

**ABSTRACT****A Cloud on the Horizon – A Deadly Complication of Norepinephrine**Farzana Hoque<sup>1</sup><sup>1</sup>Department of Medicine, Saint Louis University, St. Louis, MO 63103Corresponding author: Farzana Hoque, MD. [Farzana.hoque@health.slu.edu](mailto:Farzana.hoque@health.slu.edu)

Winner at ACP MO Chapter 2019 (not peer-reviewed or edited by this Journal)

*Am J Hosp Med* 2020 Jan;4(1):2020.004 <https://doi.org/10.24150/ajhm/2020.004>**INTRODUCTION**

Symmetrical peripheral gangrene is a life-threatening complication of norepinephrine which is associated with a high mortality rate (up to 40%). It presents as bilateral distal limb gangrene without evidence of large-vessel obstruction or vasculitis.

**CASE**

A 32-year-old white man with no past medical history presented with fever (temperature 38.4C) and malaise for 2 days. He had no history of smoking, illicit drug use, diabetes, peripheral vascular disease, and connective tissue disease. Soon after admission, he became hemodynamically unstable. Then, intravascular fluid, broad-spectrum antibiotics, and norepinephrine (NE) were started. Panculture was unremarkable. 1 day later, he was hemodynamically stable, and NE was discontinued. After 2 days, he complained of severe pain in all toes. Physical examination showed bluish-black discoloration of several toes of both feet. The digits were cold with no capillary refill. Peripheral pulses were palpable symmetrically on both upper and lower extremities. Labs revealed normal complete metabolic and coagulation panel. Extensive workup for infectious disease, vasculitis, and hypercoagulability was non-significant. Transesophageal echo and CT

angiography were negative. Local wound care including interdigital padding and avoidance of pressure was implemented. Over the next few days, he developed well-demarcated bilateral digital gangrene of lower extremities which resulted in auto-amputation of the right big toe. Eventually, he underwent surgical amputation of left 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> toes, and right 3<sup>rd</sup> and 4<sup>th</sup> toes.

**DISCUSSION**

Peripheral gangrene can be precipitated by DIC, diabetes, peripheral vascular disease, malignancy, and vasculitis. Norepinephrine, particularly high dose, increases the risk of extreme vasoconstriction which can lead to tissue hypoperfusion and necrosis. Norepinephrine induced peripheral gangrene can even be caused by the recommended dosage level. The gangrene is usually bilateral, symmetrical and initially affects fingers and toes. The discoloration progressively worsens to dry gangrene in 48-72 hours with the formation of a clear demarcation line in about 1-2 weeks. Symmetrical peripheral gangrene must be highly suspected for the patients with recent vasopressor exposure and complaints of marked coldness, cyanosis or pain in extremities. It is imperative to have early discussion with the patient and the family regarding potential outcomes like amputation as up to 70% of patients had to undergo

amputation. This case emphasizes the importance of early identification of this atypical but fatal complication to start prompt treatment with a multidisciplinary approach to reduce these patients' mortality and multiple limb amputations in those who survive.

#### References

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