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Case Report

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Stevens-Johnson syndrome developed during tuberculosis treatment: a case report

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ABSTRACT

The aim of this study is to present the clinical effects and management of Stevens-Johnson syndrome (SJS), which developed during the fourth month of anti-tuberculosis treatment, specifically during the second month of maintenance treatment with isoniazid and rifampicin. This case report describes a 50-year-old male patient who developed SJS while undergoing tuberculosis treatment. The patient was treated with a combination of isoniazid and rifampicin. The clinical features, treatment adjustments, and patient outcomes are detailed. SJS developed in the fourth month of treatment, manifesting as widespread bullous erythematous lesions on the hands and feet, covering less than 10% of the body surface area. After discontinuing anti-tuberculosis treatment, the lesions improved within two days. When treatment with isoniazid and rifampicin was resumed after a 15-day drug-free period, lesions reappeared within three days, confirming the association of the syndrome with rifampicin. The treatment regimen was subsequently changed to moxifloxacin and ethambutol, resulting in complete resolution of the lesions within two days. Rifampicin-induced SJS requires prompt recognition and discontinuation of the causative drug. Healthcare providers, particularly in primary care settings, should be vigilant for cutaneous adverse reactions to anti-tuberculosis medications to ensure timely intervention and management. Further retrospective studies are needed to better understand the incidence and management of these reactions.

Keywords: Stevens-Johnson syndrome, tuberculosis, treatment, rifampicin, adverse reaction

INTRODUCTION

Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN) are immune-mediated reactions, primarily resulting from hypersensitivity reactions to drugs. These reactions are associated with T-cell-mediated apoptosis and keratinocyte damage. SJS typically affects 10-30% of the body surface area, whereas TEN involves a larger area, generally over 30% of skin loss.[1] Although the exact pathogenesis of the disease is not fully understood, it is believed to involve immunologic mechanisms, cytotoxic reactions, and delayed hypersensitivity reactions.[2] The diagnosis of SJS and TEN can be confirmed through clinical findings and biopsy. Skin rashes and mucosal lesions (oral, ocular, genital) are characteristic symptoms of these conditions. SJS and TEN are life-threatening emergencies; if not diagnosed and treated promptly, they can lead to severe health consequences. The reported average mortality rate for SJS is 1-5%, and for TEN, it is 25-35%; this rate may be higher in elderly patients and those with extensive epidermal detachment.[3] In clinically suspected cases, immediate discontinuation of the offending drugs and supportive treatments are necessary.

According to the 2024 World Health Organization data, tuberculosis (TB) incidence worldwide is reported as 134 per 100.000.[4] Thanks to the National Tuberculosis Control Program conducted in our country; the number of TB patients, which was 20.535 in 2005, decreased to 9.851 in 2022, and the disease incidence dropped from 29.4 per 100.000 to 11.4 per 100.000.[5] Although TB incidence is decreasing both in our country and globally, it is still considered a significant public health problem. Anti-tuberculosis treatment drugs can cause severe cutaneous adverse reactions (SCARs), such as SJS, TEN, and drug reaction with eosinophilia and systemic symptoms (DRESS).[6]

In this case report, the clinical effects and patient management of SJS, which developed during the fourth month of anti-tuberculosis treatment and the second month of maintenance therapy with isoniazid and rifampicin, are presented.

CASE

A 50-year-old male patient presented to a tertiary healthcare institution with a complaint of copious watery bloody sputum. A thoracic CT scan revealed limited cavitary lesions and areas of infiltration in the upper lobe of the right lung. The patient was referred to the tuberculosis dispensary for sputum AFB testing with a preliminary diagnosis of TB. A PA chest radiograph showed increased opacity in the right

upper zone and widespread infiltration areas in both lungs. The patient was advised to wear a mask and avoid crowded places until the sputum AFB results were available. When the sputum AFB result returned positive, the patient was diagnosed with pulmonary TB and started on a four-drug initial treatment regimen (isoniazid 300 mg, rifampicin 600 mg, pyrazinamide 2000 mg, ethambutol 1500 mg). By the end of the second month, with a negative sputum AFB result, the patient transitioned to maintenance therapy (isoniazid 300 mg, rifampicin 600 mg).

In the fourth month of treatment, widespread bullous lesions accompanied by itching were observed on both hands and feet, with yellow crusts (**Figure 1**). Laboratory findings revealed: CRP: 8.6, AST: 27, ALT: 27, Direct bilirubin: 0.21, Indirect bilirubin: 0.82. The history revealed that erythematous lesions initially appeared on the plantar and dorsal surfaces of both hands and spread to the anterior surfaces of the feet and legs within 3-4 days. The lesions covered less than 10% of the body surface area. With a provisional diagnosis of drug-induced SJS, the anti-tuberculosis treatment was stopped, and the patient was referred to the dermatology clinic. The dermatology specialist prescribed oral prednisone, antihistamines, and topical steroids. Two days after discontinuing the TB treatment, the lesions resolved and dried up, and by the 10th day, they had completely healed and the patient's symptoms had subsided.

