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Acral lentiginous melanoma with subsequent spontaneous vitiligo vulgaris: a case report and literature review

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Consent for publication: written informed consent was obtained from the patient for the publication of the present case report and any accompanying images.

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Abstract

Acral lentiginous melanoma (ALM) is an infrequent and often missed subtype of melanoma. Its association with spontaneous vitiligo vulgaris is an exceedingly rare condition. The current study presents a rare case of ALM with spontaneous vitiligo vulgaris after complete resection of the ALM.

An 84-year-old male patient presented with multiple white skin lesions on the scalp, neck, trunk, and upper and lower limbs for a three-month duration. One year prior, a diagnosis of ALM was confirmed on histopathological examination with a pathological stage of T4bNxMx. The patient did not receive any treatment until the time of presentation, apart from the surgical removal of the primary tumor. No treatment was advised for the patient's vitiligo vulgaris; only observation was recommended. Clinical diagnosis of vitiligo vulgaris was made with the association of ALM.

In the literature review, only several case reports of vitiligo were attributed to ALM, especially without the use of immunotherapeutic agents. Melanoma represents a notably immunogenic malignancy, provoking both humoral and cellular responses from the immune system directed against cytoplasmic and membrane antigens of melanocytes. There is a suggestion that normal melanocytes might function as neutral observers and become targets of immune responses directed against melanoma cells, leading to melanoma-associated vitiligo. It occurs more commonly as a consequence of immunologic-based therapeutic interventions or after metastatic melanoma; however, the occurrence of spontaneous vitiligo vulgaris several months following complete surgical removal of ALM is possible.

Introduction

Melanoma is the malignant proliferation of atypical melanocytes. Even though it constitutes less than 5% of all skin cancers, the mortality of 60% of cutaneous malignancies and 0.7% of all cancers are attributed to melanoma.[1-3] Acral lentiginous melanoma (ALM) was first introduced by Reed in 1976 as the fourth principal subtype of malignant melanoma. The word 'acral' refers to its anatomical locus on the extremities, and 'lentiginous' describes the unique radial growth pattern observed upon histopathological examination.[4] In Caucasian populations, 4-6 % of melanoma diagnoses are due to ALM. However, ALM constitutes the most commonly encountered melanoma subtype in people of African or Asian descent.[5]

Vitiligo is categorized into various types based on its clinical area of involvement. Non-segmental vitiligo includes focal vitiligo, which presents as scattered macules in isolated areas; mucosal vitiligo, affecting mucous membranes like lips and genitals; acrofacial vitiligo, predominantly affecting the extremities and face; vitiligo vulgaris, featuring extensive depigmentation across bilateral surfaces of

the body, and universal vitiligo, a severe form covering most of the body's surface area. Segmental vitiligo pertains to unilateral depigmented skin patches restricted to a specific segment of the body. A mixed type of vitiligo is also described when there is an overlap between the two aforementioned types of vitiligo.[6]

While multiple mechanisms may be involved in developing vitiligo, the autoimmune hypothesis is presently regarded as the predominant pathway. In clinical settings, the Koebner phenomenon serves as an acknowledged primary trigger, observable through depigmentation often appearing in patients at areas of repeated friction, such as the waist, or subsequent to traumatic events. This is explained partly by the various factors released due to the damage and stress response against melanocytes. Specifically, danger-associated molecular patterns (DAMPs) are of particular interest as they are thought to initiate the inflammatory process observed in vitiligo during the active phase. Notably, heat shock protein 70 (HSP70), released from damaged melanocytes, has been found in elevated levels in the skin of vitiligo patients and is closely correlated with active disease.[7]

