

Visual Diagnosis in Emergency Medicine

AORTIC THROMBUS IN A CASE OF TERTIARY SYPHILIS

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INTRODUCTION

Syphilis is a sexually transmitted infection caused by the bacterium *Treponema pallidum* (1). The infection is divided into four stages: primary, secondary, latent, and tertiary (1). The primary stage consists of a round, painless lesion in or around the original site of infection (1). Secondary syphilis can include a skin rash, lymphadenopathy, and fever (1). During the latent stage, patients are typically asymptomatic (1). Lastly, tertiary syphilis is associated with severe medical problems affecting the heart and brain (1). In 2017, there was a 10.5% increase in the rate of newly reported syphilis cases when compared with the year prior (1). These recent epidemiologic trends and the following case will highlight the importance of understanding the pathophysiology and presentation of the disease in the emergency department (ED).

CASE REPORT

A 56-year-old man was brought in to the ED by ambulance for altered mental status. The patient was found in a car, where he had been for an unknown amount of time. He was last seen normal by his family approximately 24 h prior to being found. The patient had no known medical history, according to his medical record. A crack cocaine pipe was found near him in the car. Upon arrival, the patient was mumbling incoherently and following only simple commands. His vital signs

included a blood pressure of 158/87 mm Hg in his right arm, a heart rate of 120 beats/min, a temperature of 36.17°C (97.1°F), respirations of 22 breaths/min, and an oxygen saturation of 95%. He was noted to have needle marks on his arm and no signs of traumatic injury. Neurologically, he exhibited left-sided hemiparesis with

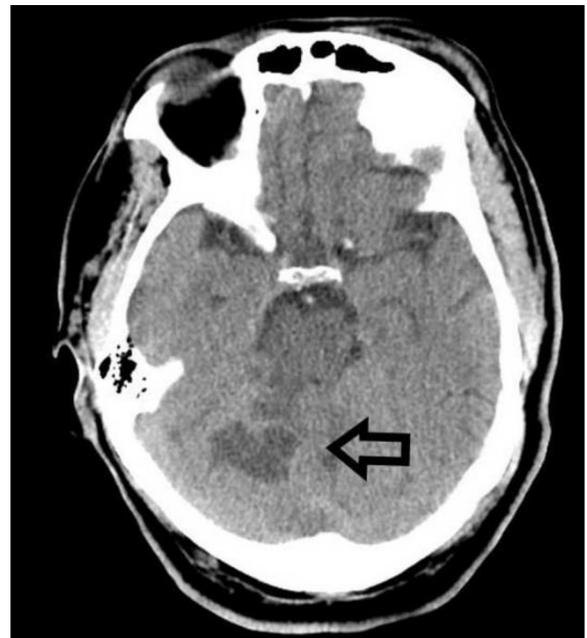


Figure 1. Computed tomographic image of the head with arrow pointing to multiple embolic infarcts.



Figure 2. Computed tomographic angiogram of the chest with arrow pointing to aortic thrombus.

a right gaze preference. He was also noted to have a significant blood pressure difference between his two upper extremities, with a blood pressure of 78/42 mm Hg in his right arm.

The patient was intubated for airway protection and taken for a computed tomography (CT) scan of his head and an angiogram of his chest. The CT of the head (Figure 1) showed an extensive acute infarction involving the brainstem and cerebellum. The CT angiogram (Figure 2) showed a mass in the proximal aortic arch, with a differential diagnosis by Radiology that included a thrombus or neoplasm. Cardiovascular Surgery, Neurology, and Neurosurgery were consulted, and the patient was started on antibiotics. He was admitted to the hospital and found to have tertiary syphilis, diagnosed by rapid plasma reagin, followed by an enzyme immunoassay. The infection resulted in an aortic thrombus that showered multiple emboli to his brain. He received penicillin treatment and was not anticoagulated out of concern for hemorrhagic cerebral conversion. He was determined to be a poor surgical candidate and he was discharged from the hospital to hospice care after a couple of weeks.

DISCUSSION

Approximately one-third of untreated syphilis patients present with tertiary syphilis after a latent period ranging from 10–30 years (2). Cardiovascular manifestations include aortic aneurysms, aortic regurgitation, coronary ostial stenosis, and aortic thrombus (2). Syphilitic aortitis is the most common manifestation of cardiovascular

syphilis and most commonly involves the ascending aorta (1). A diagnosis of syphilis requires two tests: a nontreponemal test (i.e., Venereal Disease Research Laboratory or rapid plasma reagin) and a treponemal test (i.e., fluorescent treponemal antibody absorbed test, the *T. pallidum* passive particle agglutination assay, various enzyme immunoassays, etc.) (1).

With the early and widespread use of antibiotics, tertiary syphilis is considered a very rare disease. First-line therapy for treatment of cardiovascular syphilis is benzathine penicillin, 2.4 million units intramuscularly weekly on days 1, 8, and 15 (1). An aortic thrombus is typically treated with emergent anticoagulation and cardiovascular surgery (3).

In conclusion, the above case study is a rare instance of tertiary syphilis presenting as an aortic thrombus mimicking dissection. Emergency physicians must consider a broad differential diagnosis when managing patients presenting with altered mental status.

REFERENCES

- Centers for Disease Control and Prevention (CDC). Sexually transmitted disease surveillance 2017: syphilis. Available at: <https://www.cdc.gov/std/stats17/syphilis.htm>. Accessed November 28, 2018.
- Vasudevan B, Verma R, Pragasm V, Nema S. A rare case of tertiary syphilis complicated with aortic aneurysm in this era of early use of highly effective antibiotics. *Indian J Sex Transm Dis AIDS* 2014;35: 46–8.
- Ripellino P, Mittino D, Farinelli P, et al. Multiple embolic stroke due to aortic arch floating thrombus in latent tertiary syphilis. *BMJ Case Rep* 2013;2013 <https://doi.org/10.1136/bcr-2013-200910>.