Case Report

JOURNAL OF DRUG REACTIONS
An international online peer reviewed, open access Journal
Content available at www.cognixpress.in Online ISSN: 3139-4132

CASE REPORT ON CIPROFLOXACIN + TINIDAZOLE INDUCED STEVENS-JOHNSON SYNDROME

DHULIPUDI VIJAYA SRI SOWMYA[*1], INDU HARINI S[2], BANAVATH SRIRAMULU NAIK[3]

[1]IV/VI Pharmd, Koringa College of Pharmacy, Korangi-533461, Tallarevu Mandal, Kakinada District, Andhra Pradesh. India.
[2]Assistant Professor, Koringa College of Pharmacy, Korangi-533461, Tallarevu Mandal, Kakinada District, Andhra Pradesh, India.
[3]V/VI PharmD, Koringa college of pharmacy, Korangi, Talarevu mandal, Kakinada district, Andhra Pradesh, India.

***Corresponding Author**
Dhulipudi. Vijaya Sri Sowmya

Article History: 22.05.2026 Received:06.06.2026 Revised: Accepted: 21.07.2026

ABSTRACT
A 49 year old Female patient presented to Dermatology department with complaints of redness all over body and fever. Patient was apparently normal when she developed a fever followed by redness starting initially over abdomen followed by Chest, back, upper and lower limbs. Patient has the history of drug taken prior to onset of lesions. Patient has no history of fluid filled lesions, burning mituration, redness of eyes or discharge, genital or oral lesions and No history of previous similar complaints.

Keywords: *Drug reaction, Erythroderma, Fever, Generalized erythema, Dermatological adverse drug reaction, Drug-induced skin eruption.*

INTRODUCTION

Previously known as Lyell syndrome, Stevens-Johnson Syndrome (SJS), and Toxic Epidermal Necrolysis(TEN) are variants of same condition and are distinct from erythema multiform major staphylococcal scalded skin Syndrome and other drug eruptions [1].

Stevens-Johnson Syndrome/TEN is a rare, acute serious and potentially fatal skin reaction in which there are sheet-like skin and mucosal loss accompanied by systemic symptoms. Medications are causative in over 80% of cases. SJS and TEN is classified by the extent of the detached skin surface area.

- SJS- less than 10% body surface area.
- TEN- greater than 30% body surface area [2,3].

ETIOLOGY

SJE and TEN is a rare, and unpredictable reaction to medication that involves drug- specific CD8+ cytotoxic lymphocytes, Fas-Fas ligand pathway of apoptosis and granule-mediated exocytosis and Tumour necrosis factor [4,5].

EPIDEMIOLOGY

SJS and TEN is estimated to affect 2-7 per million people each year.SJS is 3 times more common than TEN. They can affect any one with a genetic predisposition: any age, either sex, and all races, although it is more common in older people and women.

It is more likely to affect people with low immunity and infected with HIV [6].

Numerous medications have been reported to trigger SJS/TEN. They include

1. Anti-convulsants – lamotrigine, Carbamazepine, Phenytoin, phenobarbitone.
2. Allopurinol- especially in doses >100mg/day
3. Sulphonamides- Co-trimoxazole, Sulfasalazine.
4. Antibiotics- Penicillin, Cephalosporin's, quinolones.
5. Paracetamol
6. Nevirapine
7. Non-steroidal anti-inflammatory drugs
8. Contrast media.

INTRODUCTION TO CIPROFLOXACIN [8]

Ciprofloxacin is an antibiotic agent in the Fluoroquinolone class used to treat Bacterial infections such as UTI and pneumonia. Ciprofloxacin has FDA approval to treat UTI, STD, skin, bone, joint infections,

prostatitis, Typhoid fever, GI infections, and lower respiratory tract infections.

Pharmacokinetics

Absorption: Ciprofloxacin is readily absorbed but typically does not achieve complete Absorption. The oral bioavailability of Ciprofloxacin is 70-80%, T1/2 is 4 hours.