Inflammation in susceptible skin can result in dendritic cells presenting melanocyte peptides in the afferent lymph nodes. This sequence triggers the development of cytotoxic T cells that specifically target melanocytes, along with the synthesis of autoantibodies against melanocyte antigens by lymphocytes. Various subsets of cytotoxic T cells have been identified in vitiligo patients, specifically targeting melanocyte differentiation antigens such as MART-1 and gp100. Cytotoxic CD8 lymphocytes from vitiligo patients predominantly produce IL-17, tumor necrosis factor-α (TNF-α), and interferon-γ (IFN-γ) when exposed to peptides associated with melanocyte differentiation. In the final stages of melanocyte destruction, IFN-γ appears to be pivotal. Additionally, cytokines such as IL-1β, IL-2, IL-17, IL-22, IL-23, and IL-33 have been found to be increased in individuals with vitiligo or in mouse models. *In vitro* experiments have shown that these cells possess the ability to destroy epidermal melanocytes in pigmented vitiligo skin. This is regarded as the primary mechanism responsible for the destruction of melanocytes in vitiligo.[7] Research indicates that individuals without vitiligo can harbor anti-melanocyte T cells. However, these self-reactive T cells typically exhibit an anergic phenotype in unaffected individuals. This suggests the presence of a finely tuned equilibrium between pro-inflammatory and anti-inflammatory signals, which becomes disrupted in vitiligo. Furthermore, regulatory T cells, a critical subset responsible for moderating immune responses, seem to be reduced in number in patients with vitiligo compared to healthy individuals. In addition, there appears to be a correlation between this decrease in regulatory T cells and disease severity.[7]

The simultaneous occurrence of melanoma and vitiligo within the same individual is regarded as a medical paradox at first glance, taking into account their opposing pathophysiology, with melanoma being distinguished by an extensive proliferation of aberrant melanocytes within the epidermis. Meanwhile, vitiligo is due to the destruction of skin melanocytes, which presents clinically as depigmentation in a patchy fashion. This demonstrates how the coexistence of these two conditions can be perplexing from a medical standpoint. However, with advances in understanding the immunologic basis of melanoma, attempts to explain this phenomenon have been undertaken.[8,9]

This phenomenon has been referred to as melanoma-associated vitiligo, melanoma-associated depigmentation, melanoma-associated hypopigmentation, and melanoma-associated leukoderma (MAL). These terms have been used interchangeably in the literature, with no clear consensus on their similarities or differences, with an estimated incidence of 1.4% to 20%.[10,11] The vitiligo patches more commonly develop after the patient receives treatment or in metastatic melanoma.[9] The current study uniquely highlights a patient with nonmetastatic ALM, distinguishing it from the other more commonly reported melanoma subtypes, such as superficial spreading melanoma and nodular melanoma,[12] that presented with spontaneous generalized vitiligo at distant sites 12 months after complete surgical resection without receiving immunotherapy, in contrast to the more acknowledged depigmentation that develops after immunotherapy and around the site of the melanoma. This reveals a potential immune response against ALM that may develop over several months to be robust enough to manifest as vitiligo, even after the malignant melanoma cells have been eradicated from the body. This case report was written with a literature review in line with the CaReL guidelines.[13]

Case Report

Clinical presentation

An 84-year-old male patient presented to Smart Health Tower's dermatology clinic in January 2024 with multiple white skin lesions on the scalp, neck, trunk, and upper and lower limbs, which first started to appear in November 2023. The patient had a history of an ulcerative skin lesion on the left heel that was operated upon one year before, in January of 2023 (Figure 1). At that time, a diagnosis of ALM was confirmed on histopathological examination with a pathological stage of T4bNxMx and free surgical margins. The patient had no family history of vitiligo. Until the presentation, the patient did not receive any other treatment modalities apart from the surgical resection of the primary tumor.

