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A Rare Etiology of Drug Rash in a Patient Receiving Anti-Tuberculosis Treatment

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ABSTRACT

Anti-tuberculosis medications can cause various side effects, including drug rash. When a patient on anti-tuberculosis treatment (ATT) develops rash, we usually stop all medicines, rechallenge the patient with medications individually, and find the offending agent. It should be mentioned that drug rash can be also a manifestation of other diseases. Herein, we report a case of tuberculosis who developed rash while on ATT regimen but was later diagnosed to be concomitantly suffering from leprosy.

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Introduction

Tuberculosis (TB) is an ancient disease with an annual incidence of more than nine million cases worldwide (1). It is well established that anti-tuberculosis treatment (ATT) regimens are commonly associated with various cutaneous adverse drug reactions (CADRs) (2). However, drug rash can also result from some other concurrent diseases.

According to the World Health Organization data, more than 200,000 new cases of leprosy are reported annually throughout the world (3). Acute reactions and exacerbations of immune system might be observed during the treatment period. Herein, we report a case of leprosy presenting as drug rash in a patient with TB.

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Case Report

A 60-year-old male referred to the hospital emergency unit with the chief complaints of fever, loss of appetite, generalized ache, and weakness during the previous month that exacerbated on the last four days. The patient had been diagnosed as a sputum-positive case of pulmonary TB, and a local general practitioner had prescribed ATT five days prior to presentation.

At the time of admission, the patient had high-grade fever (103.5°F) and tachycardia (157 bpm) with normal blood pressure and oxygen saturation on room air. Moreover, he had diffuse maculopapular dermal lesions all over the upper limbs and trunk. In the detailed history, the patient reported that the mentioned lesions had exacerbated following starting the ATT (Figures 1 and 2; informed consent was received from the patient before taking the photographs).

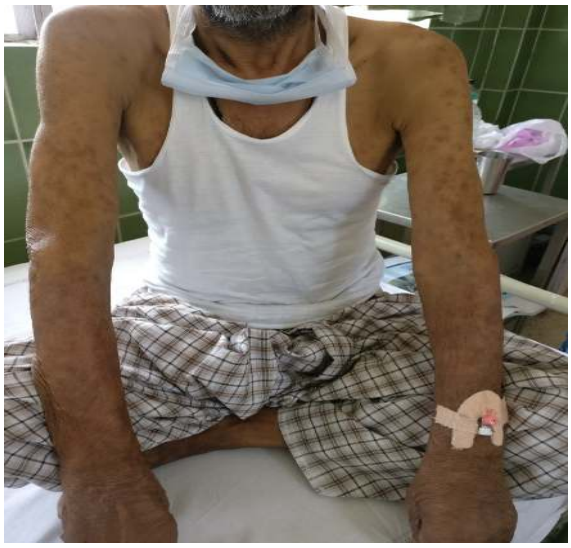

Figure 1: Diffuse maculopapular rash is seen on patient

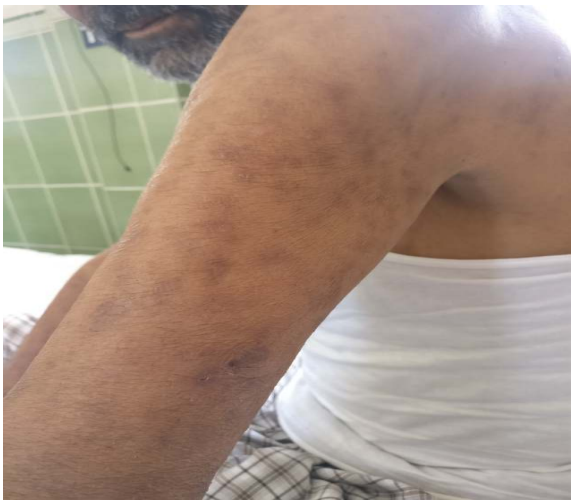

Figure 2. A closer view of the forearm

Routine blood test showed neutrophilic leukocytosis (total white blood cell count: $17.07\times10^3/\mu l$), moderate anaemia (hemoglobin level: 9.05 g/dl), and thrombocytosis ($600\times10^3/\mu l$). Urine, blood, and stool cultures were negative for any pathogenic organism. In addition, chest X-ray demonstrated bilateral infiltrating lesions (Figure 3).

