Case Report

Successful Treatment of Toxic Epidermal Necrolysis More Than 70% Body Surface Area Involved with Immunosuppressive Therapy and Amniotic Membrane Graft in Cornea.

Uddin M R[1], Bhuiyan M H[2], Akhtar F[3], Baker M A[4], Akramuzzaman A.K.M[5],

Abstract:

A 19 years young boy presented with papulo-vesicular lesions with necrosis over face, trunk upper and lower extremities; erosions and ulcerations over mucous membrane of eyes, mouth and genetalia. Lesions involved more than 70% of body surface area. Medical history was significant that was taking carbamazepine for epilepsy. On histopathological examination lymphatic infiltration at the dermoeidermal junction (DEJ) with necrosis of keratinocytes that some areas in full thickness. Management done in Enam Medical College Hospital (EMCH) in general ward with correction of fluid and electrolyte imbalance. Systemic steroid used in immunosuppressive dose and patient epidermal regrowth occur within 22-24 days. Main problem at that time gradual loss of vision, recurrent corneal erosion syndrome and tear film deficiency. Ophthalmology department of EMCH done amniotic membrane graft dry eye and corneal erosion.

Introduction:

Toxic Epidermal Necrolysis (TEN) is mucocutaneous drug induced or idiopathic reaction patterns characterized by skin tenderness and erythema of skin and mucosa, followed by extensive cutaneous and mucosal epidermal necrosis and sloughing. They are potentially life threatening due to multisystem involvement.

The exact definitions of Stevens-Johnson syndrome (SJS) and TEN remain arbitary as a result of overlap in some cases (Table-I). The following definitions are useful to classify cases, SJS has less than 10% body surface area (BSA) involved, cases with 10% to 30% are SJS- TEN overlap cases and more than 30% BSA erosion called TEN. TEN has a poly etiologic reaction pattern, drugs are clearly the leading causative factor (80 to 95 percent of patient) and only minority of cases appear to be linked to infection, vaccination or graft-versus-host disease. Only less than 5% cases idiopathic cause.

1. Dr. Md. Rokon Uddin
Assistant Professor, Department of Skin & VD
Enam Medical College, Dhaka, Bangladesh
2 Dr. Motahar Hossain Bhuiyan
Associate Professor, Department of Ophthalmology
Enam Medical College, Dhaka, Bangladesh
3. Dr. Farjana Akhtar,
Lecturer, Department of Anatomy
Dhaka Medical College, Dhaka, Bangladesh
4. Dr. Md. Abu Baker
Registrar, Department of Skin & VD
Enam Medical College, Dhaka, Bangladesh
5. Dr. A.K.M Akramuzzaman
Registrar, Department of Ophthalmology
Enam Medical College, Dhaka, Bangladesh

A prognostic scoring system for patients with epidermal nerolysis (SJS & TEN)

Prognostic factors	Points
Age> 40 years	1
Heart rate> 120beat/ min	1
Cancer or Hematologic malignancy	1
BSA involved>10%	1
Serum bicarbonate less < 20 mM	1
Serum urea level> 10 mM	1
Serum glucose level>14mM	1

SCORTEN	Mortality rates (%)
0 –1	3.2
2	12.1
3	35.8
4	58.3
>5	90

The usefulness of scoring system has been confirmed by several teams.

Overall incidence of SJS and TEN was estimated at 1 to 6 cases per million person years, respectively. EN (epidermal necrolysis) can occur at any age, with the risk increasing with age after the fourth decade, and more frequently affects women, showing a sex ratio of 0.6. Patient infected with human immunodeficiency virus and to a lesser degree patients with collagenous vascular disease and cancer are at increased risk. The overall mortality associated with EN in 20 percent to 25 percent varying from 5 percent to 12 percent for SJS to more than 30 percent for TEN. Increasing age significant co-morbidity and greater extent of skin involvement correlate with poor prognosis.

The pathophysiology of EN is skin unclear, however, it is now established that drugs are the most important etiologic factors. More than 100 different drugs has been reported as possible causes. The high risk drugs are antibacterial sulfonamides, aromatic anticonvulsants, allopurinol, oxicam non steroidal anti inflammatory drugs, lamotrigine and nevivapine. The role of infectious agents in the development of EN is much less prominent than for EM (erythemal multiformi). Physical mechanisms such as radio therapy is addition to treatment with antiepileptic drugs such as phenytoin, Phenobarbitone or carbamazepine can trigger EN on various sites.

The immunologic patterns of early lesions suggests a cell mediated cytotoxic reaction against keratinocytes leading to massive apoptosis. Immunopathologic studies have demonstrated the presence of CD^{8+} T kill lymphocytes in the epidermis and dermis in bullous adverse reaction, whereas monocytes are present more during the late phase.

EN clinically begin within 8 weeks (usually 4 to 30 days) after onset of drugs exposure. Only in rare case will prior reaction and inadvertent rechalenge with the same drug does it may appear more rapidly, within a few hours.

Case report:

Young boy of 19 years admitted in Skin & VD department of EMCH on the 4th day of developing vesico-bullous as different parts of the body after started taking carbamazepin about 10 days back (Fig-I & II). The eruption symmetrically distributed on scalp, face, upper trunk, proximal and distal extremities. The distal portion of the arms and legs were relatively spared, there was epidermal necrosis appears as macular areas with crinkled surface as enlarge and coalesce. Sheetlike loss of epidermis, flaccid blisters that spread with lateral pressure, and break easily (Fig-III). Nikolsky sign or dislodgement of the epidermis by lateral pressure was positive on erymenatous zones. The necrotic epidermis was easily detached at pressure points or by frictional trauma, revealing large areas of exposed, red, oozing dermis, Skin lesions involved more than 70% body surface area that clinically diagnosed as TEN.