Diagnostic approach

Upon physical examination, the patient looked clinically well and healthy. However, there were multiple bilateral white depigmented/hypopigmented vitiliginous patches on the scalp, face, dorsum of the hands, arms, lower abdomen, and feet, particularly on the left heel surrounding the site of the previously operated ALM (Figure 2). Vitiligo is a clinical diagnosis established in this patient through a comprehensive medical history. The assessment included asking about a positive family history or other associated immunologic disorders despite being negative for these aspects. A thorough clinical examination was conducted, which assessed the distribution and clinical morphology of the depigmented lesions. These lesions are characteristic of vitiligo, presenting as multiple asymptomatic, different-sized, hypopigmented chalky white macules and patches with no redness or changes in skin texture. Some lesions were depigmented, while others exhibited a trichrome color. In addition to that, Wood's light examination was used to narrow down the differential diagnosis, which included progressive macular hypomelanosis, idiopathic guttate hypomelanosis, scleroderma/morphea, and hypopigmented mycosis fungoides. Both detailed history and clinical examinations were based on the exclusion of these conditions. Laboratory blood investigations indicated unremarkable findings with respect to complete blood count, serum electrolytes, and blood film assessments. The erythrocyte sedimentation rate was 2 mm/hr (normal range: <15 mm/hr). The blood urea nitrogen and serum creatinine were 59 mg/dL (normal range: 7-20 mg/dL) and 1.99 mg/dL (normal range: 0.7-1.3 mg/dL), respectively. Erythropoietin level was 9.2 mIU/mL (normal range: 2.6 to 18.5 mIU/mL). Echocardiography was normal. The whole-body positron emission tomography scan also showed no abnormality. Histopathological examination of the previously operated ALM revealed an epidermis with surface ulceration, hyperkeratosis, and parakeratosis. An infiltrative mass exhibited epithelioid spindle cells with pleomorphic characteristics and a high mitotic rate of 25-38/10 high-power fields, along with melanophages and melanin pigment. The tumor was found in the papillary and reticular dermis, with some areas of subcutaneous infiltration into the dermis (Figure 3). The tumor thickness measured 6.0 mm, with the presence of ulceration, classified as Clark level V due to invasion into the subcutaneous tissue, and the primary tumor staging was T4b. Additionally, lymphovascular and perineural invasions were detected. Both radial and vertical growth phases were observed as well. There was no evidence of tumor necrosis or regression, and the deep and lateral surgical margins were free of tumor involvement. A clinical diagnosis of vitiligo vulgaris was made in association with ALM.

Treatment and follow-up

The patient did not receive immunotherapy after the surgical resection of the ALM due to poor socioeconomic status, which led to difficulty in affording the treatment or the associated costs, such as travel, accommodations, and supportive care, in addition to the lower health literacy associated with low socioeconomic status generally. He was untraceable for follow-up until he consulted the dermatologist 12 months later, presenting with vitiligo vulgaris. No treatment was advised for the patient's vitiligo vulgaris; only observation was recommended. However, due to the patient's history of ALM and the pathological stage of the melanoma, he was referred to an oncologist at Hiwa Hospital. They decided to administer immunotherapy with the humanized monoclonal antibody pembrolizumab (programmed cell death protein 1 [PD-1]/programmed death-ligand 1 [PD-L1]) over a 12-month period with every cycle repeated at 42-day intervals. The first infusion was 400 mg intravenously over 30 minutes, received on February 7, 2024. However, he has received only two infusions so far, with the last one received on May 13, 2024. Despite the patient being noncompliant with immunotherapy, as of the last check-up on June 5, he is overall in good clinical condition with no increase or decrease in the size and distribution pattern of the vitiliginous patches. Furthermore, there were no palpable lymph nodes or any signs of melanoma recurrence, and blood investigation parameters were in the normal reference range. Radiological imaging assessment for the patient has not yet been conducted again.

Discussion

A literature review regarding ALM in association with vitiligo revealed several cases summarized in Table 1.[1,9,14-19] Leukoderma, characterized by depigmentation, has been shown in several studies to be increasing in incidence among individuals diagnosed with melanoma. For instance, in a prospective investigation involving 2954 individuals diagnosed with melanoma at various stages, the prevalence of leukoderma was identified at 2.8%, a notable contrast to the 0.4-2% range observed within the general population.[20] However, the incidence ranges from 1.4% to 20% in the genuine literature, which can be explained by the limited data on this subject and the lack of a proper definition of this condition. For instance, diverse presentations of MAL have been documented in scholarly literature, such as the manifestation of a white halo encircling the melanocytic lesion, recognized as Sutton's nevus, and the development of achromic patches within the scar tissue associated with melanoma.[9,11,21] In a study by Fouzia *et al.*, depigmentation primarily appeared on the right foot of a patient diagnosed with acral melanoma. However, in uncommon cases, MAL may manifest as depigmented patches distant from the

initial lesion.[9] This was the case for the current patient, who was observed to develop vitiligo lesions 12 months after the surgical removal of the ALM at distant sites.

