

TEE-time for First Stroke – Unusual Cause of Septic Emboli Causing Paradoxical Infarcts

J Moon, MD¹, DM Petrenko, DO¹, J Demidovich, DO¹

1. Department of Internal Medicine, Suburban Community Hospital

Introduction

Strokes are extremely debilitating neurologic conditions and is currently the leading cause of disability and the fifth leading cause of death in the United States. Specifically, cardioembolic strokes account for 14-30% of all ischemic strokes but also has the highest in-hospital mortality rate compared to other stroke etiologies. Strokes require proper workup and management as its causes are variable and can be easily missed.

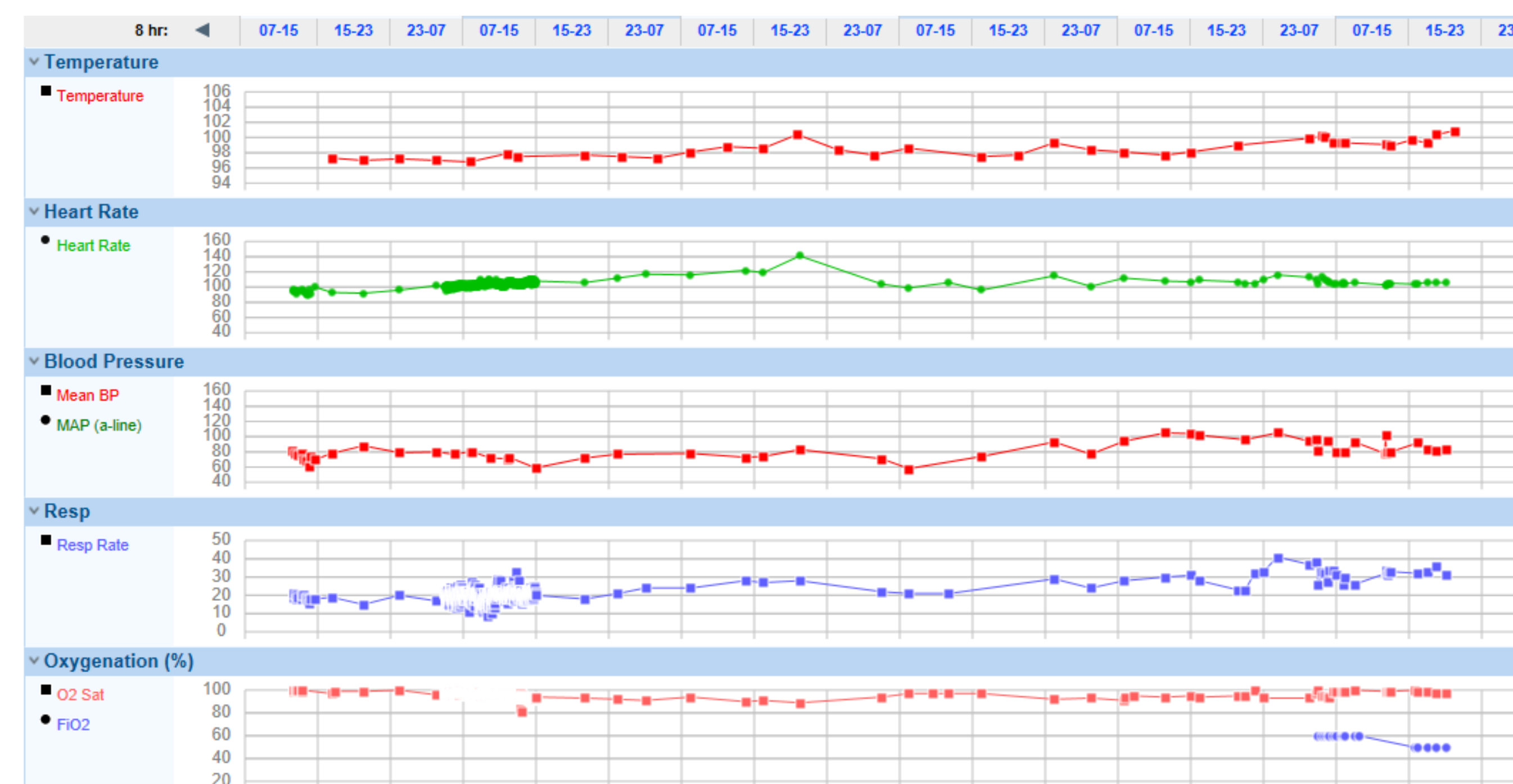
Case Report

A 55-year-old male with a PMH of psoriasis, arthritis, colon cancer with total colectomy and permacath placement for fluids, and non-alcoholic cirrhosis presented to the ER due to witnessed syncope and new-onset left sided hemiparesis. Although he presented in 3 hours, tPA was withheld due to his history of cirrhosis, thrombocytopenia, and elevated INR. The patient was admitted and evaluated for a cerebrovascular accident with an exam significant for aphasia, left-sided weakness, and an NIH score of 19. Blood cultures were also obtained.

