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A Case of Diffuse Ischemic Limb Gangrene with Palpable Pulses in a Patient with Septic Shock

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Abstract

It is widely believed that ischemic limb gangrene is sequelae of arterial thrombosis or thromboembolism. In patients with severe sepsis, there is widespread activation of acute systemic inflammatory response. This can activate the coagulation cascade in the smaller vessels, therefore the pulse may still be palpable but patients may have ischemic injury due to vasoconstriction. Sepsis is also known to be associated with disseminated intravascular coagulation (DIC) because of hypercoagulable state and subsequent consumption of platelets and coagulation proteins.

Patient was in profound septic shock with focal tissue hypoperfusion secondary to arterial vasoconstriction. He was aggressively hydrated and started on Piperacillin/Tazobactam for gram negatives, Linezolid for gram positives, Metronidazole for anaerobes, and Clindamycin for anti-toxin effect. Arterial and venous ultrasound doppler of extremities showed multiphasic flow in proximal vessels, and distal vessels. His purpuric rash progressed to gangrene on both of his digits on his hands and feet. CT abdomen showed colitis in the left colon and patient was taken to operating room. He had a left colon sigmoid resection with an end colostomy and Hartmann's pouch. Eventually patient started to improve with hydration, pressor support and antibiotics and was discharged to subacute rehab.

Keywords: Sepsis; Gangrene; Ischemic limb

Introduction

It is widely agreed upon that overwhelming inflammatory host response is the cause of these life threatening hemodynamic complications. Some cases of symmetrical peripheral gangrene due to sepsis with high mortality rates (30%) have been managed in the past [1,2].

Case Report

A 58-year-old male presented with fever, chills and weakness for the past week. Vital signs showed temperature of 39°C, blood pressure of 110/60 mmHg, heart rate of 115 beats per minute. On physical exam patient appeared nontoxic, but had diffuse reticular discoloration on his hands, abdomen and lower legs. Hands and legs below knee were cold on palpation although patient had +1 dorsalis pedis pulses bilaterally. CBC was remarkable for WBC of 30,000 per uL, hemoglobin of 12 g/dL, platelets of 30,000 per uL. CMP was remarkable for BUN of 80 mg/dL and creatinine of 6 mg/dL. Anion gap of 31 with lactate level of 6.6 mmol/L. Chest X-ray, urine analysis and blood cultures were negative. Patient was ruled out for TTP and DIC.

Gangrene from ischemia secondary to arterial vasoconstriction is a rare complication from septic shock. In addition to arterial vasoconstriction there is likely some component of thrombosis in the microvessels that leads to this condition [3,4]. Some studies have shown intravenous vasodilators such as nitroglycerin and nitroprusside to be beneficial [4,5]. In severe cases, amputation of the gangrenous limb is the last resort. However, few studies have shown that Ceptrotin seems to be an effective and therapeutic option in patients with DIC and purpura fulminans [5]. In one particular study, patients with a poor prognosis responded well to Ceptrotin therapy [4,5]. In that similar study, no haemorrhage or thrombotic events were noted after the initiation of Ceptrotin therapy [5]. Hence, we strongly urge the need for a standardized protocol in further studies on the treatment with Ceptrotin in sepsis-induced coagulopathy. Certain criteria and algorithms should be developed for the use of Ceptrotin in order to appropriately treat patients.

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