Certain evidence suggests that MAL exhibits clinical features that set it apart from vitiligo. These distinctive characteristics encompass a later age of onset, lack of a familial history of vitiligo or atopy, an equal prevalence among both genders, the concentration of depigmentation primarily in sun-exposed areas, and the existence of multiple flecked depigmented macules.[8] Lommerts *et al.* conveyed that a panel of experts conducting blind assessments of photographs featuring 33 patients with vitiligo and 11 patients with MAL inaccurately identified 80% of MAL cases as vitiligo according to clinical manifestation. Consequently, in light of the absence of distinctive discriminative features between the two conditions, the researchers proposed the term 'melanoma-associated vitiligo'.[10] This condition may exhibit a spontaneous onset preceding or succeeding melanoma initiation; even though melanoma-associated vitiligo after the onset of melanoma encompasses nearly 80% of the cases, it is noteworthy that it may manifest as a premonitory symptom several months to years before the formal diagnosis of the malignancy.[9]

Perhaps one of the possible explanations regarding the distant vitiliginous patches of the present case is that during surgical resection of the ALM, various DAMPs were released into the skin and circulation, which induced a systemic response against the melanocytic antigens throughout the body rather than just a localized response. Although more research is needed to explore this correlation fully, it may be clinically relevant for predicting the development of vitiligo vulgaris in a subgroup of patients undergoing surgical resection of ALM. Embracing the vitiliginous patches as a more robust immune response against malignant melanoma cells with positive prognostic value might also help to reduce the psychological burden experienced by some patients with vitiligo vulgaris.[22]

Despite more recent research aimed at better understanding ALM, it is still an understudied disease compared to the other subtypes of melanoma, where several genetic mutations have been identified. For instance, *PTEN*, *KIT*, *BRAF*, and *NRAS* are genes that have been extensively documented as having a crucial role in the pathogenesis of superficial spreading and nodular melanoma subtypes. *BRAF* mutations are identified in approximately half of the cases, and *NRAS* mutations in around 20%. The latter mutation is more frequently detected in skin that has experienced prolonged sun exposure. Nonetheless, *BRAF* mutations have been established in regions subject to minor to no sunlight, such as the mucosal and acral sites. This mutation activates the mitogen-activated protein kinase (MAPK) pathway. The MAPK pathway plays a critical role in melanoma genesis by governing cellular functions such as survival, differentiation, and proliferation. Furthermore, in nearly 10-20% of ALM, mutations

within the *KIT* oncogene have been detected. The aforementioned oncogene results in the induction of the phosphoinositide 3-kinase/protein kinase B (PI3K/Akt) in addition to the MAPK pathways *via* a tyrosine kinase transmembrane receptor. Initially, a hypothesis suggested that trauma could stimulate cutaneous nerves to convert specific cells at their nerve endings into melanomas. However, numerous studies have cast doubt on the association between penetrating injuries and the development of melanomas. Nonetheless, recent studies have suggested a potential association between physical and mechanical stress and the development of melanomas on the foot. Although further research is necessary to establish the causal role of stress and trauma in the development of acral melanoma, this might be a potential shared pathophysiologic explanation for the development of ALM and vitiligo vulgaris in the present case.[7,22,23]

