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CASE REPORT

Acral lentiginous melanoma and tuberculosis verrucosa cutis in a 78-year-old Filipino: A case report

Danielle Marlo R. Senador, MD,[1] Leilani R. Senador, MD, FPDS,[1]
Johannes F. Dayrit, MD, FPDS, FDSP,[1] Gisella U. Adasa, MD, FPDS[1]

ABSTRACT

INTRODUCTION Acral lentiginous melanoma is a subtype of melanoma common in Asians with one of the worst prognoses. It is usually detected late especially when situated on the plantar surface of the feet. While other forms of malignancies have been associated with cutaneous tuberculosis, melanoma is not one of them.

CASE REPORT This is a case of a 78-year-old male with a six-month history of a solitary asymptomatic reddish-brown papule on the plantar aspect of the right foot, which increased in size evolving into a verrucous plaque. There was no improvement despite treatment with oral antibiotics and topical antifungals. Dermoscopic findings on different parts of the lesion were suggestive of both a granulomatous disease and a melanoma. Purified Protein Derivative (PPD) skin test was positive. Histopathologic findings showed the presence of multinucleated giant cells as well as nests of melanocytes which were highlighted by CD-68 and Melan-A respectively. With clinicopathologic correlation, diagnosis of the patient was tuberculosis verrucosa cutis and acral lentiginous melanoma. Complete excision with adequate margins was advised. The patient was started on a 6-month course of anti-Koch's medications and was referred to a surgery and oncology for co-management. The patient was subsequently lost to follow up, until worsening of the lesions 6 months later prompted online consultation, claiming poor compliance to his anti-Koch's regimen. Patient was referred to a surgeon who did wide excision biopsy. Histopathologic findings were consistent with acral lentiginous melanoma. Shortly after the procedure, the patient expired.

CONCLUSION This is a rare case of acral lentiginous melanoma and tuberculosis verrucosa cutis existing concomitantly with each other. This may also be presumed to be the first reported case of acral lentiginous melanoma arising from tuberculosis verrucosa cutis.

KEYWORDS Melanoma, Tuberculosis, Dermoscopy

[1]Department of Dermatology Research Institute of Tropical Medicine, Research Drive, Filinvest, Muntinlupa City

Corresponding author
Danielle Marlo R. Senador, MD

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INTRODUCTION

Tuberculosis is a global scourge affecting 33% of the people of the world.[1] It has been associated with several immunocompromised conditions such as HIV and cancer.[2] Patients diagnosed with cancer are more susceptible to being infected with tuberculosis. Conversely, chronic inflammation from long-standing cutaneous tuberculosis lesions may undergo malignant transformation to non-melanoma cancers.[3]

Acral lentiginous melanoma (ALM) is a variant of melanoma that accounts for 29-46% of cases of melanoma in Asians with an incidence of 2-8%. It is commonly found on the palms and soles and is usually detected late because acral lentiginous melanoma, especially on the plantar aspect of the feet are misdiagnosed as other verrucous disease entities.[4]

We report an interesting case wherein both entities occurred concomitantly with or consequently to each other.

CASE REPORT

This is a case of a 78-year-old male farmer from Bacoor, Cavite presenting with a plaque on his right foot.

Six months prior to consulting, the patient developed a solitary asymptomatic reddish-brown papule on the plantar aspect of the fourth digit of the right foot, which increased in size evolving into a verrucous plaque with black areas. Self-medication with an herbal concoction made of guava leaves proved ineffective. Four months prior to consulting, the patient was seen and prescribed treatment for a non-healing wound at a local health center. Co-amoxiclav 625mg/tab three times a day for seven days and

