

Drug-induced toxic epidermal necrolysis: A rare case report

Rajesh B Dhirawani¹, Sumit Asrani², Jay Taank^{3,*}, Sauvik Singha⁴

¹Professor and HOD, ²Senior Lecturer, ^{3,4}PG Resident, Dept. of Oral and Maxillofacial Surgery, Hitkarini Dental College and Hospital, Jabalpur, Madhya Pradesh, India

***Corresponding Author: Jay Taank**

Email: sauviksingha@gmail.com

Abstract

Stevens-Johnson syndrome may be a rare, severe disease of the mucous membranes or skin and toxic epidermal necrolysis may be a serious type of some life-threatening condition. Toxic epidermal necrolysis (TEN) and Stevens - Johnson syndrome (SJS) are severe adverse connective tissue drug reactions. Both of them are rare with TEN and SJS affecting about 1 or 2/1,000,000 people annually. Toxic epidermal necrolysis (TEN) conjointly referred to as Lyell's syndrome may be a widespread deadly severe connective tissue disease that causes extensive detachment of the mucous membrane and skin. Several etiological factors are notable for TEN, the foremost common being the adverse drug reactions. They are characterized by erythema, epidermal detachment presenting as blisters, and areas of denuded skin. Medication is assumed or known as the main reason for SJS/TEN in most cases.

Keywords: Toxic epidermal necrolysis, Carbamazepine, Steven Johnson syndrome.

Introduction

Most authors and consultants take into account SJS and Toxic epidermal necrolysis (TEN) as completely different manifestations of an identical malady. The term Toxic epidermal necrolysis (TEN) was first employed by the Scottish dermatologist Alan Lyell in 1956 to point a rare critical disorder that is additionally called Lyell's syndrome.¹ TEN is often outlined by widespread blisters arising as macules and/ or flat atypical targets wherever there is an extensive detachment of mucous membrane and skin characterized by full-thickness necrosis of the epidermis.² They are additionally severe, episodic, acute mucocutaneous reactions, that area most frequently evoked by medication and infrequently by infections, and. Are diseases with uniform clinical characteristics and a potentially fatal outcome TEN involves more than 30% of epidermal detachment and Steven-Johnson syndrome (SJS) involves less than 10% epidermal detachment, between 10%–29% dermal detachment is diagnosed as SJS/TEN overlap.³ There is many medication that can cause TEN, including anticonvulsants, a non-steroidal anti-inflammatory drug, sulfonamides, and antibiotics.⁴ Anticonvulsants are one of the main triggers, inflicting SJS/TEN, and among anticonvulsants Carbamazepine is accountable for most of the cases. Carbamazepine is an anti-epileptic iminostilbene derivative that was initially used for epilepsy however nowadays is in use with accrued frequency for various indications as well as in chronic pain, tic douloureux, and herpetic neuralgia.⁵ The correlation between TEN and drug intake based on the recognition that it always develops 1–3 weeks once the administration of the suspect drug.⁶ Isolation, fluid and balance, nutritional support, pain management, and protecting dressings are the most auxiliary measures until the epithelium regenerates.

Case History

A 28-year-old female patient reported to the Department of Oral and Maxillofacial Surgery with a chief

complaint of pain within the lower left facial region from the past 2-3 months. The pain was severe, stabbing in nature, piercing in unilateral lower facial region and was triggered after chewing, biting or by touching affected areas of face. Carbamazepine was prescribed for the next one week and oral prophylaxis was conjointly done at a similar time. At the time of her next visit, she once more reported pain within the same area. VAS (Visual Analogue Scale) was used to assess pain, and therefore, the score was 40/100. We decided to proceed with a similar treatment whereas an increasing dose of Carbamazepine. On the 13th day after taking prescribed medications patient given with a rapidly progressive generalized eruption with mild fever, generalized weakness, sore throat, cough, diarrhoea and pain. (Fig. 1) On observation, oral rashes and bullae were found on cheek, face, forearm and lower extremities. The patient was then admitted and first treatment was started with following medications — I/V fluids (Normal saline and Ringer's lactate), I/M AVIL BD, I/V dexamethasone 8 mg TDS, then she was transferred to the isolation area consequent day. On physical examination, her blood pressure was 120/90 mm Hg, pulse rate was 110/min, respiratory rate was 22/min, and body temperature was 100 °F, Random blood sugar was 197 mg/dl. The blood counts, urinalysis, were within normal range and no changes were seen in ECG and chest x-ray. Acute macular erythematous rashes and bullae with painful erosion on lips were seen, with busted bullae on the left cheek, neck, forearm, and leg. Sore throat was conjointly present and the patient was unable to swallow food. Later the patient additionally developed fluid-filled lesions everywhere the body, around the eyes, mouth, and after the rashes spread everywhere her higher limbs, trunk and legs thenceforth. Clinical examination of the skin revealed a diffuse generalized peeling of the skin that was seen in most over the body together with an epidermal detachment of more than 70 percent body surface area. (Fig. 2a,2b) Nikolsky's sign (epidermal separation induced by light lateral pressure

