

# A Case of Drug-Induced Stevens-Johnson Syndrome

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## ABSTRACT

**Introduction:** Stevens-Johnson syndrome is a rare but consequential and often life-threatening disorder that is most often drug-induced.

**Case Presentation:** An 81-year-old Black man presented with 5 days of dysphagia, odynophagia, and rash. He said he had begun a course of trimethoprim-sulfamethoxazole 6 days prior for a presumed urinary tract infection. Owing to the cutaneous lesions and punch biopsy findings, he was diagnosed with drug-induced Stevens-Johnson syndrome.

**Discussion:** Stevens-Johnson syndrome is associated with a relatively high mortality rate. It is most commonly drug-induced and presents with extensive erythema, erosions, and blisters throughout the body.

**Conclusion:** Stevens-Johnson syndrome is a rare and often life-threatening disease. Early diagnosis and management is important for delivering high-quality patient care.

mon offenders.<sup>4</sup> Here we detail a case of trimethoprim-sulfamethoxazole (TMP-SMX) induced SJS.

## CASE PRESENTATION

An 81-year-old Black man with past medical history significant for coronary artery disease, chronic kidney disease, and type 2 diabetes mellitus presented with 5 days of dysphagia, odynophagia, and rash. He had recently noticed pruritis from an erythematous rash on his bilateral extremities. This was accompanied by lip swelling and desquamation and rash on the tip of his penis. His main reason for presentation was his inability to swallow food and pills due to pain and dysphagia. He denied fever, chills, shortness of breath, difficulty

breathing, chest pain, and abdominal pain. He said he had begun a course of TMP-SMX 6 days prior for a presumed urinary tract infection and was, therefore, admitted with concern for SJS.

Physical examination identified pink blanching patches scattered across the trunk, buttocks, and extremities with a faintly erythematous background. The palmar surface of the hands did not have significant involvement, and the glans of the penis was noted to have a greater than 1 cm round, nontender erosion (Figure 1A). Both the upper and lower lips had diffuse erosions and adherent fibrinous exudate (Figure 1B). Punch biopsy was performed and yielded interface dermatitis with full thickness epidermal necrosis and eosinophils (Figure 2). The density and depth of the eosinophils was unusual, but the board-certified dermatopathologist noted that these findings had been reported in some cases of SJS with an underlying drug etiology. Based on these results, the patient was diagnosed with drug-induced SJS.

TMP-SMX was stopped upon admission, and dermatology

## INTRODUCTION

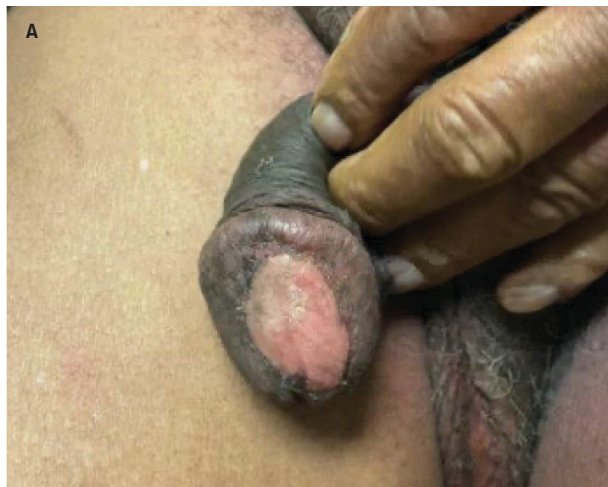
Stevens-Johnson syndrome (SJS) is a severe mucocutaneous reaction involving less than 10% of the body surface.<sup>1</sup> It is characterized by extensive necrosis and detachment of the epidermis that manifests after treatment with the offending drug.<sup>2</sup> Over 90% of cases have mucosal involvement, and a hallmark is keratinocyte necrosis.<sup>3</sup> Many drugs are known to cause SJS, with allopurinol, antiepileptics, sulfonamides, and nevirapine being the most com-

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**Figure 1. Clinical Findings**

