GUIDELINES FOR THE MANAGEMENT OF A PATIENT WITH SUSPECTED TOXIC EPIDERMAL NECROLYSIS (TEN)

Presentation of a patient with suspected toxic epidermal necrolysis (TEN)

Toxic Epidermal Necrolysis (TEN) is a severe cutaneous reaction to drugs or their metabolites with multi system involvement.

Primary Consultations

- ☐ Contact dermatology on call
- ☐ Consult internal medicine on call
- ☐ Consult plastic surgery on call

At our institution, Internal Medicine is the point of contact for management these patients. They oversee patient care and consult other services where necessary. Dermatology should be contacted early to facilitate patient treatment and disposition. There is a dermatologist on call at SPH and VGH 24/7. Plastic surgery should be consulted on all patients with TBSA >5%.

Confirm Diagnosis

- ☐ Lesion biopsy

Potentially unstable?

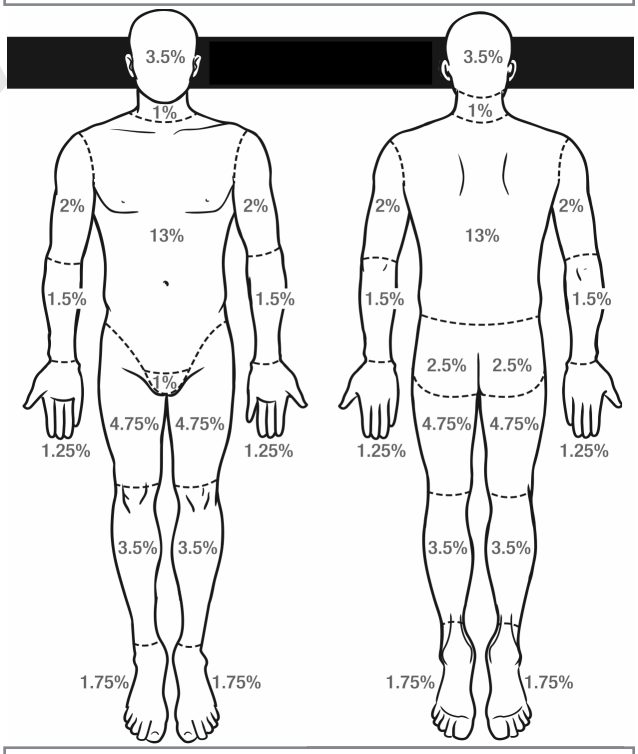
- ☐ Early ICU involvement

If there is clinical concern for oral mucosal or respiratory involvement and potential for airway compromise, or hemodynamic instability, consider involving ICU early.

Determination of Total Body Surface Area involved (TBSA)

- ☐ Calculate TBSA involved: _____ %

Calculate TBSA based on the chart below. Only include desquamated and blistering areas. Intact skin with erythema does not count towards TBSA. A patient's own hand and fingers is roughly 1% TBSA.



Wound care issues anticipated?

- ☐ Early involvement of the Burn Unit.

Determination of additional sites of involvement

- ☐ Ocular
- ☐ Naso-oral
- ☐ Respiratory
- ☐ Gastrointestinal
- ☐ Genitourinary

Consider Secondary Consultations

- ☐ Otolaryngology (ENT)
- ☐ Ophthalmology
- ☐ Gynecology
- ☐ Urology
- ☐ General Surgery / GI
- ☐ Respirology

These complex patients require a multidisciplinary care team. Traditionally, they are managed by dermatology, plastic surgery, and internal medicine, but consider involving additional services early in the management of a patient suspected of having TEN.

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Admission

- Admission to hospital under dermatology / medicine
  If TBSA > 5%, request bed on Burn Unit

The primary physician for patients with TEN should be an internist. Admit to Internal Medicine under Dermatology. If the total body surface area is greater than 5%, the patient is best managed in the burn unit as the nurses are familiar with large dressing changes and wound management. Contact the burn unit prior to admission to ensure they can make a bed available. Unstable or intubated patients require an ICU.

Removal of the Offending Agent

- Discontinue all current medications.

Determine the offending agent and stop it. Common agents include antibiotics, allopurinol, and anticonvulsants. 1/4th of all patients have had an exposure history without reaction. Order only necessary medications.

Fluid Resuscitation

- Target urine output of 30-50cc / hour
- Consider Foley catheter for monitoring

Increased trans-epidermal water loss and fluid resuscitation predisposes patients to fluid and electrolyte imbalances. Monitor vitals, urine output, serum electrolyte values, and renal function closely.

