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CASE REPORT

Scrofuloderma and tuberculous gumma in a young Filipino adult: a rare presentation of multifocal tuberculosis

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ABSTRACT

INTRODUCTION Cutaneous involvement is relatively uncommon representing a small fraction (1-2%) of the localizations of extrapulmonary tuberculosis. Cutaneous TB presents with several clinical forms, wherein one of the most common is scrofuloderma resulting from the direct extension of a tuberculous focus from a deeper structure such as the lymph node into the overlying skin. Tuberculous gumma is a rare form which occurs due to hematogenous spread of the TB bacilli. Although presenting with a wide clinical spectrum, it is believed that the association of different morphologies as well as numerous lesions and sites of cutaneous TB in a same patient is very rare.

CASE REPORT This is a case of a 20-year-old Filipino male presented with a five-month history of several progressive cutaneous lesions initially presenting as subcutaneous nodules evolving into well-demarcated suppurative painless ulcers which were unresponsive to topical antibiotic. Skin punch biopsy from the medial malleolar area of the right foot revealed dilated blood vessels with a diffuse inflammatory infiltrate of lymphocytes, histiocytes, and few multinucleated giant cells. Clinical and laboratory findings were consistent with cutaneous tuberculosis. Patient was started on anti-Koch's treatment regimen and presented an excellent response to treatment showing resolution of the skin lesions on the neck and forearms and notable regression of the lesions on the right foot within four (4) months.

CONCLUSION This case serves as a reminder that cutaneous tuberculosis can manifest with a wide spectrum of clinical presentation which can mimic diverse dermatological conditions and may present with high rates of negative or equivocal diagnostic testing results. This report highlights the importance of a high index of suspicion in the timely diagnosis and management of tuberculosis in countries wherein tuberculosis remains a significant health burden such as the Philippines.

KEYWORDS Cutaneous tuberculosis, Scrofuloderma, Tuberculous gumma, Metastatic tuberculous abscess

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INTRODUCTION

Tuberculosis is a systemic disease caused by *Mycobacterium tuberculosis* which has been recognized as a major global health problem up until this day. In 2020, there was an estimated 10 million cases of active TB. Eight (8) countries accounted for two-thirds of the global total cases, and among the high TB burden countries, the Philippines ranked 4th accounting for 6% of the cases. It is known to primarily cause pulmonary infection in immunocompetent patients, however, its extrapulmonary involvement has been linked to immunosuppression, HIV infection, malnutrition, and advancing age.[1,2] Cutaneous involvement is relatively uncommon representing a small fraction (1-2%) of the localizations of extrapulmonary TB.[2] In the Philippine Dermatological Society - Health Information System registry, scrofuloderma accounted for the most common form of cutaneous tuberculosis with 334 cases, while tuberculous gumma or metastatic tuberculous abscess was the rarest with only one (1) reported case from 2011 to 2020.

Cutaneous tuberculosis comprises a myriad of clinical presentations creating an extremely challenging situation for dermatologists which can lead to a delay in the accurate diagnosis and timely management. Reports of this condition presenting as different morphologies with multiple lesions and sites involved in the same patient are rare. Herein, we report a case of multifocal tuberculosis in a previously healthy young adult male presenting with polymorphic cutaneous lesions, combining scrofuloderma and tuberculous gumma, in addition to pulmonary involvement.

CASE REPORT

A 20-year-old Filipino male presented with a five-month history of several progressive cutaneous lesions which were unresponsive to topical an-

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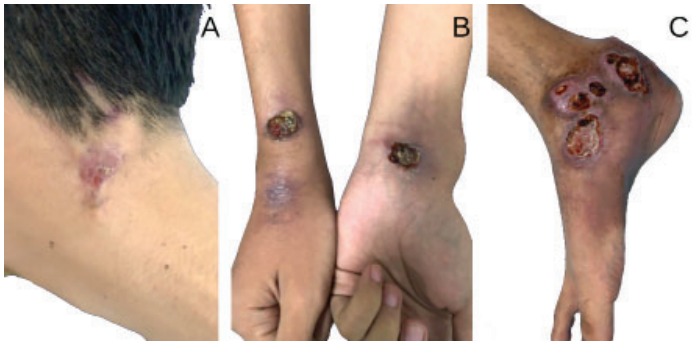

Figure 1. A. A subcutaneous nodule with minimal erosions and crusting located on the left posterior neck. **B.** Persistent ulceration with purulent discharge and crusting on the bilateral forearms. **C.** Multiple nodules with ulceration and draining sinuses located on the medial aspect of the right foot.

