A Life-Threatening Infection In The Cardiac Intensive Care Unit: When A Broken Heart Gives You A Rash

Anirudh Kumar, Nishant P. Shah, Alok Vij, John R. Bartholomew, Bernard J. Silver, Thomas G. Fraser, Carmela D. Tan, E. Rene Rodriguez, Venu Menon, A. Michael Lincoff, Steven E. Nissen

Introduction: Purpura fulminans (PF) is a hematologic emergency that can occur in the setting of severe septic shock. It is an uncommon and severe manifestation of disseminated intravascular coagulation (DIC) in which multiple coagulation factors are consumed, including the endogenous inhibitors antithrombin and protein C (PC).

Case: A 30-year-old female with a history of treatment-naïve Hepatitis C and intravenous drug abuse that was complicated by methicillin-resistant Staphylococcus aureus (MRSA) tricuspid valve (TV) endocarditis status post bioprosthetic TV replacement presented with altered mental status. She was febrile, hypotensive, and tachycardic on presentation. Admission blood cultures grew MRSA. Electrocardiogram revealed sinus tachycardia with rightward axis deviation and right atrial enlargement. Transesophageal echocardiogram demonstrated severely thickened TV leaflets with severe stenosis and a large mobile echodensity consistent with vegetation. Chest CT demonstrated subpleural nodules. She stabilized however subsequently developed large purpuric plaques with central bulla formation throughout her distal extremities. Further work-up noted depressed function of PC, Protein S, and antithrombin. This constellation of findings was consistent with DIC and PF. Intravenous human PC concentrate was initiated and her purpuric plaques rapidly resolved (Figure). Operative findings noted an obstructive vegetation involving all three TV leaflets with an abscess cavity around the annulus. She underwent a bioprosthetic TV replacement and was discharged to a skilled nursing facility after completion of ceftaroline for six weeks.

Conclusion: In this case report, we describe the first patient with PF secondary to MRSA endocarditis who was successfully treated with PC concentrate and surgical valve replacement. Future studies to determine whether administration of PC concentrate can reduce mortality in this setting are indicated.

Figure 1. Skin lesions (A) before and (B) after receipt of protein C concentrate.