Supportive Care

The care of a TEN patient is largely supportive.

Nutrition

- Start feeds and consult dietician

Consult a dietician for nutrition. Many of these patients have oral involvement, or may be intubated, and may require a nasogastric tube. Patients are hypermetabolic and require extra calories. Only use TPN if absolutely necessary.

Wound Care

- Initiate wound care immediately

- Do NOT debride wounds
- Gently remove ALREADY SLOUGHED skin.
- Face: Apply Mepitel® and saline-soaked gauze. Change the gauze daily; keep moist.
- Body and extremities: Apply Ergotol (Restore). Change every 3 days, or double layer and change q7d. Prevent drying out.
- Oral: Normal saline rinses
- Ocular: Artificial tears

Wound care is imperative to prevent infection and patient comfort.

Do not use Acticoat® on the face - it stains. Ensure Intrasite Gel® is removed gently with Acticoat® during dressing changes to reduce trauma to wounds. Avoid changing or checking wounds too frequently (recommended q3days).

Swab suspicious wounds.

Oral, ocular, perineal, GI, and respiratory wound care should as be per their respective services.

Environment

- Warm room (>28ºC) & contact precautions

Room temperatures should be 28-30ºC or use body warmers to prevent excessive caloric expenditure due to body heat loss. Sterile handling during dressing changes and reverse-isolation procedures have shown benefit.

Allied Health Involvement

- Consult Occupational Therapy and Physiotherapy

Involving physiotherapy and occupational therapy specialists is important. Patients may require custom resting splints for positioning during the acute phase of TEN to prevent stiffness or contractures, or require assistance with maintaining mobility.

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Adjuvant Medications

Consider cyclosporin.
Avoid steroids.
Antibiotics only if clinical signs of infection

Dermatology will manage treatment medications for TEN. In our study, cyclosporin has shown benefits (starting dose 5mg/kg). The literature favours cyclosporin over IVIG. The number one cause of death is infection. All wounds will become colonized in hospital environment but not necessarily infected. Avoid antibiotics until there are clinical signs of infection.

Calculate ScorTEN (at presentation)

- ☐ Age > 40 years
- ☐ Malignancy
- ☐ TBSA > 10%
- ☐ Heart Rate >120bpm
- ☐ Serum Urea (BUN) > 28mg/dl
- ☐ Serum glucose >250 mg/dl
- ☐ Serum bicarbonate <20 meq/L

Total: _____ / out of 7

SCORTEN is a validated tool that helps predict mortality in patients suspected of having TEN.

It should be calculated on ALL patients as close to the time of presentation as possible. 1 point is given for each risk factor.

Investigations for a patient suspected of TEN include routine hematologic and electrolyte profile, chest xray, and electrocardiogram.

Risk Factors	*Mortality*
0-1	*3%*
2	*12%*
3	*35%*
4	*58%*
+5	*90%*

Active Management and Reassessment

- ☐ Plan for frequent reassessment

SJS/TENS patients' clinical status can progress rapidly over hours to days. These patients require regular, comprehensive assessments, and should be re-evaluated frequently for changes.

Disposition

Education regarding future trigger avoidance
Long-term sequelae addressed and follow-up provided.

Long-term sequelae of TEN include dermatologic complications such as scarring, alopecia, and pigmentation; ocular complications such as dry eyes, trichiasis, and corneal scarring; rheumatologic complications such as Sicca syndrome; and pulmonary complications such as chronic bronchitis/bronchiolitis. Appropriate follow-up and education to avoid potential triggers is important for TEN patients.

Background Information:

Toxic Epidermal Necrolysis (TEN) is a severe cutaneous reaction to drugs or their metabolites with multisystem involvement. Pathogenesis is largely unknown, but involves an inappropriate immune response leading to apoptosis of keratinocytes causing separation at the dermoepidermal junction. This results in bullae and epidermal sloughing on any surface. The reaction can occur in all age groups but is most commonly seen in the setting of immunosuppression (HIV, SLE, Collagen Vascular Disease, and malignancy). It is advocated that patients with TEN be treated in major burn centers with support of vital organs, dressing care and infection prevention during the process of re-epithelialization. Management of these patients usually requires a large team of physicians in the areas of dermatology, plastic surgery, ophthalmology, otolaryngology, intensive care, infectious disease, anesthesia, urology, and gynecology. It also requires the support of dieticians, occupational therapists and physiotherapists.