

Multi-modality imaging in patients with elevated TAVR gradients

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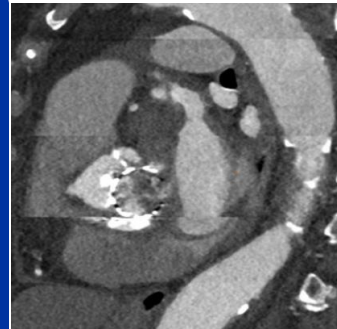
Introduction

High degree heart block is a known complication of paravalvular abscess formation with infective endocarditis and can occur in native valve or post transcatheter aortic valve replacement (TAVR). Different imaging modalities have been used for further evaluation of infective endocarditis and its complications, with transesophageal echocardiogram (TEE) as the mainstay modality. Other modalities such as cardiac CT have been utilized for additional investigation, especially for prosthetic valves including TAVR.

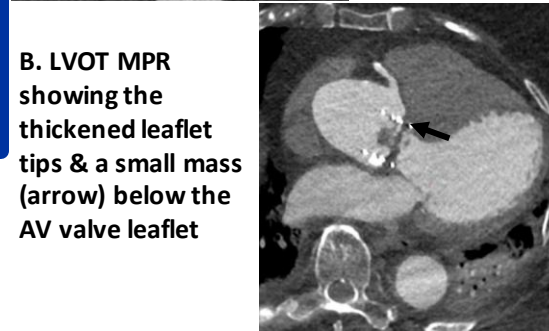
Discussion

Perivalvular abscess formation is a potential complication of infective endocarditis with a higher likelihood of occurrence in those with prosthetic valves. Multiple imaging modalities which can be used to evaluate infective endocarditis in the setting of prosthetic valves.

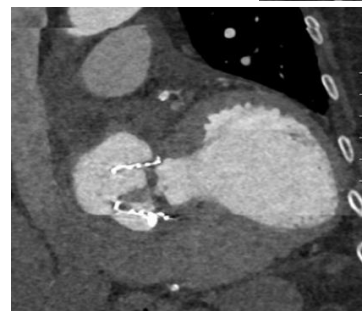
Diagnostic modalities currently include: echocardiography, cardiac CTA, WBC-SPECT, and PET-CTA. While echocardiography is first line, data has shown that cardiac CTA can serve as a complement to echocardiography in diagnosis of endocarditis, especially in those involving perivalvular abscess.



A. Short axis of the aortic valve showing thickening at valve and subvalvular level.



B. LVOT MPR showing the thickened leaflet tips & a small mass (arrow) below the AV valve leaflet



C. MPR view of the TAVR valve in long axis again showing the thickened leaflets

Case Presentation

92-year-old female with a history of aortic stenosis status post-TAVR presented with a femur fracture from a preceding mechanical fall.

- Found to have methicillin-sensitive staphylococcus aureus (MSSA) bacteremia without a clear primary source
- A transthoracic echocardiogram was performed as part of the work up given her history of TAVR, which revealed a well-positioned bioprosthetic aortic valve with elevated transvalvular gradient and no evidence of infective endocarditis
- Shortly after, she developed bradycardia with electrocardiogram revealing findings concerning for high degree AV block.
- Given persistent bacteremia and concern for potential perivalvular abscess a cardiac CT angiography was performed over a TEE given her clinical condition, co-morbidities, and advanced age
- Findings were significant for thickening of the aortic leaflets, in addition to a mobile mass along the leaflet and thickening of the aortomitral curtain concerning for perivalvular abscess formation.

Conclusion

In those unable to undergo TEE, cardiac CTA is an alternative with diagnostic accuracy in identifying prosthetic valve endocarditis and perivalvular abscesses.