tibiotic. The patient presented with lesions on multiple sites which involved the left posterior neck, bilateral forearm, and medial aspect of the right foot. These lesions have developed as papules evolving into subcutaneous nodules gradually increasing in size and then evolved into well-demarcated suppurative painless ulcers accompanied by swelling of the medial malleolar aspect of the right foot. The patient did not complain of any other systemic manifestations such as chronic cough, hemoptysis, fever, night sweats, nausea, vomiting, and joint pains. However, he had complaints of unintentional weight loss and loss of appetite. The patient had no previous personal or family history of tuberculosis. There was no reported history of trauma. Sexual history was unremarkable. He previously received his Bacille Calmette-Guerin (BCG) vaccination. Similar lesions were not described in the family. On physical examination, the patient was generally well, had no other palpable lymphadenopathy, and was underweight with a body mass index of 16.1. Examination of the pulmonary, cardiovascular, and neuromuscular systems were unremarkable. The cutaneous examination revealed a solitary, well-defined, erythematous nodule measuring 2.5 cm x 2.5 cm on the surface of the left posterior neck, along with multiple, well-defined, indurated erythematous nodules with ulcerations covered by cheesy and purulent discharge on the bilateral forearm and medial aspect of the right foot measuring 2.5 cm x 2.5 cm and 8 cm x 5 cm respectively (Figure 1).

Complete blood count with differential count results were all within normal limits. HIV test results came back negative. Chest x-ray showed patchy infiltrates on the right lung making the impression of pulmonary tuberculosis. Tuberculin purified protein derivative tested negative (less than 5 mm). Acid-fast bacilli microscopy, Mycobacterium and fungal cultures of the skin tissue samples were all reported negative.

A 4-mm skin punch biopsy was done, obtaining skin tissue from the medial malleolar area of the right foot, and hematoxylin and eosin-stained sections revealed dilated blood vessels with a diffuse inflammatory infiltrate of lymphocytes, histiocytes, and few multinucleated giant cells (Figure 2). Prominent red blood cell extravasation and fibrosis were seen in the mid to lower dermis (Figure 2). A histopathological diagnosis of cutaneous tuberculosis was made.

A diagnosis of cutaneous tuberculosis probably scrofuloderma on the neck and tuberculous gummas on the extremities was established based on the following parameters: clinical manifestations, skin tuberculin test, acid-fast smear, histopathological findings, and presence of TB in another organ. The patient was started on anti-Koch's treatment regimen as per the patient's weight consisting of isoniazid, rifampicin, pyrazinamide, and ethambutol for the two (2) months intensive phase, followed by isoniazid and rifampicin for the continuation phase. The patient has since been in follow-up and presented an excellent response to treatment showing clinical improvement as gain in weight, good appetite, resolution of the skin lesions on the neck and forearms, and notable regression of the lesions on the right foot within four (4) months (Figure 3). The anti-tuberculosis therapy lasted for a total of six (6) months.

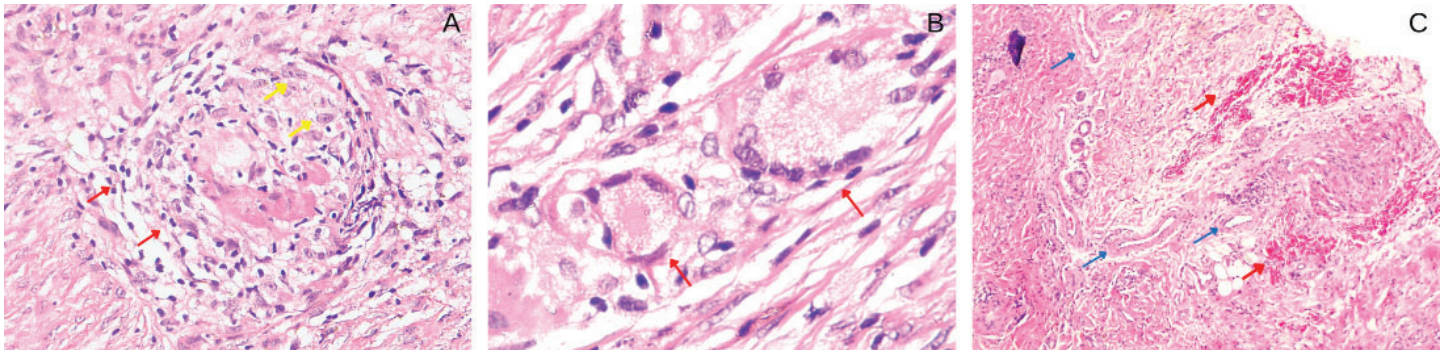

Figure 2. Biopsy from the indurated nodule showing: **A.** Diffuse pattern of inflammatory infiltrate of lymphocytes (red arrow) and histiocytes (yellow arrow), fibrosis in the mid to lower dermis (H&E stain, 40x) **B.** Multinucleated giant cells (red arrow, H&E stain, 100x) **C.** Dilated blood vessels (blue arrow) and extravasation of red blood cells (red arrow) (H&E stain, 40x)

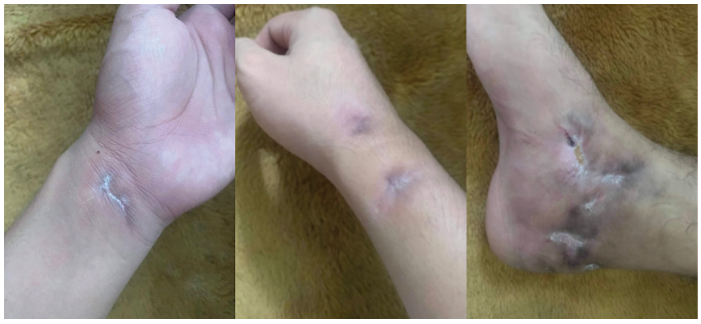

Figure 3. Resolution of lesions with residual scarring 4 months after anti-tuberculosis therapy.