Melanoma represents a notably immunogenic malignancy, provoking both humoral and cellular responses from the immune system directed against cytoplasmic and membrane antigens of melanocytes.[11] Studies have demonstrated an association between malignant melanoma and vitiligo in terms of humoral responses to similar antigens. The Sinclair swine is a distinctive and valuable animal model due to its unique characteristic of being born with malignant melanoma, which undergoes spontaneous regression several weeks after birth, coinciding with generalized depigmentation. The elevation in antibodies directed against antigens predominantly expressed on pigment cells typically occurred before or concurrently with the regression of the tumor and the subsequent loss of pigmentation in that study.[11] Furthermore, the enzyme tyrosinase plays a crucial role in melanin synthesis within normal melanocytes and melanoma cells. Therefore, the presence of antityrosinase antibodies in individuals with vitiligo and melanoma suggests a potential autoantigenic role for tyrosinase in these conditions.[24] Fishman *et al.* demonstrated that autoantibodies extracted from patients with vitiligo exhibited a deleterious impact on melanoma cells, evident in both *in vitro* and *in vivo* settings.[8] There is a suggestion that normal melanocytes might function as neutral observers and become targets of immune responses directed against melanoma cells, leading to their destruction. The $CD8^+$ T cells are suggested to have a pivotal role in this context since they have the capability to recognize antigens present in both normal and atypical melanocytes. For instance, tyrosinase, MART-1, gp100, tyrosinase-related protein 2 (TRP-2), and TRP-1/gp75 constitute a subset of identified potential antigens relevant to this context.[9,25] This immunologic interplay between melanoma and vitiligo is further supported by the action of Interleukin 2 (IL-2), which plays a critical role in fostering the development of antitumor cellular immune responses. This is attributed to its capacity not only to induce the recruitment of cytotoxic and natural killer T cells (NK T cells) but also to exert suppressive

effects on $CD4^+CD25hi^-FoxP3^+$ regulatory T cells in individuals diagnosed with metastatic melanoma who exhibit a positive response to the cytokine. Hence, IL-2 amplifies the cytotoxic capabilities of $CD8^+$ cells, pivotal in mediating tumor regression and autoimmunity.[9] In the research conducted by Richards *et al.*, forty-two patients underwent sequential chemo-immunotherapy comprising IL-2, interferon-a2b, cisplatin, carmustine, and dacarbazine as part of their therapeutic regimen for metastatic melanoma. Out of the thirty-six patients who underwent at least one cycle of therapy, twenty-two of them demonstrated depigmentation resembling vitiligo. Supporting the highly immunogenic basis of melanoma and the potential role of these immune mediators in the development of vitiligo.[25]

In a study by Wang *et al.*,[26] a 67-year-old patient presented with sudden-onset vitiligo vulgaris. Upon thorough physical examination, a palpable lymph node in the inguinal region was detected. Histopathological biopsy revealed metastatic melanoma, in contrast to the current patient, who presented with only a primary, non-metastatic ALM, and the vitiligo developed 12 months later. In another study by Dabbas *et al*., a 57-year-old patient who was treated for metastatic ALM by giving nivolumab immunotherapy later developed vitiliginous patches three months after initiating the therapy, and the patient was advised to continue with the therapy and not receive specific treatment for the vitiligo patches. The development of vitiligo in a patient with ALM is similar to the current case. Still, it is worth mentioning that receiving the immunotherapeutic agent could have been the culprit of inducing the vitiligo development in contrast to the spontaneous development in the current case.[1]

Another interesting case that was presented by Zheng *et al.* reported a 67-year-old female who presented with spontaneous vitiligo. A year after vitiliginous patches appeared, the patient was found to have malignant melanoma; it is worth mentioning that the patient lived for more than seven years, suggesting prognostic implications for vitiligo in patients with malignant melanoma.[19]

The prognostic implications of the correlation between melanoma and vitiligo are particularly intriguing. Despite a higher prevalence of metastatic disease in patients with melanoma-associated vitiligo compared to individuals with melanoma of equivalent Breslow thickness, they exhibit a higher overall survival rate. Furthermore, an enhanced 5-year survival rate was observed when contrasted with melanoma patients at the same stage lacking the associated depigmentation.[9] The augmentation of the antitumoral response, however, is not potent enough to substantially increase the likelihood of spontaneously achieving complete eradication of malignant melanoma.[11]

One of the limitations of the current study is the lack of cytokine measurement and immunological parameters for the current patient since the clinical management at the time of diagnosis focused primarily on establishing the diagnosis and initiating treatment based on standard clinical criteria

without immediate indication for cytokine or immunological profiling.[27] This study advocates for clinicians to recognize such phenomena in clinical practice and encourages the view that vitiligo presented in this way does not need direct treatment; instead, it should be regarded as a positive prognostic factor for the affected patients. Moreover, it underscores that conducting a more comprehensive investigation into cytokines and immunological parameters in these patients could enhance the comprehension of this phenomenon and the immunological underpinnings of both conditions. This exploration may potentially pave the way for novel therapeutic strategies.