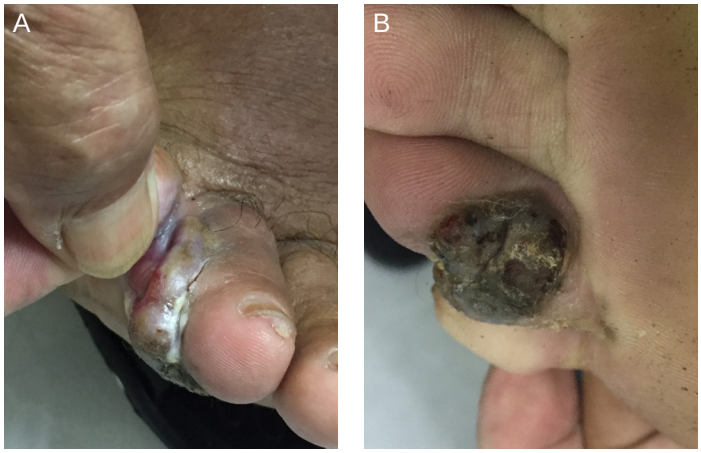

Figure 1. A and B. Multiple views of patient presenting with solitary well-defined, irregularly shaped, erythematous to hyperpigmented verrucous plaque with areas of maceration on the lateral and plantar aspects of the fourth digit of the right foot associated with edema.

sertaconazole cream twice a day for two weeks likewise provided no relief. An increase in size and maceration prompted consult at our institution. The patient had no cough, hemoptysis, fever, night sweat, weight loss, or anorexia. He was BCG vaccinated, with no known previous exposure to tuberculosis. the patient denies any other illness nor intake of other medications. He was an occasional alcoholic beverage drinker and a smoker of 60 pack years. The patient claims to have had frequent injury to his feet while working barefooted in the fields.

Physical examination showed an irregularly shaped and edematous verrucous tumor with areas of discoloration and maceration on the lateral and plantar aspects of the fourth digit of the right foot measuring 2.5 x 2.5 x 1 cm. A black nodule measuring 1.5 x 2.0 x 0.5 cm. was noted on plantar aspect (Figure 1 A-B). There were no palpable lymph nodes and diascopy did not show apple jelly nodules.

Dermoscopy reveals a multicomponent pattern with absence of the typical ridge pattern, blood vessels, crusting, brown dots and globules, as well as milky red areas (Figure 2A-B). The medial aspect of the tumor revealed reddish-brown areas with small coiled vessels. Overlying white and yellow areas and scales are noted suggestive of a granulomatous disease (Figure 2A). The plantar aspect of the tumor showed black areas and clods suspicious of melanoma.

Radiographic findings showed hilar infiltrates on the right upper lobe, interpreted as pulmonary tuberculosis. Purified Protein Derivative (PPD) skin test was positive, having an induration greater than 15 mm.

A four-millimeter punch biopsy was taken from the plantar aspect of the patient's right foot. Histopathologic examination of the biopsy specimen stained with hematoxylin and eosin revealed follicular plugging, hyperkeratosis, and parakeratosis of the stratum corneum. There was prominent acanthosis of the epidermis with spongiosis, focally lichenoid infiltrate with multinucleated giant cells, lymphocytes and plasma cells. (Figure 3A-B). Focal areas of the epidermis show a lentiginous proliferation of atypical melanocytes. Nests of melanocytes were also observed. The dermis revealed a moderately dense perivascular infiltrate of lymphocytes and plasma cells.

The histopathological diagnosis at this time was cutaneous tuberculosis with focal areas of atypical melanocytic proliferation to rule out melanoma.