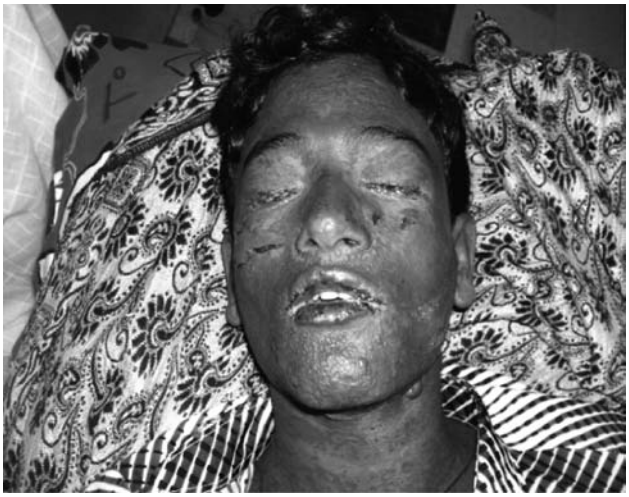

Figure-I : On admission

Figure-II : On admission

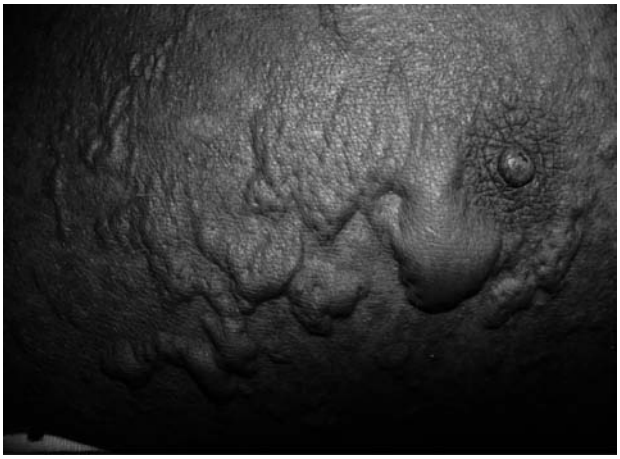

Figure-III : On admission

Painful Mucous membrane lesions (erosions) of the buccal, occular and genital mucosa was present on admission. On eye hyperemia, erosions, chemosis, photophobia and lacrimation present.

On admission the boy associated with high fever, pain and weakness; chest radiographs was normal; no history of diarrhoea or melena; no proteinuria, microalbuminuria or haematuria defected on routine urine examinations during admission.

Patients who are very ill or with more than 30% to 50% loss of epidermis should be transferred for Burn unit management. Though more than 70% body surface area involved, the patient's physical parameters were good. We admit & started treatment in general ward with special care.

After stopping offending drug correction of fluid and electrolyte imblance was main aim. Blood urea nitrogen level was normal. For conformations of diagnosis histopathlogical examinations was done and lymphocyte infiltration at the DEJ with necrosis of keratinocytoes present some areas. The blood glucose level was normal in several examination in prognostic scoring system the patient

was in point 1 that is 3.2% chance of mortality whereas overall mortality rate in TEN is more than 30%.

No sepsis, organ failure or pulmonary complications developed during hospital management. Corneal epithelial erosion diagnosed on 4th day of treatment. Antibiotic was given as prophylactic dose. No necrotic epidermis was derbridenent because the superficial necrosis is not an obstacle to re-epithelialization and might even accelerate the proliferation of stem cells due to inflammatory cytokines.

Artificial tears, antibiotic and topical steroid were used in initial phase of eye care. For halt the regression of disease immunosuppressive and/or anti inflammatory used prednisolone 80 mm/ day and tappered after halt of prognosis of disease and continued for next 14 days.

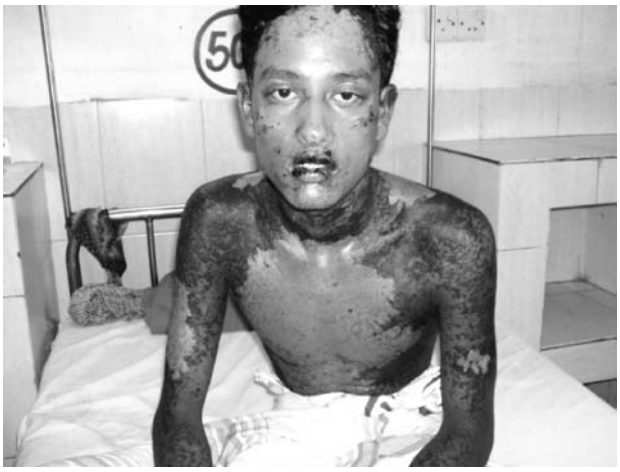

Figure-IV : During recovery phase

Patient general condition gradually improved but gradual loss of vision observed (finger count) by Ophthalmologist and diagnosed as dry eye and corneal epithelial erosion syndrome (Fig-IV). On 17th day of hospitalization amniotic membrane graft done on both eyes by ophthalmologist.

Conclusion:

The use of systemic corticosteroid is still controversial in TEN but in our study systemic corticosteroid found both stop of progression of disease process and overall improvement of general condition of the patient. And after two week of amniotic membrane graft over the cornea the vision is improved by 6/9 (Fig-V). SCROTEN score helps a lot for this patient to manage in general ward.

Figure-V : After successful treatment

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