Distribution: The volume of distribution of Ciprofloxacin is high. After oral absorption, Ciprofloxacin is extensively distributed throughout the body. Tissue concentration usually exceed serum concentrations, and Ciprofloxacin achieves therapeutic concentrations in salivation, bronchial secretions, lymph, bile, prostate, and urine.

Metabolism: Ciprofloxacin is an Inhibitor of Human cytochrome P4501A2 (CYP1A2). Co-administration of Ciprofloxacin with other drugs metabolised by CYP1A2 causes increased plasma concentrations leads to toxicity.

Excretion: Ciprofloxacin is Excreted in urine as an unchanged drug. Biliary clearance and trans intestinal elimination plays a significant role in Excretion through faces.

Pharmacodynamics

Ciprofloxacin is a Bactericidal antibiotic of the Fluoroquinolone drug class. It inhibits DNA replication by inhibiting DNA topoisomerase and DNA gyrase.

Fluoroquinolone class, Ciprofloxacin is the most potent against gram -ve Bacterial and few gram +ve bacteria

Ciprofloxacin is one of the few oral antibiotics to treat p. aeruginosa infections.

Introduction to Tinidazole [9]

Tinidazole is 2nd generation nitro imidazole derivative with potential activity against anaerobic bacteria and protozoa. It is structurally related to Metronidazole but have longer duration of action.

It is widely used in the treatment of infections such as amebiasis, giardiasis, Trichomoniasis, and anaerobic bacterial infections.

Pharmacokinetics

Absorption: Tinidazole is rapidly and completely absorbed after oral administration, with a bioavailability approaching 100%. Peak plasma concentration are typically achieved within 1-2 hours.

Distribution: It is widely distributed throughout body tissues and fluids, including the central nervous system, saliva, breast milk, and vaginal secretions.

Metabolism: Tinidazole is metabolised in the liver, primarily via oxidation, Hydroxylation and conjugation. Hepatic enzymes play an key role in its biotransformation.

Elimination: The drug and it's metabolites are excreted through urine and faces. T1/2 is 12-14 hours.

Pharmacodynamics

Tinidazole exerts it's antimicrobial effect through a reduction reaction in susceptible organisms. Inside anaerobic microorganisms, the nitro group of tinidazole is reduced by electronic transport proteins, generating receive free-radicles. These radicle interact with microbial DNA, causing

- DNA strand Breakage
- Inhibition of nucleic acid synthesis.
- Cell death.

Tinidazole exhibits Bacterial and protozoacidal activity.

Common ADRs

Tinidazole - GI upset, Metallic taste.

Ciprofloxacin – Tendon issues, CNS Effects.

Serious ADRs – Hypersensitivity reactions including Stevens - Johnson syndrome and Toxic Epidermal Necrolysis.

Others are Fatigue, Superinfection and potential disulfiram like reactions, if combined with alcohol.

PATIENT PROFILE

Age: 49 years

Gender: Female

Present Complaints: Redness all over the body and face since 1 day

Past medical history: Ciprofloxacin +Tinidazole (500mg+600mg)

Present History:

- The patient reports the rashes all over body since 1 day. Which started acutely and progressively worsened?
- She also mentioned intermittent fever duringthe sametime frame.

Recent medication history:

- The patient was started on Ciprofloxacin + Tinidazole as a part of management of Acute diarrhoea.
- No changes in the dosage or medication regimen prior to the development of symptoms.

Physical examination

Vital signs

Temperature: 98°F

Blood pressure: 100/70mmHg

Pulse rate: 80 bpm

SpO2 (RA): 98%

Cutaneous Examination

Multiple well defined erythematous macule coalescing to form patches of varying sizes ranging from 0.5cm*0.5cm to 3*3 over chest, back, both upper and lower limbs. Palms and soles, soles, oral cavity are Normal.