CD-68 and Melan-A stains were requested. CD-68 stain

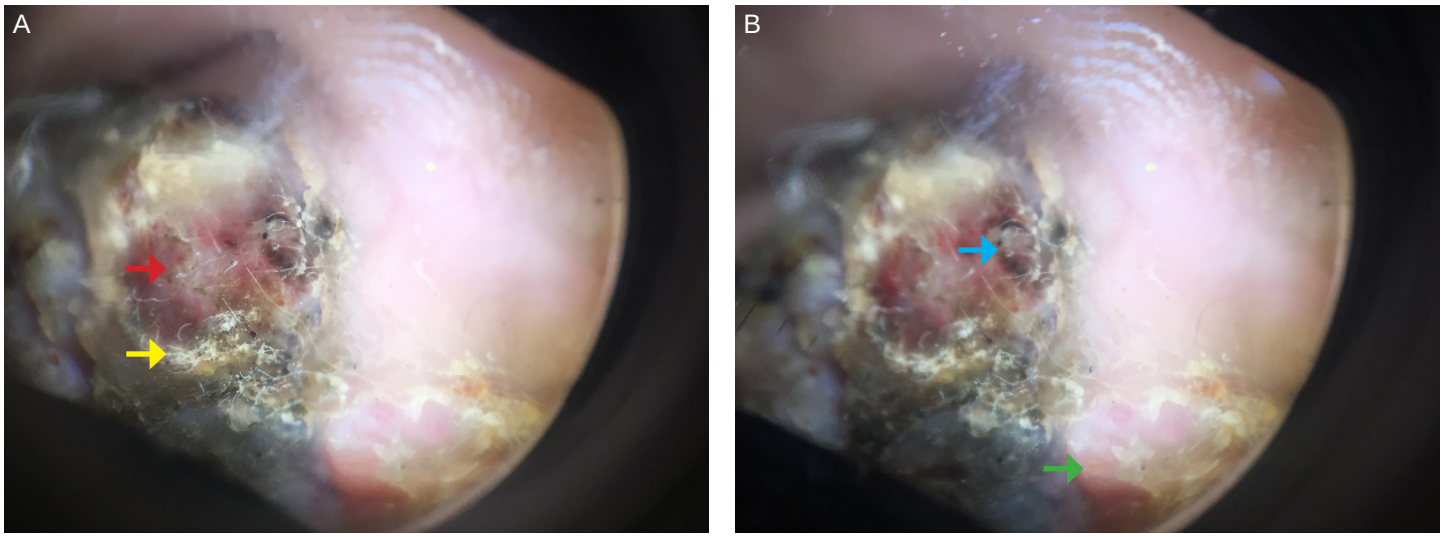

Figure 2. A to B. Dermoscopy findings of patient exhibiting a multicomponent pattern with blood vessels (red arrow), yellowish crusts (yellow arrow), brown dots and globules (blue arrow), milky red areas (green arrow), and the absence of the typical ridge pattern.