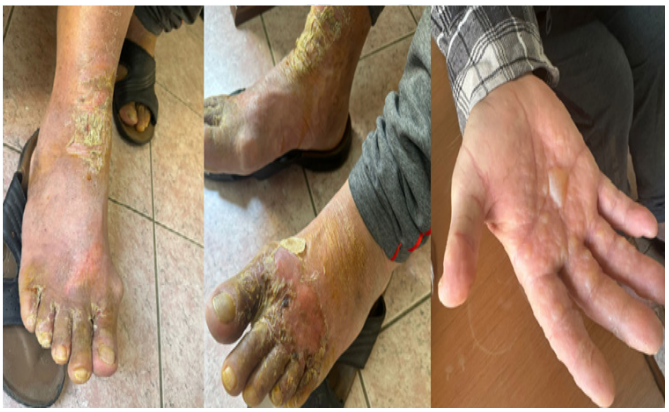

Figure 1. Lesions developed during the fourth month of anti-tuberculosis treatment

After a 15-day drug-free period, the patient was restarted on maintenance therapy with isoniazid 300 mg and rifampicin 600 mg. On the third day after resuming the medication, pruritic lesions were observed on the plantar and dorsal surfaces of both hands (**Figure 2**). The resolution of the lesions after discontinuation of anti-tuberculosis treatment and their recurrence upon reinitiation of therapy led to the conclusion that the SJS was associated with rifampicin. Isoniazid and rifampicin were discontinued, and the treatment regimen was changed to moxifloxacin 400 mg once daily and ethambutol 1500 mg once daily. Two days after the treatment adjustment, the pruritic lesions on both the plantar and dorsal surfaces of the hands completely resolved.

DISCUSSION

A retrospective study examining cutaneous lesions induced by anti-tuberculosis medications identified the most common adverse effect as rifampicin, followed by isoniazid, ethambutol, and pyrazinamide, in descending order of frequency.[6] In this case, erythematous lesions developed on both hands and feet during the fourth month of anti-tuberculosis treatment, which later spread to the anterior surfaces of the feet and legs, covering less than 10% of the body surface area, indicating SJS. The complete resolution of lesions during a 15-day drug-free period supported the preliminary diagnosis. Three days after the resumption of maintenance therapy, erythematous pruritic lesions were observed on the plantar and dorsal surfaces of both hands, confirming the diagnosis of SJS. The treatment regimen was immediately altered, resulting in the complete resolution of erythematous lesions within two days.

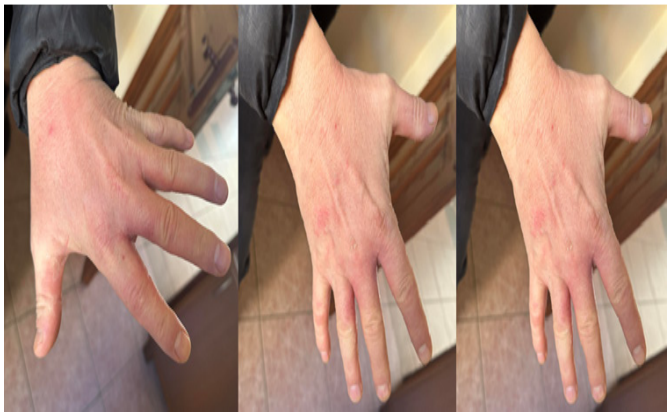

Figure 2. Lesions were observed to recur on the fourth day after resumption of treatment

CONCLUSION

Tuberculosis Dispensaries serve as the primary point of contact for patients undergoing TB treatment and play a crucial role in close follow-up and communication. Continuous communication between TB patients and healthcare workers is vital for effective TB management, which is a significant public health issue. Primary care physicians must recognize SJS, which can progress to high-mortality TEN, and promptly discontinue anti-tuberculosis treatment. Recognizing and monitoring the clinical signs and symptoms of SJS, a severe adverse reaction to anti-tuberculosis medications, is essential. There is a need for retrospective studies in this field.

ETHICAL DECLARATIONS

Informed Consent
The patient signed and free and informed consent form.

Referee Evaluation Process
Externally peer-reviewed.

Conflict of Interest Statement
The authors have no conflicts of interest to declare.

Financial Disclosure
The authors declared that this study has received no financial support.

Author Contributions
All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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