

## History of Present Illness

CC: shortness of breath

48-year-old man history of hypertension and HIV, unknown CD4 count, brought in by EMS for shortness of breath. Patient states that he became short of breath just prior to arrival. Patient is awake and alert, but confused and has difficulty answering many questions.

As an IV is being placed, the patient apologizes that his arm keeps on moving. He states that he is short of breath because he has not been able to stop his arm from moving for 3 hours.

## Physical Exam

Vitals: BP 114/71 HR 92 RR 20 T 36.9C

General: oriented to person and place, NAD

CV: nl s1s2, RRR, no MRG

Resp: tachypneic, CTAB

Abd: SNDNT

Neuro: intermittent flinging of right upper extremity, CN II-XII intact, normal strength and sensation.

## Labs

POC Glucose >600

VBG pH 7.60, pCO<sub>2</sub> 21, HCO<sub>3</sub> 20.6, BE 1.0

CBC: WBC 5.21, Hgb 12.9, Hct 40.5, Plt 41

BMP: Na 116, K 4.1, Cl 78, CO<sub>2</sub> 19, BUN 14,

Cr 0.8, Glu 1,397

Osmolality 327

## Questions

1. What is the differential diagnosis of the rash?
2. Why is the patient flinging his right arm?

## Answers

1. Secondary syphilis, pityriasis rosea, lichen planus, guttate psoriasis, rocky mountain spotted fever
2. The patient was clinically diagnosed with hyperglycemic hemiballismus syndrome, but we were suspicious for partial seizures.



## Case Discussion

The patient's rash, in the setting of HIV, was immediately suspicious for secondary syphilis. In the morning, the patient's RPR and FTA-ABS were positive. The patient had no recollection of a chancre and thought he had the pictured rash for a long time. Infectious disease saw the patient in the morning and felt this was residual hyperpigmentation from a previous rash associated with secondary syphilis. Because the rash was no longer pink or violaceous, typical of secondary syphilis, he was deemed to currently not be infectious. Because the patient did not know when he was infected or started having the rash, he was treated as late latent syphilis with 3 weekly doses of penicillin G benzathine.

Because of the patient's unmanaged HIV and syphilis, we had a broad differential for the cause of the patient's hemiballismus. The patient denied any personal or family history of epilepsy. Because of his history of HIV we considered the possibility of seizures caused by an intracranial infection such as, toxoplasma, cryptococcus, and herpes encephalitis. Other potential causes included CNS lymphoma and progressive multifocal leukoencephalopathy. We also considered that the patient's altered mental status and involuntary motions could be due to neurosyphilis.

Early in the ED course, the patient was newly diagnosed with diabetes and found to be in a hyperosmolar hyperglycemic state. The patient's mental status and hemiballismus improved with IV hydration. CT of his head was unremarkable. At the time of admission, he was fully oriented and hemiballismus had ceased. When the patient was signed out to the ICU, we discussed that if the patient continued to have hemiballismus, change in mental status, or seizure-like activity, the above differential should be explored. Ultimately, none of these symptoms returned and he was clinically diagnosed with hyperglycemic hemiballismus syndrome. If an MRI is done there is often hyperintensity of the contralateral basal ganglia, most commonly of the putamen.

## Pearls

- Patients with fading or hyperpigmentation after the rash of secondary syphilis may need a longer course of treatment (3 doses versus 1 dose of penicillin G benzathine) than those with an active, violaceous rash.
- Keep a wide differential for those with syphilis or HIV and neurological symptoms.

## References

1. Cosentino C, et al. Hemichorea/Hemiballismus Associated with Hyperglycemia: Report of 20 Cases. *Tremor Other Hyperkinet Mov (NY)*. 2016;6:402. Published 2016 Jul 19.
2. Tintinalli, J.E., Stapczynski, J.S., Ma, O.J. et al. *Tintinalli's Emergency Medicine: A Comprehensive Study Guide*. 8th ed. McGraw-Hill Education, New York, NY; 2015.