DISCUSSION

Tuberculosis is a major health problem in the Philippines. However, even in countries wherein tuberculosis is endemic, cutaneous tuberculosis is still a rare form of extrapulmonary TB which can manifest with a great range of clinical presentations. Its diagnosis is made through a high index of suspicion and frequently with the use of an extensive diagnostic investigation involving cultures and biopsy of the affected skin.

It is believed that the association of different morphologies, as well as numerous lesions and sites of cutaneous TB in a same patient, is very rare, making this case riveting. In a series reported by Kivanç-Altunay et al., out of 370 patients with tuberculosis, only 13 (3.51%) had cutaneous TB, and the concern of polymorphous cutaneous TB was present only in one (1) patient presenting as scrofuloderma in association with lupus vulgaris.[3] Another study by Amraoui et al. reporting seven (7) cases of multifocal tuberculosis with cutaneous localization in immunocompetent patients, revealed that none of the patients had an association of more than one (1) type of cutaneous tuberculosis.[4] As with our case, a diagnosis of cutaneous tuberculosis— scrofuloderma on the neck and tuberculous gummas on the extremities was established based on clinical and histopathological correlation.

Scrofuloderma, also known as tuberculosis colliquativa cutis, results from the direct extension of a tuberculous focus from a deeper structure such as the lymph node into the overlying skin. This usually starts as a painless subcutaneous nodule that would later evolve into an ulcerating lesion with purulent discharge. Commonly affected sites are the neck, chest, and axillary areas.[5] In this patient, the diagnosis of scrofuloderma was made given the typical clinical manifestation and site of predilection.

Tuberculous gummas, also known as metastatic tuberculous abscesses, result from the hematogenous dissemination of Mycobacterium bacilli from an underlying TB focus during periods of lowered immunity. This condition generally starts as subcutaneous nodules evolving into nontender abscesses with ulceration and draining sinus tracts, making them indistinguishable from scrofuloderma. This type of cutaneous TB usually occurs in undernourished children of low socioeconomic status and immunocompromised patients, however, its occurrence in immunocompetent hosts is also possible.[6] In this case, the immunosuppression due to an active pulmonary tuberculosis infection has probably contributed to the onset and evolution of the cutaneous disease. Moreover, the delay in diagnosis and treatment of the first localization may have allowed the spread of infection to other sites.

Scrofuloderma and tuberculous gumma are both multibacillary type of cutaneous tuberculosis.[7] Although this is the case, their diagnosis is still a challenge owing to the lower sensitivity and specificity of diagnostic methods for cutaneous TB compared to pulmonary TB.[8] The overall clinical and histopathological picture must be taken into account to avoid diagnostic misinterpretation.

The importance of treating tuberculous disease as early as possible to prevent morbidity and mortality related to TB cannot be emphasized enough. For the management of cutaneous tuberculosis, the Anti-Koch's regimen remains the treatment of choice. While some authors have recommended a combination of pharmacologic treatment with surgical excision and debridement of all diseased tissue,[9] the response to anti-tuberculous treatment alone is usually good. As in this case report, the patient showed excellent response to treatment showing notable regression of lesions within the initial two (2) months of therapy. Along with that, the patient also received local wound care with the use of sucralfate (Cicalfate) cream which could have contributed to the quick recovery. Yen, T. et al. have reported that sucralfate demonstrated in vitro inhibitory activity against multiple bacterial pathogens including *Proteus mirabilis, Pseudomonas aeruginosa, Staphylococcus aureus, Staphylococcus pseudintermedius, Escherichia coli,* and *Enterococcus faecalis*.[10] In addition to the antimicrobial activity suggested in the study, the authors also believed that sucralfate is an attractive option for topical therapy of superficial pyodermas given its low incidence of toxicity, particularly when applied to the skin. And although no standard topical therapy for cutaneous tuberculosis has been found from related studies, we propose that sucralfate cream may be used concurrently and possibly has the benefit of improving treatment outcomes.

CONCLUSION

This case serves as a reminder that cutaneous tuberculosis can manifest with a wide spectrum of clinical presentations which can mimic diverse dermatological conditions and may present with high rates of negative or equivocal diagnostic testing results. This highlights the importance of a high index of suspicion in the timely diagnosis and management of tuberculosis.

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