on the skin surface) was evident. There was congestion of mucous membrane with mucopurulent discharge and exposure keratitis. As per Bastuji Garin classification the diagnosis was created as toxic epidermal necrolysis with spots.³ Carbamazepine was the suspected drug that was withdrawn.

Topical wound care by using silver sulfadiazine cream and Lactocalamine lotion. (Fig. 3) Gentian violet Paint for Ulcers in the oral cavity was given. The patient was made to change posture on a sterile sheet to stop sticking of the skin to the cotton bed. Eye lesions were treated with topical antibiotic preparations (Topical gentamicin, moxifloxacin eye drop) and ocular lubricant solution. Supportive treatment enclosed Contramol Infusion for pain management; Nutrition was maintained by giving protein supplements and strict diet suggested by dietician up to next 10 days then she was changed to prescribe standard regimens once the lesions started healing. Dexamethasone was slowly tapered and stopped when seven days. Lesions recovered by third week of illness. During the third week, the progression of the skin lesions halted and the general condition of the patient was improved. (Fig. 4a,4b)



Fig. 2 (b): Generalised peeling of the skin - Day 3



Fig. 1: Drug reaction after prescribed medications - Day 1



Fig. 3: Topical wound care of the eroded areas with impregnated paraffin sterile dressings



Fig. 2 (a): Generalised peeling of the skin - Day 3 (2)



Fig. 4 (a): 3 weeks later - Patient after complete recovery



Fig. 4 (b): 3 weeks later - Patient after complete recovery

Discussion

Trigeminal neuralgia includes severe, lancinating, throbbing pain which may even be triggered by any stimuli. The medications that are used to treat the painful symptoms of trigeminal neuralgia are anticonvulsants, and also the first-line treatment is Carbamazepine, that is one of the foremost common medications related to hypersensitivity reactions and strongly related to TEN.^{7,8} Roujeau et al. have reported that the relative risk for anticonvulsants like diphenylhydantoin, barbiturate, and Carbamazepine to cause SJS/TEN is 11 to 15%.⁴

There are many causes of SJS and TEN. However, medication seems to be the most common. As SJS and TEN are nowadays considered as the same disease process, varying only in the skin surface area. With <10% BSA involvement is a minor form of TEN: Ten to thirty percent of the BSA is overlapping SJS/TEN and more than 30% of the BSA involved is considered as TEN.^{4,5} For implicating a drug as the cause of an adverse drug reaction, alternative causes were ruled out of such as infections, the time of onset of the starting the medication was less than 3 weeks as per the Roujeau and Stern algorithm.⁹

Our patient presented with generalized peeling of the skin with mucosal ulceration after initiating the therapy with Carbamazepine. The period for the development of ten when initiating Carbamazepine was less than three weeks, that is in conformity with earlier reports. Cutaneous symptoms began two weeks when the initiation of Carbamazepine drug. The patient clinically presented with fever, malaise, sore throat, mucous membrane burning and myalgias. After about twenty-four hours, skin lesions appeared with generalized macular erythema with targeted lesions; which can accomplish large, flaccid bullae that coalesce into larger ones. Severe involvement of mucosal surfaces as well as lips, mouth, conjunctiva was seen. With the persistent clinical findings and as the body area was over

70 percent affected, this was diagnosed as toxic epidermal necrolysis that is nearly always drug-induced.

