases, respectively^[1]. Both BCC and SCC demonstrate a good prognosis because they are usually diagnosed at early stages^[1]. Melanoma is the second type and the most lethal^[3]. It arises from melanocytes which produce melanin and are located in the basal layer of the skin epidermis^[12]. Melanoma is mainly classified into four subtypes: superficial spreading melanoma (SSM), lentigo malignant melanoma (LMM), nodular melanoma (NM), and ALM^[5]. Among these, SSM represents the most prevalent subtype of cutaneous melanoma^[4], and ALM is the rarest of them^[6]. Subungual melanoma, which arises from the nail apparatus, is typically a variant

of ALM^[7]. AM is an infrequent variant of melanoma, characterized by the lack of melanin (hypomelanotic melanoma) or the absence of it (non-pigmented) which is even more uncommon^[13]. The mortality rate of amelanotic melanoma cases was found to be higher compared to pigmented melanoma^[10]. We present a case of a lesion on the right thumb finger involving the nail unit and half of the mentioned finger. After a year of misdiagnosing that lesion was diagnosed as a subungual amelanotic melanoma which is the rarest form of skin cancer, specifically when our patient is only 39 years old. There are many risk factors for melanoma including exposure to the sun, immunosuppression, moles in the skin, family history of any type of skin cancer, obesity, and many more^[4]. Intense and intermittent sun exposure such as a history of sunburn is thought to be associated with a higher risk of melanoma^[14]. Our patient has suffered from none of them except normal exposure to the sun. Non-pigmented AM can be discerned when melanin is found in less than 5% of tumour cells on histological analysis^[13]. As in our case, no pigmentation was evident in the pathological examination. AM is thought to exhibit a higher growth rate compared to pigmented melanomas. Consequently, diagnosing AM is more challenging, potentially leading to a narrower window for early detection^[10]. Due to the lack of pigmentation in AM cases, they present with varying appearances and can resemble numerous benign and malignant conditions, posing a challenge for accurate diagnosis^[9]. In our case, the lesion was misdiagnosed many times with no treatment response until the subungual amelanotic melanoma was diagnosed. The average age of patients affected by AM exceeds 50 years, and the male-to-female ratio ranges from 0.5 to 4. People with type I skin, freckles, or a family history of AM are at a higher risk of developing AM^[9], our female patient is only 39 years old with type 4 skin and no sun-sensitive phenotype. Investigations have suggested that ALM is commonly developed on foot^[5], but our patient has suffered from AM in the hand and that makes our case special. The history of trauma has been frequently posited as a trigger for ALM^[5], our patient denied any trauma history of the finger. The diagnosis of nail unit melanoma is frequently delayed due to limited general awareness of its clinical characteristics, often resulting in misdiagnosed conditions persisting for many years before the patient's initial evaluation^[5]. The lesion in our studied case was confusing and it was misdiagnosed many times over a year until the right diagnosis was considered. There is no definitive diagnostic biomarker for melanoma^[3] but the recognition of a clinically atypical lesion and its biopsy are necessary to diagnose SUM^[3]. Microscopical examination findings were consistent with the diagnosis of AM. The primary treatment for localized melanoma involves surgical removal, whereas chemotherapy is the only treatment option for metastatic melanoma^[3]. Clinical examination of our patient revealed unilateral axillary lymph nodes enlargement and the sentinel node biopsy was positive. The patient moved to another city to start treatment in a specialized hospital so it was difficult to follow her situation. Most melanoma patients receive treatment in other specialized hospitals. Consequently, the registration of cases is challenging and often ends up being incomplete^[15].

Conclusion

This case highlights the importance of considering AM in the differential diagnosis of non-healing lesions. Subungual

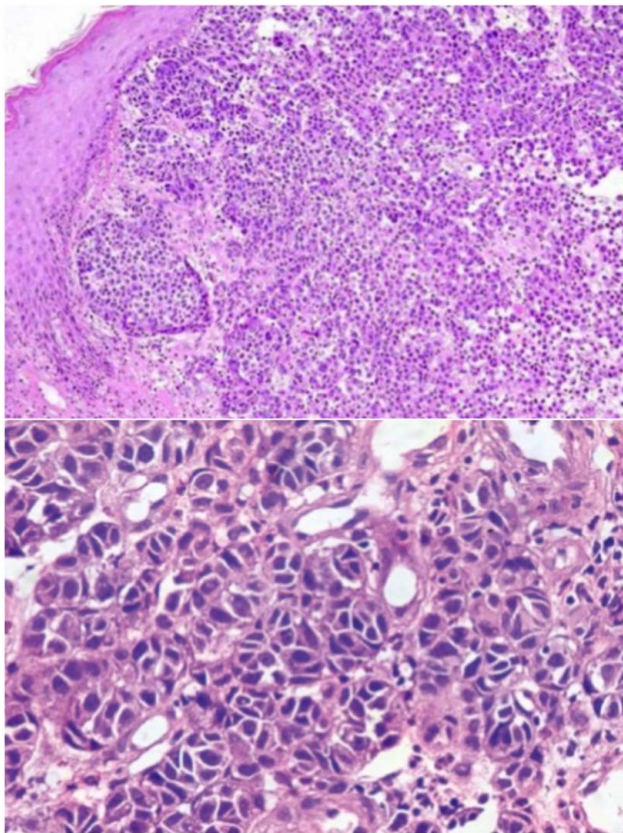


Figure 3. Microscopical examination of serial sections revealed diffuse infiltration of atypical melanocytes like with large vesicular nuclei and abundant nucleoli, with many atypical mitosis.

amelanotic melanoma is the least diagnosed type of melanoma because it is the rarest and it often mimics calluses, warts, and non-healing ulcers, in addition to the absence of clinical diagnostic features so its diagnosis tends to be delayed, leading to an unfavourable prognosis. Early diagnosis allows patients to have the best chance of survival. To reduce the risk of developing melanoma try to avoid sunburn by using a suitable sunscreen with high protection.

Methods

The work has been reported in line with the SCARE 2023 criteria^[16].

Ethical approval

Not applicable.

Consent

Written informed consent was obtained from the patient. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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Author contribution

S.M. and A.A.A.: data collection. S.K. and M.H.: wrote the main manuscript and prepared figures. S.K., M.H., and S.M.: revised the final manuscript. S.K.: submitted the final manuscript. All authors read and approved the final manuscript.

Conflicts of interest disclosure

The author declares no conflict of interest.

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None.

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Not applicable.

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