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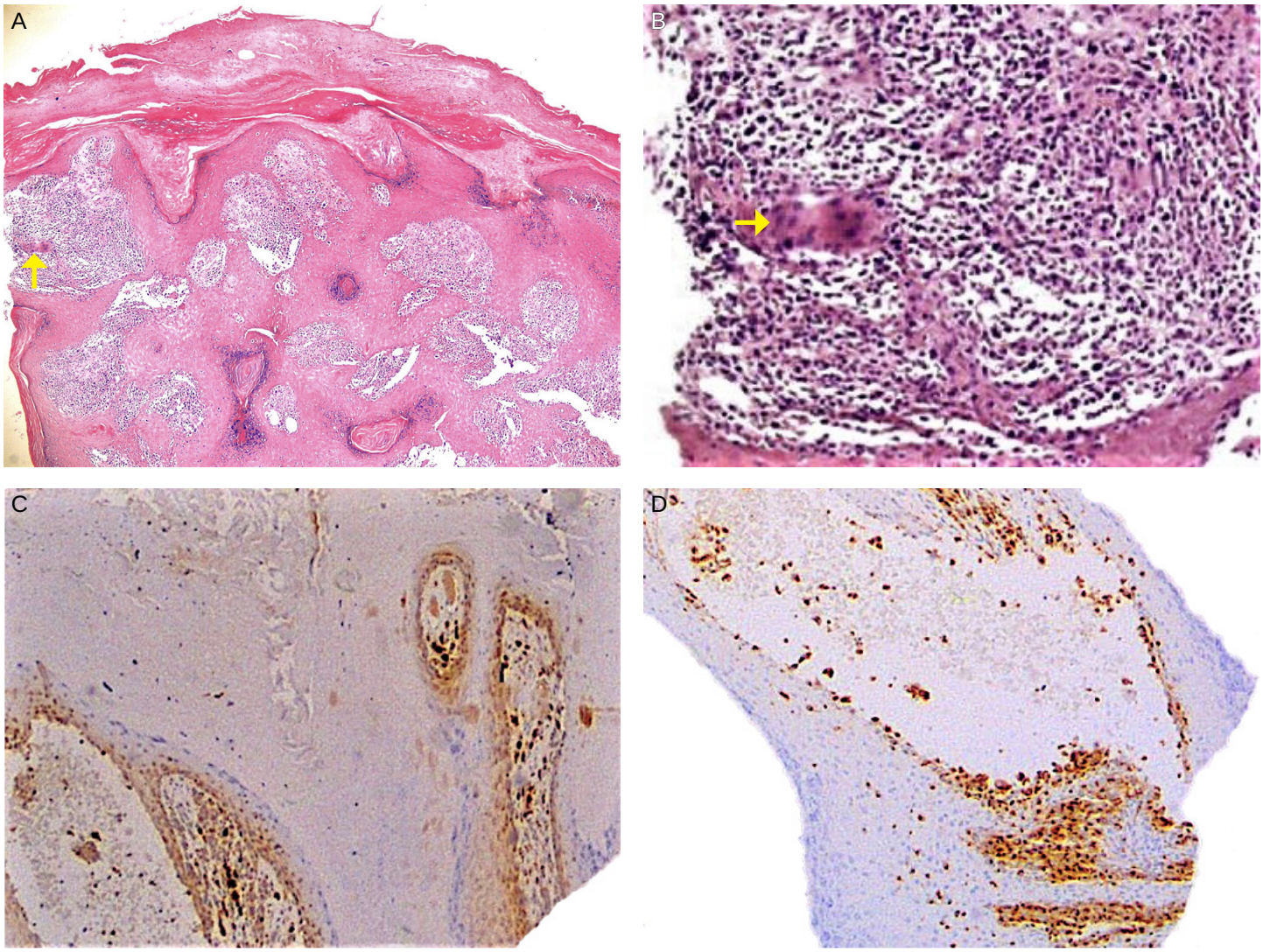

Figure 3. A and B. Histopathologic examination of the biopsy specimen stained with hematoxylin and eosin showing follicular plugging, hyperkeratosis, and parakeratosis of the stratum corneum, prominent acanthosis of the epidermis with spongiosis, focally lichenoid infiltrate with multinucleated giant cells (yellow arrows), lymphocytes and plasma cells. Focal areas of the epidermis showing a lentiginous proliferation of atypical melanocytes. **C.** Immunohistochemical stain; CD-68 staining histiocytes in the papillary dermis. **D.** Immunohistochemical stain; Melan-A highlighting focal nests of melanocytes at the dermo-epidermal junction.

highlighted the multinucleated giant cells in the dermis (Figure 3C). This, along with the patient's PPD and chest x-ray findings strongly point to a diagnosis of cutaneous tuberculosis. Melan-A stained the atypical melanocytes in the basal cell layer (Figure 3D) which further confirmed the diagnosis of acral lentiginous melanoma. A complete excision with adequate margins was advised.

The patient was referred to the Tuberculosis-Directly observed treatment, short course (TB-DOTS) program for a 2-month course of isoniazid, rifampicin, pyrazinamide, and ethambutol followed by 4 months of isoniazid and rifampicin. Referral to surgery and oncology for co-management was made.