Conclusions

Melanoma-associated vitiligo occurs more commonly as a consequence of immunologic-based therapeutic interventions or after metastatic melanoma; however, the occurrence of spontaneous vitiligo vulgaris several months following complete surgical removal of ALM is possible.

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Figure 1. A large ulcerative dark brown-colored plaque skin lesion with pigmentation at the periphery on the lateral side of the left heel (the ALM lesion).

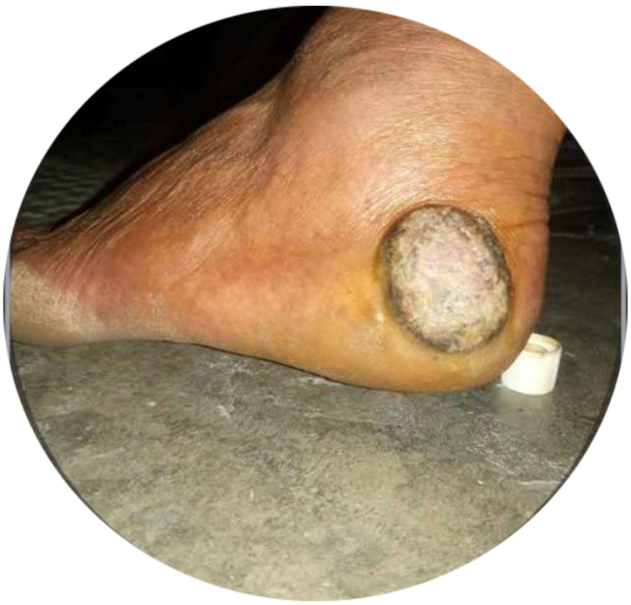

Figure 2. White depigmented/hypopigmented vitiliginous patches on the scalp, face, dorsum of the hands and arms, and lateral side of the left heel surrounding the site of the previously operated ALM.

