

BEYOND CELLULITIS – STREPTOCOCCAL TOXIC SHOCK SYNDROME

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Introduction

Streptococcal Toxic Shock Syndrome is a severe, rapidly progressive necrotizing soft tissue infection (NSTI) with features distinct from classic purulent NSTIs that challenges prompt diagnosis and treatment initiation. In this case, we report a patient who presents with flank pain with no initial skin findings that ultimately developed severe sepsis with multiorgan failure syndrome due to this disease.

Case Report

A middle-aged male patient with no pertinent past medical history presented to the emergency department with approximately 24 hours of right-sided chest pain. He initially presented to urgent care and was diagnosed with an upper respiratory tract infection and was prescribed antibiotics and corticosteroids. He developed worsening pain in his right flank and now including his right chest region, prompting presentation to the emergency department. His exam was initially unremarkable, with normal cardiopulmonary examination, benign abdominal exam, and no external skin findings.

Initial laboratory evaluation revealed marked leukocytosis, renal failure, and severe lactic acidosis. A chest x-ray was clear. Computed Tomography of the chest, abdomen, and pelvis without intravenous contrast enhancement revealed edema and soft tissue stranding of the right abdominal wall and right chest wall without focal fluid collection (*Figure 1*). A presumptive diagnosis of severe sepsis with renal failure was made, and broad-spectrum antibiotics were administered. Several hours after admission, he had persistent hypotension requiring escalating doses of vasopressors, as well as respiratory failure requiring intubation.

He developed ecchymosis to the flank and right chest regions (*Figure 2*) which began with hemorrhagic bullae with epidermal sloughing. He was taken to the operating room emergently for debridement, where necrotic tissue was observed and taken for culture. Group A Streptococcal species were isolated. Antibiotics were tailored, and he was given IVIG. After a course of multiorgan failure, he has made significant organ recovery.

Discussion

In this case, sepsis as an entity was recognized with treatment initiated promptly; however, without features of NSTI there existed a brief delay in administration of antibiotics with antitoxin activity – namely clindamycin, though also considered is linezolid. For severe cases, IVIG has been considered and was administered in this case, though literature is lacking².

Toxin-mediated necrosis may present atypically, with delayed diagnosis resulting in a case fatality rate of over 50%. Toxicity portends a higher mortality than would occur staphylococcal species¹. Guidelines for diagnosis were only recently published by the CDC, making clinical indices less established².

Conclusion

This case describes a severe necrotizing soft tissue infection presenting with organ dysfunction in the absence of any cutaneous findings on exam. The spectrum of illness should be considered in patients with sepsis and early multiorgan failure out of proportion to localizing infectious processes.

References

1. Stevens DL, Bryant AE. Severe group A streptococcal infections. In Ferretti JJ, Stevens DL, Fischetti VA, editors. *Streptococcus pyogenes: Basic biology to clinical manifestations*. Oklahoma City (OK). University of Oklahoma Health Sciences Center. 2022.
2. Farkas J. Toxic shock syndrome (TSS). EMCrit Project. <https://emcrit.org/ibcc/tss/>. Published November 15, 2022.

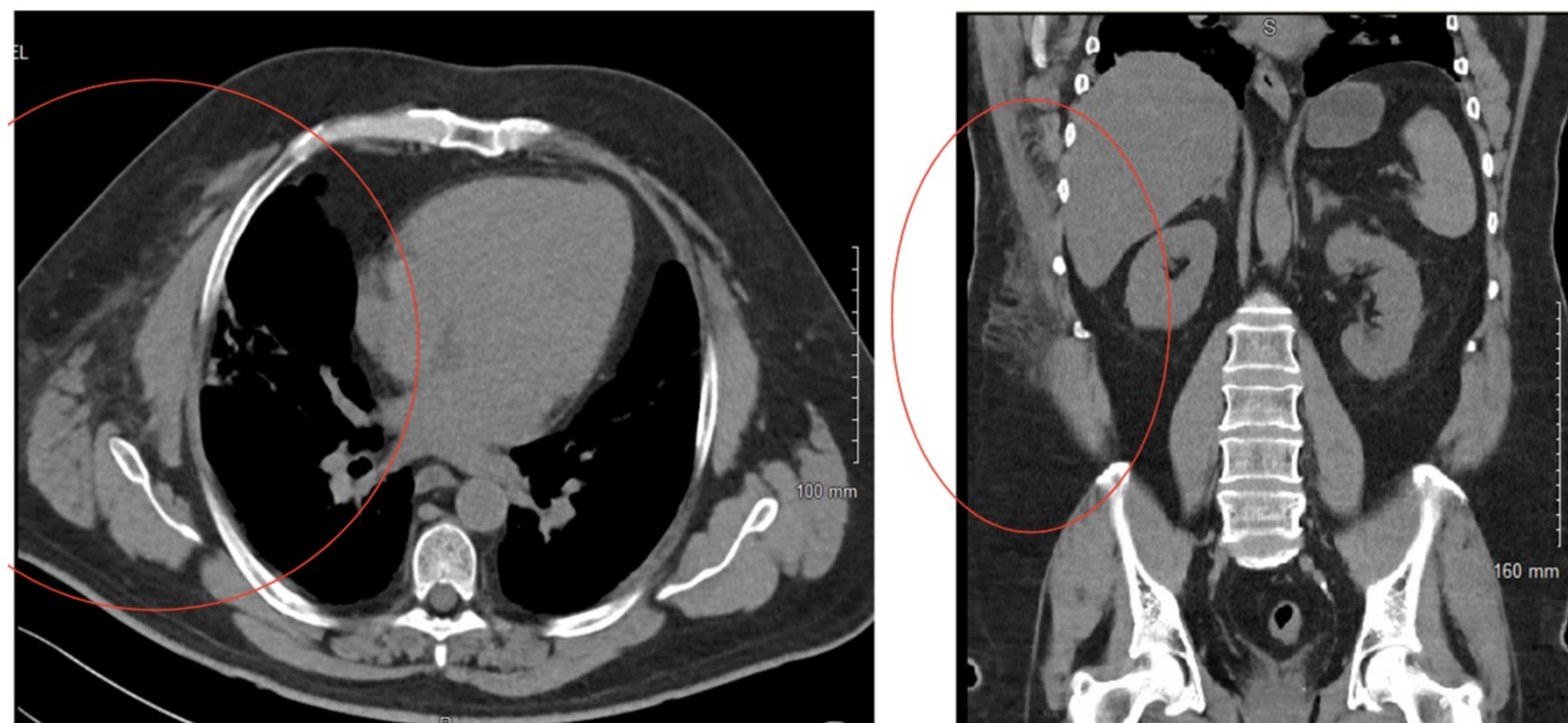


Figure 1. Sagittal and coronal views of CT imaging demonstrating local soft tissue edema.



Figure 2. Developing ecchymosis to the chest and abdominal wall.