While a CTA revealed no blockages, MRI revealed bilateral infarcts, leading to suspicion for an embolic phenomenon. TTE was unremarkable. Blood cultures were found recurrently positive for *Staphylococcus aureus* and eventually *Klebsiella* despite Vancomycin and Piperacillin/Tazobactam treatment, with his permacath likely as the source of infection. While removal of the port and TEE were planned, the patient deteriorated and required intubation.

TEE was performed, significant for multiple vegetations of the Tricuspid Valve and a Bubble study revealing an interatrial shunt, requiring transfer for Cardiosurgical evaluation.

Vitals



Imaging



Figure 1: CTA head reveals no acute occlusions

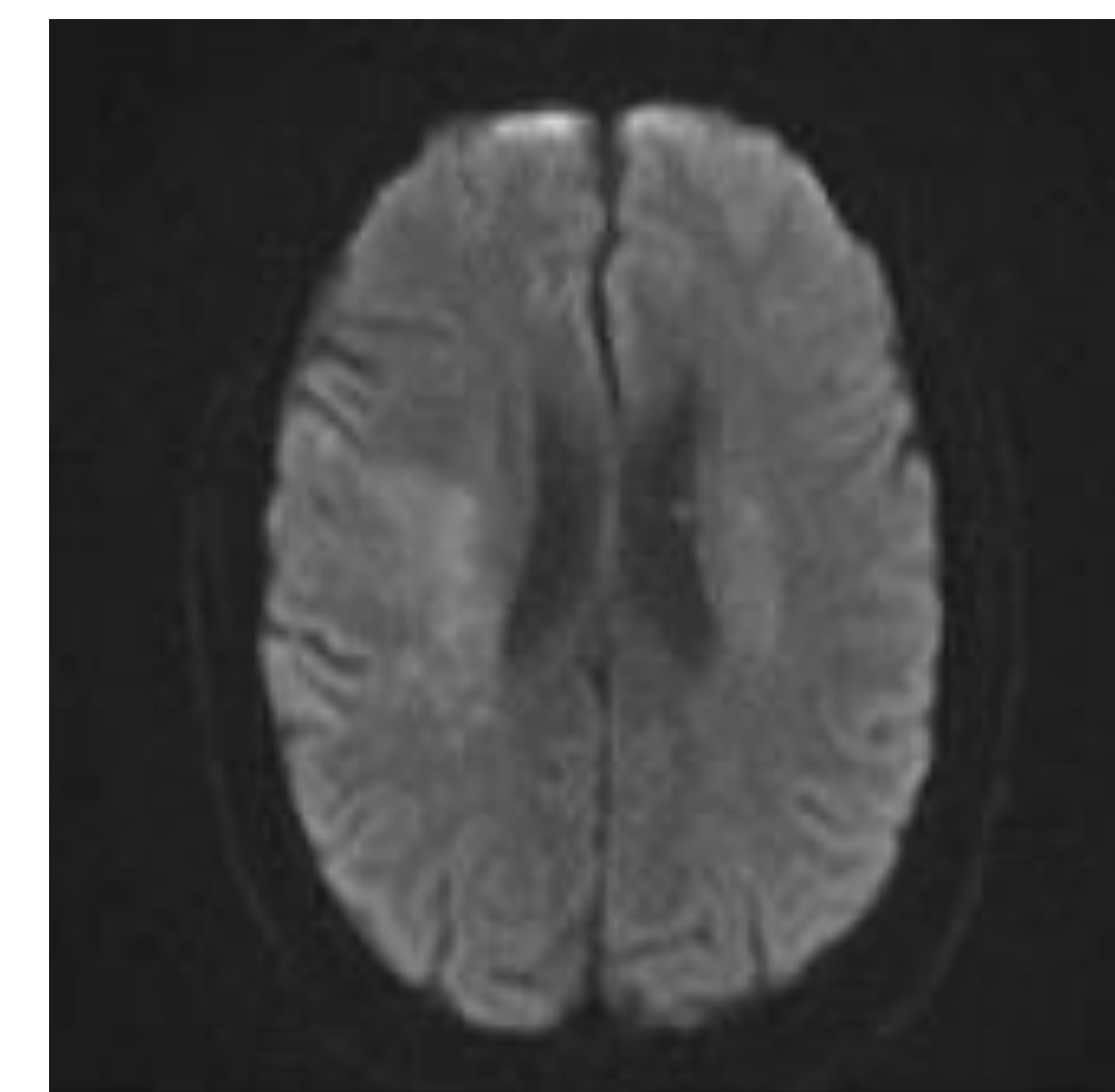


Figure 2: MRI DWI reveals bilateral infarct

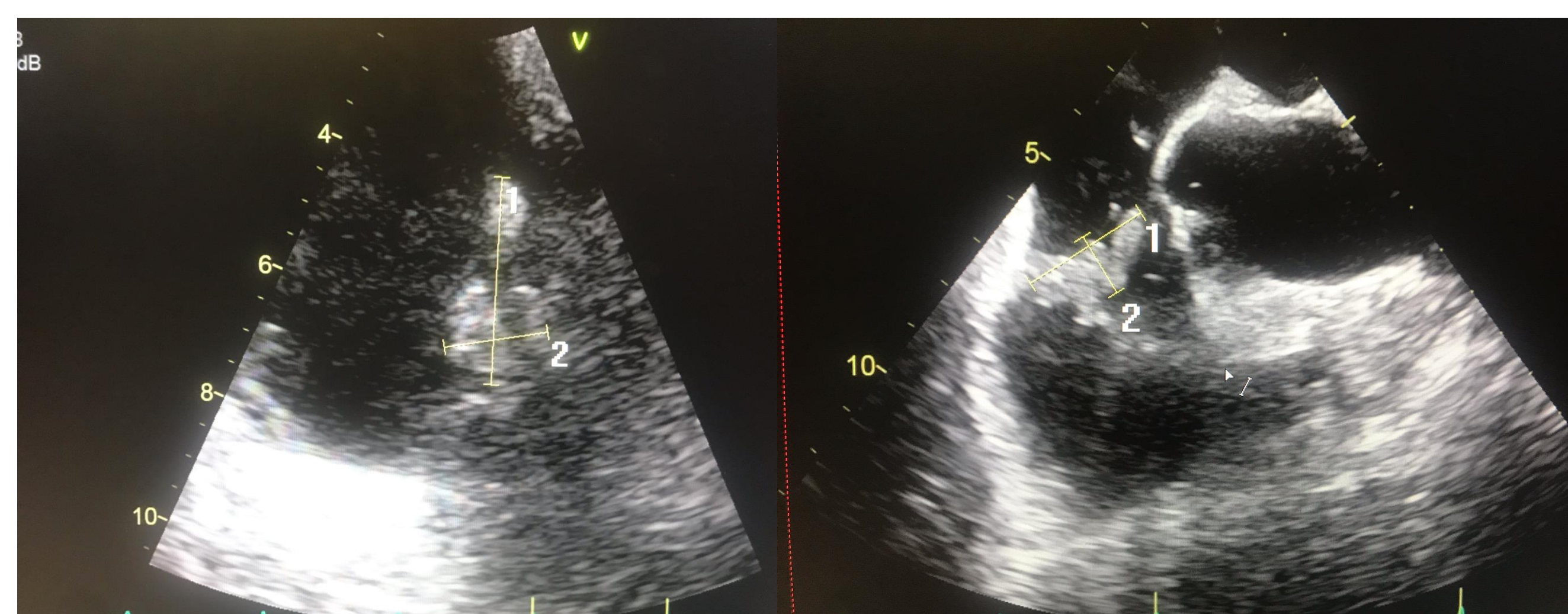


Figure 3a/3b: TEE reveals multiple Tricuspid Valve Vegetations, the largest of which measures 2.4cm x 0.9cm

Discussion

Cardioembolic strokes stem most often from a left cardiac chamber abnormalities, valvular changes, or paradoxical embolization from venous to arterial circulation. Compared to other strokes, clinical features that suggest a cardioembolic etiology are sudden onset of symptoms and altered consciousness with an odds ratio of 3.2 compared to atherothrombotic etiologies. Imaging would commonly show strokes in different arterial territories, commonly bilaterally, as was seen in our patient. Atrial fibrillation is the most common cause of cardioembolic strokes, but endocarditis, especially with those caused by *Staphylococcus aureus*, and PFOs are documented but rare causes of paradoxical infarcts.