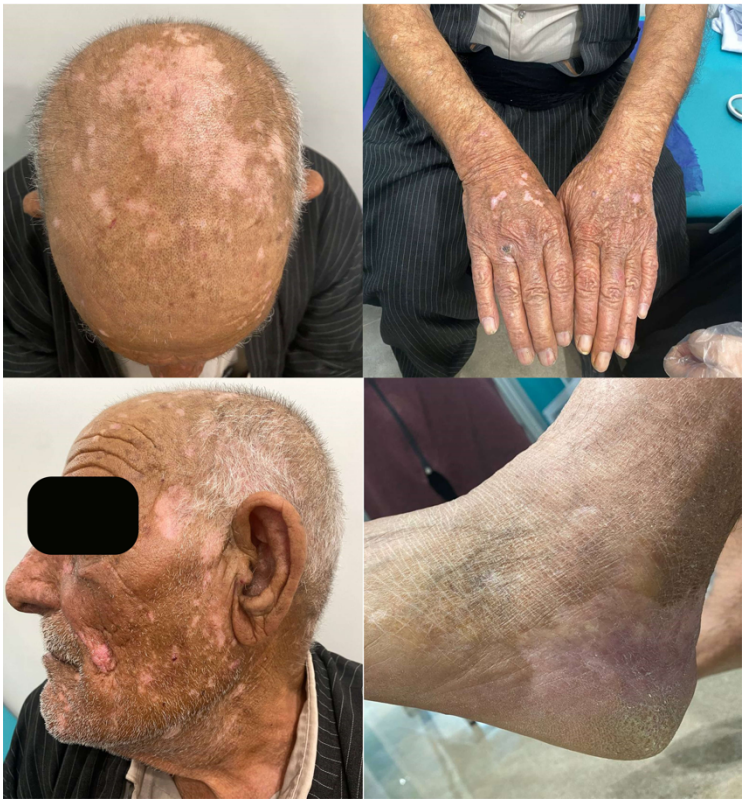

Figure 3. A) The tumor cells are organized in large nests at the dermo-epidermal junction and the underlying invasive sheets. There is overlying reactive epidermal acanthosis with ortho- and parakeratosis. B) The invasive tumor component is arranged in sheets and fascicles of spindled tumor cells. C) The tumor cells have a predominantly spindled shape with large, pleomorphic nuclei with vesicular chromatin, irregular nuclear outlines, and prominent eosinophilic nucleoli. There is brisk mitotic activity and melanin pigment deposition. D) The tumor cells show weak, granular, cytoplasmic staining for melan-A. (Hematoxylin and eosin [A-C], immunohistochemistry for melan-A using diaminobenzidine [D]; 40x [A], 100x [B], 400x [C and D]). The presence of radial and vertical growth phases can be seen in (A) and (B). The tumor thickness and depth of invasion can be seen in (B), where the tumor fills an entire 10x field.

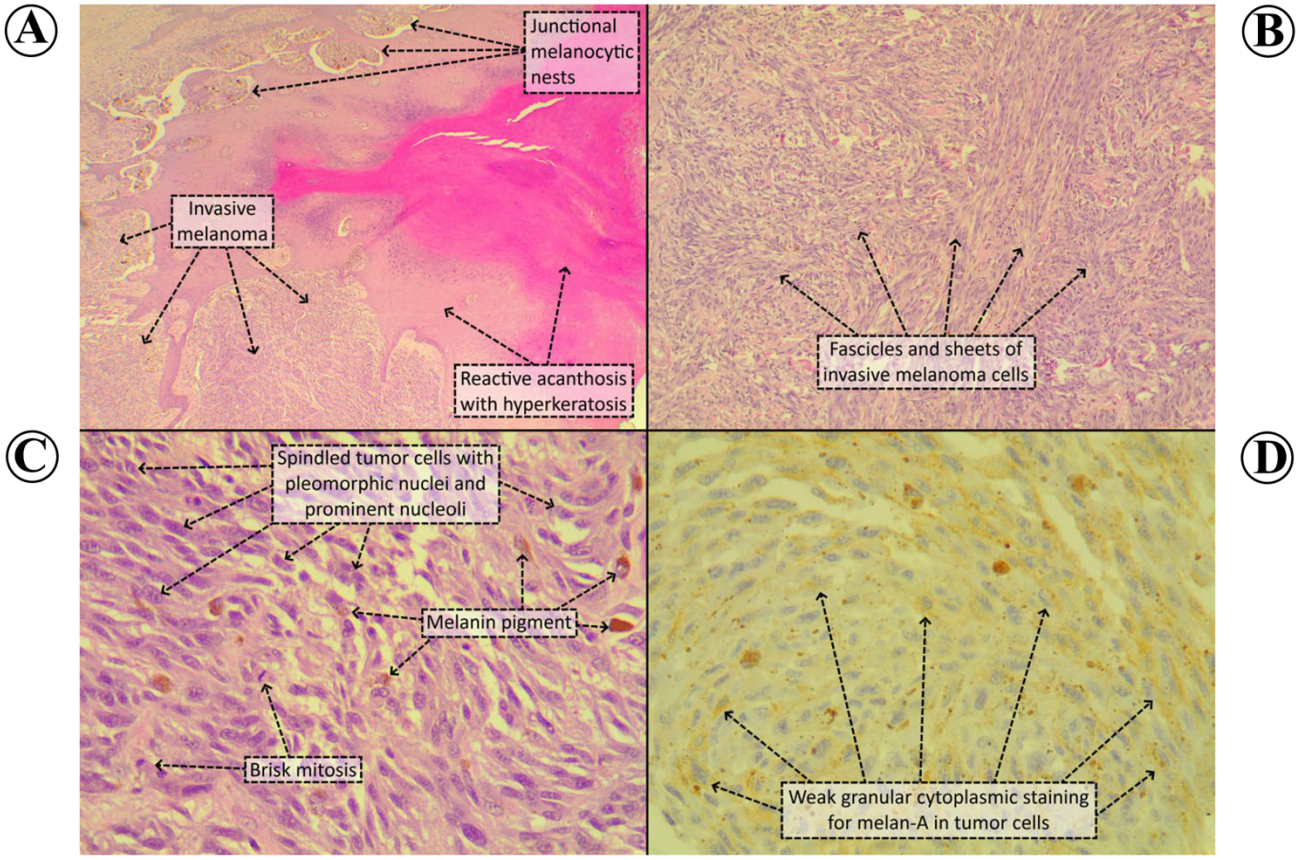

Table 1. Literature review.

