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The role of coronary computed tomography angiography in assessment of infective complications after aortic valve replacement: a case report

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Introduction: Aortic valve replacement (AVR) is the most common heart valve surgery performed in developed countries with increasing incidence due to a growing elderly population. Consequently, the incidence of different prosthetic valve complications is also rising.[1] Echocardiography remains the standard first-line imaging modality for the assessment of complications although its ability to identify the underlying mechanism of prosthetic dysfunction may be limited. Coronary computed tomography angiography (CCTA) has recently emerged as a complementary approach offering excellent 3D spatial resolution, as it provides a comprehensive view of the periprosthetic region.[2] This case highlights CCTA's diagnostic value in post-AVR complications.

Case report: 72-year-old man was admitted in Jun 2026 following epileptic seizures. Investigations revealed elevated inflammatory markers, *Streptococcus agalactiae* bacteriemia, splenic infarctions, and septic cerebral emboli. Then echocardiography was performed (transthoracic and transesophageal) and it suggested vegetation on a biological aortic prosthesis, establishing the diagnosis of infective endocarditis. The prosthesis type was unknown, as AVR had been performed in Germany 2 years ago. Antibiotic treatment was started (gentamicin and ampicillin) and after antibiogram results ampicillin continued. It resulted in negative follow-up blood cultures and inflammatory markers. However, after 2 weeks patient suffered from subdural hematoma and was transferred to neurosurgery for evacuation. Antibiotic treatment has been continued but follow-up echo missed. After back transfer to cardiology blood cultures and inflammatory markers were negative and follow-up echocardiography was performed. Surprisingly, the same leaflet vegetation was seen as well as new pseudoaneurysm formation around aortic valve. CCTA with thoracic aortography confirmed the biological aortic prosthesis without annular or leaflet thickening suggestive of vegetation. A bilobular peri- and subvalvular pseudoaneurysm originating from the left ventricular outflow tract was identified. The anterior lobe measured 18×14×19 mm and contacted the right ventricular wall without significant compression. The larger, left-directed lobe measured 36×19×21 mm and did not compress the cardiac chambers. Following cardiac surgical evaluation, intervention was postponed due to high operative risk pending clinical stabilization.

Conclusion: Small vegetation on echocardiography with massive systemic infective embolization's should point to possibility of other perivalvular complications not well seen on echocardiography as in case of early perivalvular abscess. CCTA is an accurate, non-invasive imaging modality that plays a vital role in the diagnostic of post-AVR complications.

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LITERATURE

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