The patient was subsequently lost to follow up, until worsening of the lesions 6 months later (Figure 4) prompted online consultation, claiming poor compliance to his anti-Koch's regimen. He was referred to a surgeon who did wide excision of the 5.5 x 3.4 x 5.0 cm black nodular tumor on his right foot. Histopathologic findings were consistent with acral lentiginous melanoma. The patient developed and succumbed to pneumonia 2 weeks after surgery.

DISCUSSION

Cutaneous tuberculosis is a rare form of tuberculosis affect-

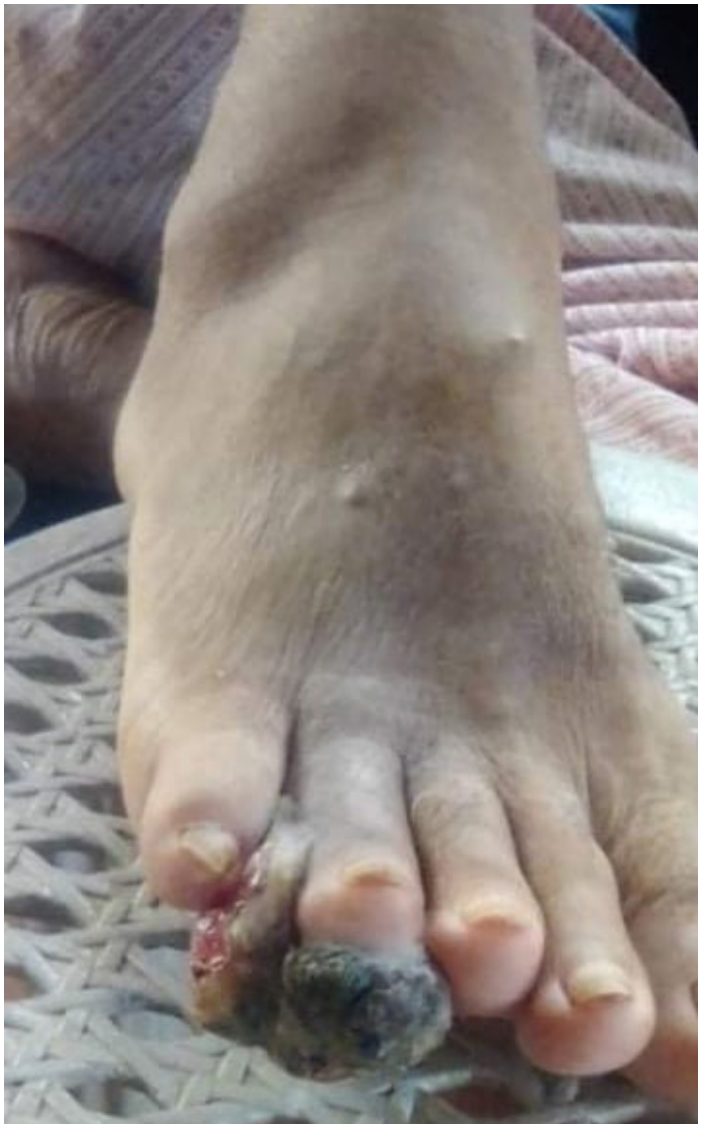

Figure 4. Photograph of patient's lesion 6 months after last consult via telemedicine.

ing only 1-2% of individuals with tuberculosis worldwide.[5] Of which, verrucous types predominate in tropical countries like the Philippines. Tuberculosis verrucosa cutis is a paucibacillary disorder caused by inoculation at sites of minor trauma, or from the patient's sputum. Tuberculosis verrucosa cutis present as papules which eventually thicken and increase in size, evolving into verrucous plaques with irregular borders.[1]

