

# EM CASE OF THE WEEK.

BROWARD HEALTH MEDICAL CENTER  
DEPARTMENT OF EMERGENCY MEDICINE



Care Warriors

Author: Zaid Sheikh | Editor: Dr. Rita Zeidan DO PGY1

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## Toxic Shock Syndrome

A 32-year-old woman presents to the emergency department with complaints of fever, chills, headache, muscle aches, and shortness of breath over the past 48 hours. Two weeks before her symptoms, she had an uncomplicated vaginal delivery at term. She has no significant past medical history. No one else at home has been recently sick or traveled outside the country. On physical exam she is toxic appearing with a temperature of 103.1°F (39.5°C). Her pulse rate is 132 bpm and her BP is 100/60 mmHg with a respiratory rate of 34 breaths/minute. A diffuse erythematous rash is noted on the upper and lower extremities. Breath sounds are diminished at the bases.

Laboratory Results are as follows:

Platelets: 55,000/ $\mu$ L  
Leukocytes: 9,5000/ $\mu$ L  
Bands: 30 %

Which of the following is the most likely diagnosis?

- A. Meningococemia
- B. Rocky Mountain Spotted Fever



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Macular Erythema in TSS



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Desquamation in TSS

*EM Case of the Week is a weekly "pop quiz" for ED staff.*

The goal is to educate all ED personnel by sharing common pearls and pitfalls involving the care of ED patients. We intend on providing better patient care through better education for our nurses and staff.

BROWARD HEALTH MEDICAL CENTER

Department of Emergency Medicine  
1625 SE 3rd Avenue  
Fort Lauderdale, FL 33316

The correct answer is E. The clinical symptoms of TSS develop rapidly and include fever, diffuse myalgias, vomiting, profuse diarrhea, hypotension, and a diffuse macular erythroderma similar to sunburn.

- A. Skin findings would include petechial rash initially. Patients would also have fever, nausea, vomiting, and meningeal signs.
- B. Skin findings would be petechial.
- C. Primarily occurs in children. Rash is described as fine pink blanching papules that can quickly evolve to a sandpaper like texture.
- D. Severe reaction to certain medications and infections. Skin findings are mucocutaneous erythematous and purpuric macules that progress to necrosis and sloughing of the epidermis.

#### Discussion

*Toxic shock syndrome (TSS) is an exotoxin-mediated illness caused by bacterial infection. Organisms commonly responsible include group A streptococcus (*Streptococcus pyogenes*), or methicillin-sensitive (MSSA) or methicillin-resistant (MRSA) *Staphylococcus aureus*.*

*Staphylococcal TSS can be split into 2 groups: menstrual TSS, which occurs in women during menstruation with extended use of a single tampon or, historically, with highly absorbable tampons; and nonmenstrual TSS, which can result from a variety of staphylococcal postpartum vaginal and cesarean wound infections.*



<https://www.primehealthchannel.com/toxic-shock->

#### Treatment

The three mainstays of management include:

#### 1. Treatment of shock

#### 2. Surgical Debridement (if warranted)

#### 3. Antibiotic therapy

1. May require extensive fluid replacement to replace fluid loss in capillary leak and to maintain adequate blood pressure. Vasopressors may also be needed
2. Any foci of infection should be drained and packing removed.
3. Empiric Therapy:
  - a. **Vacomylin**- adults: 15 to 20 mg/kg/dose intravenously [IV] every 8 to 12 hours, not to exceed 2 g per dose
  - b. **Clindamycin**- adults: 900 mg IV every eight hours
  - c. Combination drug containing a penicillin plus beta-lactamase inhibitor or Carbapenam

For a list of educational lectures, grand rounds, workshops, and didactics please visit [BrowardER.com](http://BrowardER.com) and **click** on the **"Conference"** link.

*All are welcome to attend!*

## Clinical criteria for staphylococcal toxic shock syndrome

**Fever:** Temperature  $\geq 38.9^{\circ}\text{C}$  ( $102.0^{\circ}\text{F}$ )

**Rash:** Diffuse macular erythroderma

**Desquamation:** 1 to 2 weeks after onset of rash

**Hypotension:** For adults: systolic blood pressure  $\leq 90$  mmHg; for children  $<16$  years of age: systolic blood pressure less than 5<sup>th</sup> percentile by age

**Multisystem involvement** (3 or more of the following organ systems):

- **Gastrointestinal:** Vomiting or diarrhea at onset of illness
- **Muscular:** Severe myalgia or creatine phosphokinase elevation  $>2$  times the upper limit of normal
- **Mucous membranes:** Vaginal, oropharyngeal, or conjunctival hyperemia
- **Renal:** Blood urea nitrogen or serum creatinine  $>2$  times the upper limit of normal or pyuria ( $>5$  leukocytes/high-power field) in the absence of urinary tract infection
- **Hepatic:** Bilirubin or transaminases  $>2$  times the upper limit of normal
- **Hematologic:** Platelets  $<100,000/\text{microL}$
- **Central nervous system:** Disorientation or alterations in consciousness without focal neurologic signs when fever and hypotension are absent



### ABOUT THE AUTHOR

This month's case was written by Zaid Sheikh. Zaid is a 4<sup>th</sup> year medical student from FIU HWCOM. He did his emergency medicine rotation at BHMC in December 2018. Rochelle plans on pursuing a career in Pediatrics after graduation.

### REFERENCES

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## Take Home Points

- Staphylococcal toxic shock syndrome (TSS) is a clinical illness characterized by rapid onset of fever, rash, hypotension, and multiorgan system involvement.
- Management of staphylococcal TSS includes treatment of shock, surgical debridement (if warranted), and antibiotic therapy.
- TSS should be treated with combination antibiotic therapy including an anti-staphylococcal agent and an antibiotic that suppresses protein synthesis such as clindamycin.