The main therapeutic action in ten is early recognition of the drug reaction and withdrawal of the drug, there is no universally accepted, definitively effective, specific treatment for the SJS/TEN apart from confirmative care. Because it could be a life-threatening condition and thus confirmative care is a vital part of its therapeutic approach. Initial administration is fluid and electrolyte replacement, acid-base and metabolic equilibrium regulation, glucose management, and topical skin management. Oral lesions are managed with mouthwashes. Topical anaesthetics are helpful in reducing pain and permitting the patient to take in fluids. Areas of uncovered skin should be coated with compresses of saline or paraffin inseeded sterile dressings. The utilization of general corticosteroids is debatable as a result of the steroid might stop the response against the drug, however, might favour the infection once the epidermis sloughs.⁸ Amidst controversies, an initial dose of 30 to 40 mg/day dexamethasone was given for many days, that was then tapered, and was useful in shortening the healing time of ten, notably once therapy is started early in the course of the disease as seen in our case.

Complete recovery of the patient was most likely due to early and effective management of inflammation by treatment with systemic steroids, and appropriate topical care of the scoured areas. As reported within the earlier literature, most of the patients with ten were treated with systemic steroids together with antibiotics and adjunct measures. Aggressive fluid and electrolyte management, nutritional support, pain management, and careful handling are necessary. Sterile wound care is essential, that may be a cornerstone of the treatment. Necrotic tissue should be derided frequently with the applying of sterile dressing. Many substances either biological or artificial are used with various results as a wound dressing. We tend to used inseeded paraffin gauze dressing in our patient to forestall infections. It is necessary to notice that Carbamazepine re-administration should be avoided in patients with a previous history of SJS or adverse skin reaction to Carbamazepine and correct medical record ought to be taken before prescribing medications.

With the withdrawal of the Carbamazepine, the condition of the patient was improved so the drug withdrawal is the initial line for management of drug elicited ten. Total recovery of our patient was most likely because of early and effective management by treatment with general antibiotics and steroids, and acceptable topical care of the scoured areas with inseeded paraffin sterile dressings. So, on conclude awareness concerning medication that are inflicting serious drug reactions like TEN/SJS can facilitate physicians to forestall such issues by judicious use of such medication and manage the cases properly.

Conflict of Interest: None.

References

1. Lyell A. Toxic epidermal necrolysis: an eruption resembling scalding of the skin. *Br J Dermatol* 1956;68:355–61.
2. Chowta NK, Chowta MN, Ramapuram J, Kumar P, Fazil A. Carbamazepine-induced toxic epidermal necrolysis. *Indian J Crit Care Med* 2011;15(2):123-5.
3. Bastuji-Garin S, Rzany B, Stern RS, Shear NH, Naldi L, Roujeau JC. Clinical classification of cases of toxic epidermal necrolysis, Stevens-Johnson syndrome, and erythema multiforme. *Arch Dermatol* 1993;129:92–6.
4. Roujeau JC, Kelly JP, Naldi L, Rzany B, Stern RS, Anderson T, et al. Medication use and the risk of Stevens-Johnson syndrome or toxic epidermal necrolysis. *New Engl J Med* 1995;333:1600–7.
5. Devi SK, George S, Criton S, Suja V, Sridevi PK. Carbamazepine — The commonest cause of toxic epidermal necrolysis and Stevens-Johnson syndrome: A study of 7 years. *Indian J Dermatol Venereol Leprol* 2013;7(5):326-8.
6. Aparna R Das, Sai keerthana PC, Krishna Priya Raj, Anila K. *N Int J Pharm Sci Rev Res* 2016;40(2):18-9.
7. Bae HM, Park YJ, Kim YH, Moon DE. Stevens-Johnson syndrome Induced by Carbamazepine Treatment in a Patient Who Previously Had Carbamazepine Induced Pruritus — A Case Report. *Korean J Pain* 2013;26(1):80-3.
8. Kamaliah MD, Zainal D, Moktar N, Nazmi N. Erythema multiforme, Stevens Johnson syndrome and toxic epidermal necrolysis in north-eastern Malaysia. *Int J Dermatol* 1998;37:520-3.
9. Roujeau JC, Stern RS. Severe cutaneous adverse reactions to drugs. *N Engl J Med* 1994;331:1272–85.

How to cite this article: Dhirawani RB, Asrani S, Taank J, Singha S. Drug-induced toxic epidermal necrolysis: A rare case report. *J Oral Med, Oral Surg, Oral Pathol, Oral Radiol* 2019;5(1):26-9.