Don’t Kill my Culture: Culture Negative *Streptococcus* Endocarditis

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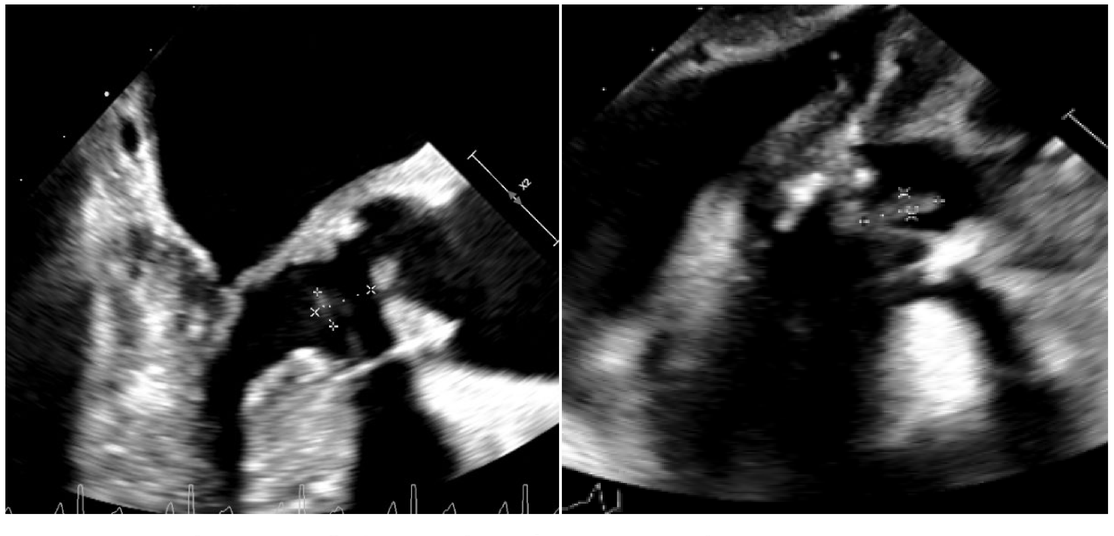
Introduction

Infective endocarditis (IE) is commonly risk stratified by the Duke Criteria. This includes pathological, major, and minor criteria which help classify IE diagnosis possibility to “definite”, “possible”, or “rejected”. Inpatient blood cultures are drawn prior to antibiotic administration, however, providers must be aware of recent outpatient therapy use, which could alter culture data.

Case Presentation

- 67-year-old male with PMH of bioprosthetic aortic valve replacement (AVR), root canal 5 months prior, 3 ischemic strokes within last 4 months, and RUE arterial thrombus on Eliquis presented with night sweats and chills with intermittent fevers. The patient was on antibiotics outpatient for suspected urinary tract infections and cellulitis (Figure 3)
- Patient presented from facility with fevers and chills with blood cultures growing *Streptoccus mutans* susceptible to penicillin MIC < 0.06
- Transesophageal echocardiogram (TEE) this presentation showed mild transvalvular regurgitation with 1.18 x 0.4 cm large free moving hyperechoic mass that is vegetations on the bioprosthetic AVR with irregular leaflet thickening (Figures 1 & 2).
- Patient started on penicillin. CT surgery performed redo-sternotomy AVR.
- Antibiotics switched to Unasyn for 1 month duration given gram-negative rods and gram-positive cocci without growth of valve culture



Figures 1 & 2. Aortic valve vegetation seen on TEE

Discussion

- Had 3 episodes of acute ischemic strokes since root canal procedure with blood cultures resulting negative
- Overall, concern that for 4 months he has had infective endocarditis complicated by cardio-embolic strokes from infected thrombus that was masked by negative blood cultures from intermittent antibiotic use

Timeline

Weeks prior	Antibiotic	Days	Blood culture	Imaging	Cardiology
20	amoxicillin	1			
16	cephalexin	7			
14	cephalexin	7			
13				right MCA stroke	TTE: no valvular dysfunction
12	cephalexin	7			
11			negative	bilateral thalmic stroke	TTE: EF > 75%, some prosthetic valve stenosis
10	agumentin	5			
9			negative		
7	ceftriaxone	7			
4			negative	paramedian L frontal lobe, right superior pons, and L dorsal pons stroke	TEE: thicking of right coronary cusp, IE versus thrombus
1			*Streptococcus mutans*		
0.9	ceftriaxone	5			
0			negative		TEE: large mobile vegetation with transvavular regurgitation

Figure 3. Timeline of events including outpatient antibiotic use, blood culture results, and stroke and cardiac workup

Conclusion

Providers should thoroughly investigate recent antibiotic courses when cultures are collected and not discount their effect on the culture data. Results may be affected with even short course oral antibiotics. Blood cultures can be negative while still having IE leading to septic emboli. This case highlights the importance of thorough medication reconciliation and keeping a high index of suspicion to investigate valvular vegetation in patients with prosthetic valves and recurrent embolic strokes.

References

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