SHOCKINGLY DEADLY! STREPTOCOCCAL TOXIC SHOCK SYNDROME

Amanda Hersh, D.O., Chris Stacy, M.D., Keith Norton, M.D.
Department of Pathology and Anatomical Sciences, University of Missouri
Office of the Chief Medical Examiner of Boone/Callaway, Columbia, MO 65212, USA

INTRODUCTION

We present the case of a 98-year-old woman with a medical history significant for severe dementia, hypertension, hypothyroidism, and stasis dermatitis secondary to severe peripheral vascular disease who was found in an altered mental state at a nursing home. Earlier that morning, she had been in her normal state of health. The staff notes that she now has increasing shortness of breath, a fever of 101.4 F, and difficulty maintaining oxygen saturations above 90%. A chest x-ray revealed perihilar and interstitial infiltrates with hypoxemia in absence of cardiac failure or diffuse capillary leak with generalized edema, pleural effusions with hypoalbuminemia. Generalized erythematous macular rash that may desquamate. We present the case of a 98-year-old woman with a medical history significant for severe dementia, hypertension, hypothyroidism, and stasis dermatitis secondary to severe peripheral vascular disease who was found in an altered mental state at a nursing home. Earlier that morning, she had been in her normal state of health. The staff notes that she now has increasing shortness of breath, a fever of 101.4 F, and difficulty maintaining oxygen saturations above 90%. A chest x-ray revealed perihilar and interstitial infiltrates with hypoxemia in absence of cardiac failure or diffuse capillary leak with generalized edema, pleural effusions with hypoalbuminemia. Generalized erythematous macular rash that may desquamate.

AUTOPSY FINDINGS

Cardiovascular System
- Aorta: Moderate-to-severe calcific atherosclerosis at the distal aorta extending into the bifurcation
- Coronary arteries: Mild atherosclerosis of all coronary arteries (>40%)
- Cardiomyopathy (420 gm)

Respiratory System
- Bilateral pleural effusions (Right 200 mL, Left 100 mL)
- Mural pulmonary oedema (Right 520 gm, Left 530 gm)

Gastrointestinal System
- Kidneys: Arteriolonephrosclerosis, disseminated petechial cortical hematomas, atrophic renal parenchyma
- Bladder: Thickened, trabeculated wall with focally erythematous mucosa

Hepatobiliary System
- Congestive hepatopathy (mutilar liver growth)
- Gallbladder distension with biliary sludge

Lower Extremities
- Severe stasis dermatitis with multiple intact and ruptured serous bullae
- Right upper extremity: Subcutaneous edema with erythema from fingertips to middle portion of upper arm, serous bullae, ecchymosis of upper lateral arm
- Right upper extremity: Healing abrasion of upper lateral arm, ecchymosis of external surface of posterior lower arm

In our opinion, the cause of death is Streptococcal Toxic Shock Syndrome with contributing factors of moderate-to-severe atherosclerosis of the distal abdominal aorta leading to peripheral vascular disease, severe stasis dermatitis, and chronic, poorly healing wounds.

CAUSE OF DEATH

According to the World Health Organization, approximately 18.1 million people currently suffer from serious Group A Streptococcal (GAS) disease, another 1.78 million new cases occur each year, and these diseases are responsible for more than 500,000 deaths each year. Streptococcal Toxic Shock Syndrome (STSS) was first identified in the late 1980s. It is a severe illness that is associated with Group A Streptococcus (Streptococcus pyogenes) and is typically associated with an infection of cutaneous lesions. Individuals with STSS have signs of toxicity with a rapidly progressive clinical course. The Center for Disease Control estimates a fatality rate that likely exceeds 50%, even with aggressive clinical management. Per “Up-to-date,” it is estimated that the prevalence rates in the elderly population are 9.3 cases per 100,000 people. STSS is a Category III reportable disease that must be reported to the local public health agencies within three days of diagnosis or suspicion.

DISCUSSION

STSS is a severe illness that is associated with Group A Streptococcus (Streptococcus pyogenes) and is typically associated with an infection of cutaneous lesions. Individuals with STSS have signs of toxicity with a rapidly progressive clinical course. The Center for Disease Control estimates a fatality rate that likely exceeds 50%, even with aggressive clinical management. Per “Up-to-date,” it is estimated that the prevalence rates in the elderly population are 9.3 cases per 100,000 people. STSS is a Category III reportable disease that must be reported to the local public health agencies within three days of diagnosis or suspicion.