Due to the increased risk for a repeat event, early treatment and intervention is needed. With infectious endocarditis, antibiotics and curing the pathology is the most ideal intervention. Early surgery has shown good neurological recovery but anticoagulation remains questionable. Thrombolysis is considered contraindicated due to the increased risk for hemorrhagic conversion. More research is needed for management of alternate forms of endocarditis,

Conclusion

Strokes are common but debilitating neurologic events that occur due to multiple etiologies. In patients presenting with acute onset symptoms, altered mentation, and bilateral lesions, emboli must be considered a part of the differential. In this patient's case, infectious endocarditis and PFO likely led to a paradoxical infarct requiring urgent intervention.

References

1. Yang Q, Tong X, Schieb L, et al. Vital Signs: Recent Trends in Stroke Death Rates — United States, 2000–2015. *MMWR Morb Mortal Wkly Rep* 2017;66:933–939. DOI: <http://dx.doi.org/10.15585/mmwr.mm6635e1External>.
2. Arboix, A., & Alió, J. (2010). Cardioembolic stroke: clinical features, specific cardiac disorders and prognosis. *Current cardiology reviews*, 6(3), 150–161. <https://doi.org/10.2174/157340310791658730>
3. Grecu, N., Tiu, C., Terecoasa, E., & Bajenaru, O. (2014). Endocarditis and stroke. *Maedica*, 9(4), 375–381.