Author/year of publication	Age (years)	Sex	type of melanoma	Location of melanoma	Size of ALM	Breslow/ Clark	Location of vitiligo patches	Vitiligo onset in relation to melanoma	Immuno-therapy	Vitiligo onset in relation to immuno-therapy	History of autoimmune disease or malignancy	Follow-up	Outcome
Kim *et al.*/2015[14]	85	M	ALM (amelanotic subungual type)	Left third fingertip. Then metastases to brain, liver, bone, and both lungs	2.5x2x1	7.25 mm/ at least IV	Face and trunk	2 years after	No	-	-	3 months	Died
Edmondson *et al.*/2016[15]	64	F	ALM	Left foot, with nodal involvement, and then metastasis	-	6.1 mm/	Asymmetric involvement of face, arms, back, chest, and lower extremities	-	Nivolumab therapy was started in May 2015 at a dose of 3 mg/kg IV every two weeks.	9 weeks	No	-	-
Spring *et al.*/ 2017[16]	56	F	ALM	Primary site in right heel, but it showed complete regression with absence of neoplastic cells. Then metastasis as right thigh mass, lymph nodes of, right common iliac, external iliac, and inguinal nodes.	5x5	unspecified	Medial aspect of right ankle	Unspecified	No	-	-	3 months	Alive
Dabbas *et al.*/2019[1]	58	M	ALM	Primary site on plantar aspect of left foot involving fourth and fifth toe. 1 year later,	-	7 mm/ -	Face and upper extremities	-	Nivolumab 240 mg iv every 2 weeks	3 months after immunotherapy	-	-	-

				recurrence on the left lower limb. with involvement of inguinal lymph nodes and presence of in-transit metastases									
Ranaivo *et al.*/2019[17]	44	F	ALM	The melanoma originated on the right heel (primary site) and metastasized to the right inguinal lymph nodes, right iliac chain, and the liver.	-	<4mm/IV	Multiple achromic patches in face, chest, arms, thighs, right inguinal swelling, and backs of the feet	-	No	-	-	2 months	Died
Deoghare *et al.*/2021[18]	65	F	ALM	plantar aspect of left foot overlying the head of fifth metatarsal for 1 year. Now possible lung metastasis.	3x3	5.5 mm/ V	forehead, hands, and forearms	Unspecified	No	-	-	-	-
Fouzia *et al.*/ 2022[9]	69	M	ALM	Primary site on Sole. Then metastasis to nodal, abdominal, and pelvic	-	2mm/III	Started on the face and hands then diffuse Bilateral asymmetrical	12 years after	Unspecified	-	Papillary urothelial Carcinoma (Low grade)	-	Died
	64	F	ALM	Sole	-	1.5mm/IV	Peri-oral/ Bilateral Symmetrical	10 years prior		-	-	2 years	Alive
	90	F	ALM	Sole, lung metastasis	-	18mm/IV	Bilateral And symmetrical	4 months prior			Breast cancer	6 months	Alive

							/Back						
	71	M	ALM	Primary site on sole, then nodal and brain metastases	-	12mm /IV	Bilateral Symmetrical Face/ forearms	2 months after		-	No	-	-
	72	F	ALM	Primary site on sole, then lung, and liver metastases	-	8mm /IV	Bilateral Symmetrical/Face	4 months prior		-	-	-	-
Zheng *et al.*/2022[19]	63	F	ALM	Primary site on back of the right index finger 7 years ago. Then metastasis to right axillary region and small intestine	-	-	Face and neck	1 year prior	Only 1 cycle of cindilizumab 200 mg in her last month of life	Prior to immunotherapy	No	7 years and 5 months	Died

ALM, acral lentiginous melanoma; -, unavailable information.