Investigations

1. CBP (complete blood picture) – To check for signs of infection or systemic inflammation.
2. LFT (liver function test) – To assess for Hepatic toxicity, which is a rare but severe ADR of Ciprofloxacin.

3. RFT (Renal function test) – To assess the Nephrotoxicity, which is also a rare, but severe ADR of ciprofloxacin.
4. GRBS – To monitor Blood glucose levels.

MANAGEMENT PLAN

1. Discontinuation of Ciprofloxacin + Tinidazole – Given the temporal relationship between the initiation of drug and onset of rash, it is important to discontinue the drug to prevent further hypersensitivity reactions. An alternative antibiotic medication may need to be considered.
2. Symptomatic treatment – Corticosteroids for inflammation and Anti-pyretic for management of fever.
3. Hospital admission –Preferably to an intensive care and or burn unit.
4. Fluid replacement (crystalloids).
5. Nutritional assessment – may require Nasogastric tube feeding.
6. Skin care requires daily examination of skin and mucosal surfaces for infection, Non-adherent dressings, and Avoidance of trauma to the skin, mucosal surfaces requires careful cleaning and Topical anaesthetics.

CAUSALITY ASSESSMENT

"Causality assessment was performed using the WHO-UMC scale, and the reaction was categorized as 'Probable' due to a reasonable temporal relationship, improvement in drug withdrawal, and absence of alternative causes".

CONCLUSION

A 49-year old Female presented with Rashes all over body and fever in association with the use of Ciprofloxacin + Tinidazole, strongly Suggests a drug induced hypersensitivity reactions. The management includes discontinuation of Ciprofloxacin + Tinidazole and symptomatic treatment. The lesions improved significantly.

FUNDING

Nil

INFORM CONSENT AND ETHICAL STATEMENT

Not Declared

ACKNOWLEDGEMENT

Nil

AUTHOR CONTRIBUTION

All the authors contributed equally

REFERENCES

1. Oakley A, Krishnamurthy K. Stevens-Johnson syndrome. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan–. Available from: https://www.ncbi.nlm.nih.gov/books/NBK459323/
2. Jha N, Alexander E, Kanish B, Badyal DK. A study of cutaneous adverse drug reactions in a tertiary care centre in Punjab. Indian Dermatol Online J. 2018;9(5):299-303.
3. Auyeung J, Lee M. Successful treatment of Stevens-Johnson syndrome with cyclosporine and corticosteroid. Can J Hosp Pharm. 2018;71(4):272-275.
4. Frey N, Bodmer M, Bircher A, Jick SS, Meier CR, Spoendlin J. Stevens-Johnson syndrome and toxic epidermal necrolysis in association with commonly prescribed drugs in outpatient care other than anti-epileptic drugs and antibiotics: a population-based case-control study. Drug Saf. 2019;42(1):55-66.
5. Sato S, Kanbe T, Tamaki Z, Furuichi M, Uejima Y, Suganuma E, et al. Clinical features of Stevens-Johnson syndrome and toxic epidermal necrolysis. Pediatr Int. 2018;60(8):697-702.
6. Yang SC, Hu S, Zhang SZ, Huang JW, Zhang J, Ji C, et al. Corrigendum to "The epidemiology of Stevens-Johnson syndrome and toxic epidermal necrolysis in China". J Immunol Res. 2018;2018:4154507.
7. Schneider JA, Cohen PR. Stevens-Johnson syndrome and toxic epidermal necrolysis: a concise review with a comprehensive summary of therapeutic interventions emphasizing supportive measures. Adv Ther. 2017;34(6):1235-1244.
8. LeBel M. Ciprofloxacin: chemistry, mechanism of action, resistance, antimicrobial spectrum, pharmacokinetics, clinical trials, and adverse reactions. Pharmacotherapy. 1988;8(1):3-33.
9. Brunton LL, Hilal-Dandan R, Knollmann BC, editors. Goodman & Gilman's the pharmacological basis of therapeutics. 13th ed. New York: McGraw-Hill Education; 2018. p. 1057-1060.