



Left Guillotine Below Knee Amputation in Setting of Novel Coronavirus and Diabetes: A Case Report

Rahul Koya DO, Brandon Maisel Ramos, DO, Susan Stickevers, MD
Department of Orthopedic Surgery & Rehabilitation Medicine, SUNY Downstate Medical Center, Brooklyn, NY



Case Description

A 47 year-old female with a past medical history significant for diabetes mellitus presented to acute inpatient rehabilitation status post left transtatarsal amputation and ultimately left below knee amputation. The patient's initial presentation was complicated by coronavirus (COVID-19) which further exacerbated the patient's glucose control. Initial evaluation was performed by vascular surgery for management of acute osteomyelitis and gas gangrene of the left foot. On standard screening, the patient tested positive for COVID-19. Following the initial transtatarsal amputation and course of intravenous antibiotics, the patient continued to be febrile with leukocytosis, worsening renal failure, and diarrhea, with markedly elevated C-reactive protein. Patient subsequently underwent a left guillotine below knee amputation. After physiatric evaluation, the patient was admitted to acute rehabilitation, and eventually discharged with a rolling walker, wheelchair, commode, and tub bench.



Assessment/Results

The patient had uncontrolled diabetes, evident by a hemoglobin A1C of 11.9%. Initial white blood cell count was 24,000 cells/liter with 8.8% lymphocytes, suggesting lymphopenia. In addition, the patient's creatinine continued to rise to 2.2 mg/dL, despite intravenous fluid hydration. Acute phase reactants, such as C-reactive protein, were found to be elevated as well, to 334 mg/L. X-ray imaging of the patient's left lower extremity continued to show signs of persistent osteomyelitis, prompting further intervention.

Discussion

The relationship between uncontrolled diabetes and foot ulcers is well known. The effect of COVID-19 on diabetic control is not well understood. Preliminary data suggests diabetes is a significant risk factor for COVID-19 as well as a predictor of severity of illness. As such, our patient may have progressed to a below knee amputation due the action of COVID-19 on glycemic control and overall immunocompetency. The patient's COVID-19 status further complicated the rehabilitative process due to poor stamina and generalized fatigue. Acute in-patient rehabilitation was necessary in order to provide the patient with appropriate therapy while monitoring oxygen saturation and lab markers. Further studies regarding COVID-19 in diabetic patients can help elucidate the dynamic between the two diseases.

Conclusion

COVID-19 infection in diabetic patients may have effects on glycemic control, subsequently leading to exacerbation of pre-existing foot ulcers, such as in the patient described in this case. A better understanding of the relationship between COVID-19 and diabetes may provide insight into how to prevent worsening of diabetic complications, including foot osteomyelitis.

References

- 1) Meloni M, Izzo V, Giurato L, et al. Management of diabetic persons with foot ulceration during COVID-19 health care emergency: Effectiveness of a new triage pathway. *Diabetes Research and Clinical Practice*. 2020;165. doi:10.1016/j.diabres.2020.108245.
- 2) Singh AK, Gupta R, Ghosh A, et al. Diabetes in COVID-19: Prevalence, pathophysiology, prognosis and practical considerations. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*. 2020;14(4):303-310 doi:10.1016/j.dsx.2020.04.004.
- 3) Peric S, Stulnig T. Diabetes and COVID-19. *Wien Klin Wochenschr* (2020);132:356–361 doi:10.1007/s00508-020-01672-3.