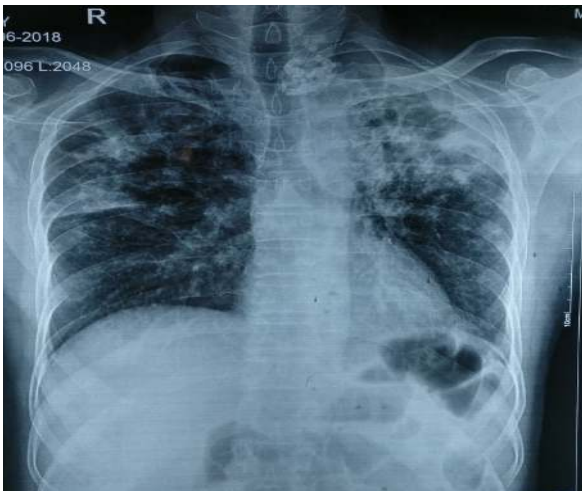

Figure 3: Chest X-ray of the patient showing bilateral infiltrates

Although ATT was continued, along with broad-spectrum antibiotics, fever did not relieve. The skin biopsy recommended in the dermatology consultation showed acute or chronic inflammation (Figure 4). Furthermore, slit-skin smear for acid-fast

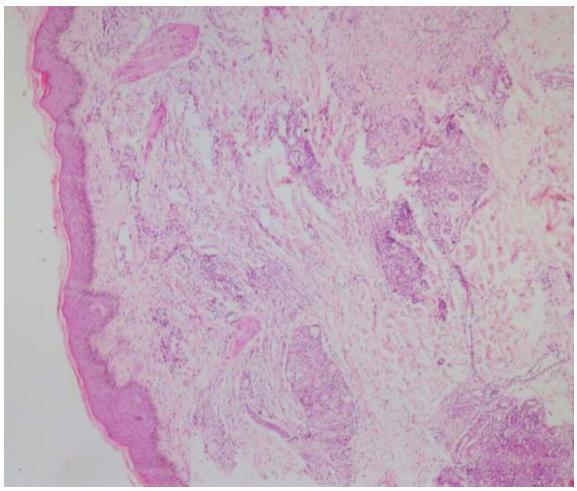

Figure 4: Skin biopsy showing atrophic epidermis and collections of foamy macrophages in dermis

Bacilli was requested by the dermatologist,the result of which was positive. Therefore,

The subject was diagnosed with Hansen's disease, and multidrug therapy for multibacillary leprosy (MDT-MB) was initiated. In spite of persistent leukocytosis, fever of the patient subsided and he was discharged on ATT regimen, Gram-positive antimicrobials, MDT-MB without weekly rifampicin, and symptomatic treatment.

The patient referred to the out-patient department again 7 days post-discharge with the complaints of increased lesions, high-grade fever (102°F), and elevated weakness. He was admitted, and his blood sample was sent to laboratory for routine hematological investigations. The laboratory results showed that the patient had persistent leukocytosis with total WBC count of $21\times10^3/\mu l$ and ATT was continued.

Dermatology consultation concerning the increased skin lesions suggested that the patient was suspected to have lepra reaction. High-grade fever continued, and thalidomide, clofaziminem, and broad spectrum antibiotics were administered. Afterwards, fever subsided and serial blood counts indicated a declining trend in the leukocyte count. The lesions settled, and the patient was discharged on ATT, along with thalidomide, nonsteroidal anti-inflammatory drugs (NSAIDs), and symptomatic treatment. Finally, the symptoms of the patient improved. He is currently on follow-up receiving ATT and MDT-MB with thalidomide.

Discussion

The ATT has been found to cause various CADRs ranging from mild reactions, such as pruritus, maculopapular exanthema, lichenoid eruptions, fixed drug eruptions, and urticaria to severe life-threatening reactions, including acute generalized exanthematous pustulosis, Stevens-Johnson syndrome, and toxic epidermal necrolysis (4). These CADRs can mimic any morphological manifestation in dermatology (2).

This patient presented with increased maculopapular rashes all over the upper extremity and trunk following the initiation of ATT. It is common to consider the observed lesions as cutaneous drug reactions; however, detailed analysis and slit-skin smear led to the diagnosis of leprosy. The patient had pre-existing leprosy, which was unmasked by the anti-mycobacterial treatment.

Concurrent TB and leprosy have been reported in some primitive data. For instance, archaeologists have demonstrated leprosy and TB coinfection in some ancient Roman archaeological samples (5). However, this is not frequently encountered in general practice. Leprosy and TB are chronic granulomatous diseases caused by Gram-positive aerobic acid fast bacilli with slow multiplication rates. Both of these conditions have been found to have a comparable endemic geographical distribution (1).

The annual incidence of leprosy was reported to be more than 200,000 cases (3). Few post-mortem studies reported TB as the cause of death in patients with

leprosy, especially in the anergic forms that predispose the patients to TB (6). Dominance of TB was revealed in the patients with borderline and lepromatous disease.

Many cases have been reported in the literature with the coinfection of TB and leprosy. A case similar to the present patient was reported by Shetty et al. (7) and they initiated MDT along with ATT regimen. In addition, these authors prescribed low-dose prednisolone accompanied by lepra reactions therapy. The mentioned authors reported this coinfection as not very frequent. Our patient developed type 1 lepra reaction following the administration of MDT. There was no ocular or neural involvement in the current case, and the patient responded to thalidomide, clofazimine, and NSAIDs. It should be mentioned that the reaction was mild, and steroids were not required in our case.

Conclusion

This case highlights the importance of the early diagnosis and adequate management of leprosy, as well as lepra reactions. Moreover, it is of great value to consider all the differential diagnoses while managing the patients with TB skin lesions.

Conflicts of Interest

The authors declare that there is no conflict of interest.

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