Tuberculosis verrucosa cutis, and other forms of cutaneous tuberculosis may be diagnosed through the following diagnostic modalities: PPD or Tuberculin skin test, Quanti-FERON-TB gold test, chest x-ray, histopathologic testing and TB culture. Histopathologic testing and isolation of *Mycobacterium tuberculosis* in culture or by PCR are considered the gold standards for diagnosing the various types of cutaneous TB.[6] Histopathologic findings of tuberculosis verrucosa cutis include hyperkeratosis and parakeratosis in the epidermis and epithelioid cells and giant cells in the upper and middle dermis. This is further supplemented by immunostains such as CD68 which is strongly expressed by epithelioid cells in regions where bacteria reside.[6] These, along, with positive AFB smears and growth of mycobacterium tuberculosis on culture, indicate an immensely high probability that a patient is infected with cutaneous tuberculosis. However, the lack thereof does rule the diagnosis out.[6] Tuberculosis verrucosa cutis, being a paucibacillary disorder, would yield negative for the presence of *Mycobacterium tuberculosis* on culture.[6]

Left untreated, long-standing inflammatory conditions such as cutaneous tuberculosis may develop into malignant, non-melanoma conditions because increased cell turnover rate increases the chance of genetic errors.[1]

Acral lentiginous melanoma (ALM) is a variant of melanoma frequently seen in Asians and darker skinned individuals with a predilection for the elderly. ALM lesions are usually brown to black and commonly found on the palms, soles, and under the nails, the sole being the most common site. They are often misdiagnosed as verrucous lesions.[1] Acral lentiginous melanoma is one of the worst subtypes of melanoma and early detection is warranted to improve its prognosis.[7] The risk of metastasis increases with the increase in depth of the primary lesion, thus, certain characteristics of skin such as asymmetry, irregularity in borders, discoloration, diameter of greater than 5mm, and evolution should raise the suspicion for melanoma.[1]

Dermoscopic findings including collection of melanocytes in the crista intermedia or the ridges, a parallel-ridge pattern on the volar skin, and a multicomponent pattern or the presence of multiple colors and structures may help in the diagnosis of ALM. ALM on the sole may also exhibit a fibrillar pattern but thicker, darker, and more irregular.[8] Most of these findings were seen in our patient including the presence of blood vessels, yellowish crusts, brown ovoid nests, irregular streaks, and white globules. The thickness of the lesion precluded visualization of furrows and ridges.

Suspected lesions should be subjected to prompt excisional biopsy with wide margins. In lesions on the sole, tissue sample should be taken from the most elevated or hyperpigmented area. Histopathologic findings of melanoma may include asymmetry, presence of ulceration, cell atypia, and pagetoid involvement of the epidermis and nests of melanocytes of varying shapes and sizes in the lower epidermis and dermis.[4] However, none of these findings are diagnostic of melanoma.[1] Melan-A is needed to confirm the nature of atypical cells as melanoma.[4]

Presence of increased tumor thickness, ulceration, mitotic rate, vascular and lymphatic involvement indicates a poorer prognosis. None of which were present in the histopathologic

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findings of our patient. Management of melanoma entails multidisciplinary approach involving oncology and surgery.

Chronic inflammatory conditions such as long-standing tuberculosis infection are known to cause malignant transformation. The most common associated malignancy is squamous cell carcinoma with few reported cases of basal cell carcinoma.

Extensive search of literature, suggests that this is the first report of acral lentiginous melanoma existing concomitantly with tuberculosis verrucosa cutis. It may also be presumed to be the first case of acral lentiginous melanoma arising from tuberculosis verrucosa cutis.

CONCLUSION

Coexistence of a malignant neoplasm and a chronic skin infection may occur in elderly individuals. Acral lentiginous melanoma may be overlooked due to its similarities in presentation with tuberculosis verrucosa cutis. Clinicians, especially those residing in countries where there is a widespread tuberculosis infection, should be aware of the presentations of both disease entities as well as of the possibility of malignant transformation in cutaneous tuberculosis. This case underscores the importance of comprehensive investigation for proper diagnosis and prompt treatment.

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