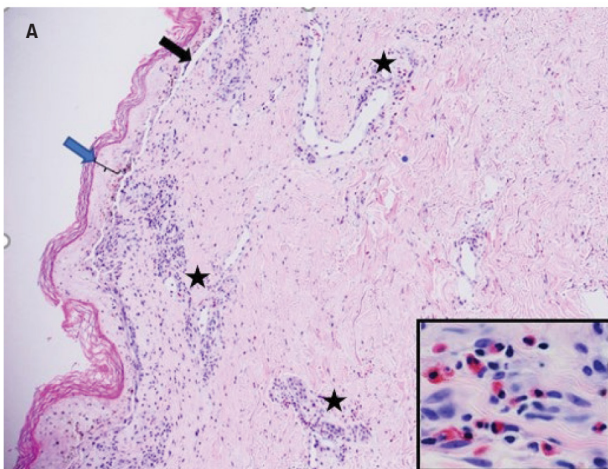


A. Lesion on glans of the penis measuring 1 cm.

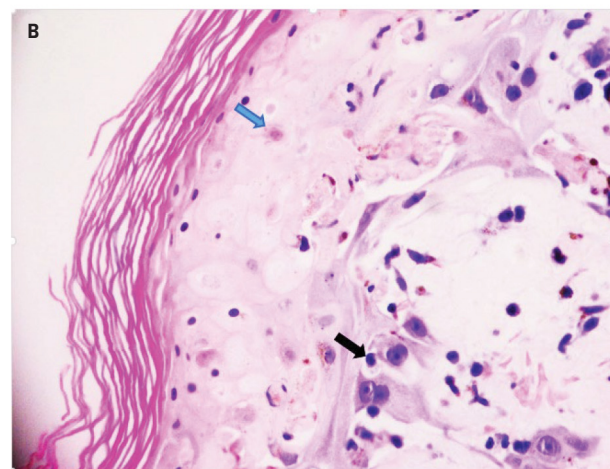


B. Lesions on upper and lower lips and oral cavity.

**Figure 2. Histopathology Findings**



A. Confluent epidermal necrosis (blue arrow), focal subepidermal bulla formation (black arrow), dermal lymphocytic infiltrate, superficial and deep perivascular infiltrate of eosinophils (black star), Hematoxylin and eosin stain (H&E) stain (x10) and inset image shows the perivascular infiltrate, H&E stain (x100).



B. Full thickness epidermal necrosis, keratinocyte apoptosis (blue arrow), basal vacuolization (black arrow), H&E stain (x60).

recommended management with dexamethasone swish and spit, nystatin swish and spit, topical triamcinolone on the lips, and Vaseline-impregnated gauze applied to the penile lesion. A video swallow study was performed, and the patient was noted to have minimal dysphagia – likely due to the oral lesions. He continued to complain of odynophagia and dysphagia, and otolaryngology was consulted due to concern for airway involvement. Transnasal laryngoscopy was performed and no abnormalities or lesions were found. The base of the tongue, vallecule, bilateral vocal cords, and epiglottis were all without lesions and the sub-

glottis was widely patent. Ophthalmology also was consulted for potential eye involvement. While no lesions were noted, they recommended aggressive eye lubrication, erythromycin eye ointment, and daily monitoring for symblepharon formation. The patient's symptoms improved significantly throughout the course of his hospitalization, and he was discharged 4 days after admission.

One week after discharge, he was seen by dermatology for outpatient follow-up. He denied any new lesions, problems with eating or drinking, and stated that he felt better. He was given

instructions to discontinue the use of dexamethasone and continue the use of Vaseline on his penis and biopsy site.

## DISCUSSION

SJS is a rare but consequential and often life-threatening disorder with an incidence of 9.2 per million adults per year and mortality rates as high as 4.8%.<sup>5</sup> SJS is mostly drug-induced and presents with extensive erythema, erosions, and blisters throughout the body, including the mucous membranes of the lips, oral cavity, eyes, and genitals. Mycoplasma-induced rash with mucositis is another form of SJS that is usually described in children with Mycoplasma pneumoniae infection.<sup>6</sup> Many authors have reported mycoplasma-associated SJS in children with an absence of skin lesions, calling it atypical SJS.<sup>7,8</sup>

One of the common causes of SJS in adult patients is medication use,<sup>5,9</sup> which was identified as the cause in this case. Apart from TMP-SMX, short-term use of medications such as aminopenicillins, cephalosporins, and quinolones increases the risk of SJS.<sup>10</sup> In addition, long-term use of nonsteroidal anti-inflammatory drugs, anticonvulsants, or antigout medications such as allopurinol can result in SJS.<sup>10</sup> Some microorganisms also have been associated with SJS. These include bacteria such as Mycoplasma pneumoniae and viruses such as herpes simplex.<sup>11</sup> Our patient was negative for herpes simplex virus and did not have any known risk factors for SJS, including HIV infection, underlying autoimmune disease, genetic factors, or underlying viral infection.

SJS has been associated with variations in the human leukocyte antigen (HLA) complex, causing apoptosis of the keratinocyte upon exposure to certain drugs.<sup>12</sup> Similarly, immunological mechanisms have been suggested to play a role in the pathogenesis of mycoplasma-induced rash with mucositis.<sup>13</sup>

The treatment of SJS should begin by withdrawing any offending/causal agent. Treatment consists of fluid management, correction of electrolyte imbalance, prevention of superinfection, pain management, nutrition (increasing caloric intake), and patient education on the need to avoid any identified drug or chemical that may be responsible.<sup>14</sup> Our patient improved quickly after the timely stoppage of TMP-SMX, use of steroids, and nystatin swish and spit. Also, proactive involvement of the otolaryngology and ophthalmology teams ensured there were no abnormalities or lesions in the pharynx and eye. Current research evaluates other potential treatments for SJS, such as cyclosporine, which targets granulysin.<sup>15</sup> Other medications currently under investigation include intravenous immune globulin, plasmapheresis, and tumor necrosis factor alpha (TNF- $\alpha$ ) inhibitors.<sup>15</sup>

## CONCLUSION

SJS is an emergent condition because of the potential for multi-organ disease. It is most often caused by medication use but may also be linked to mycoplasma infection. Treatment with steroids may be effective but remains controversial. Affected patients and

their immediate relatives should be educated on the need to avoid any identified causal drugs or chemicals to avoid recurrence or accidental drug administration.

**Funding/Support:** None declared.

**Financial Disclosures:** None declared.

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