

Transcatheter aortic valve implantation associated prosthetic valve endocarditis with hypo-attenuated leaflet thickening seen on multislice computed tomography

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An 87-year-old woman presented with acute fever of 38.3°C and rigors, who had undergone transcatheter aortic valve implantation (TAVI) with a 23-mm SAPIEN XT valve (Edwards Lifesciences, Irvine, CA, USA) for symptomatic severe aortic stenosis 2 years before and had no history of previous bacteraemia. Serial blood cultures were positive with *Streptococcus agalactiae*, though there were no signs of focal infection including intestinal or gynaecological. Diffusion-weighted magnetic resonance imaging

detected acute asymptomatic stroke. Transthoracic echocardiography did not show vegetation or transcatheter heart valve (THV) dysfunction. Transoesophageal echocardiography (TOE) found thickened tip of one THV leaflet corresponding to right coronary cusp (Figure 1, left) without reduced leaflet motion (RLM). Multislice computed tomography (MSCT) detected 3.5-mm hypo-attenuated leaflet thickening (HALT) at the same site (Figure 2, left).

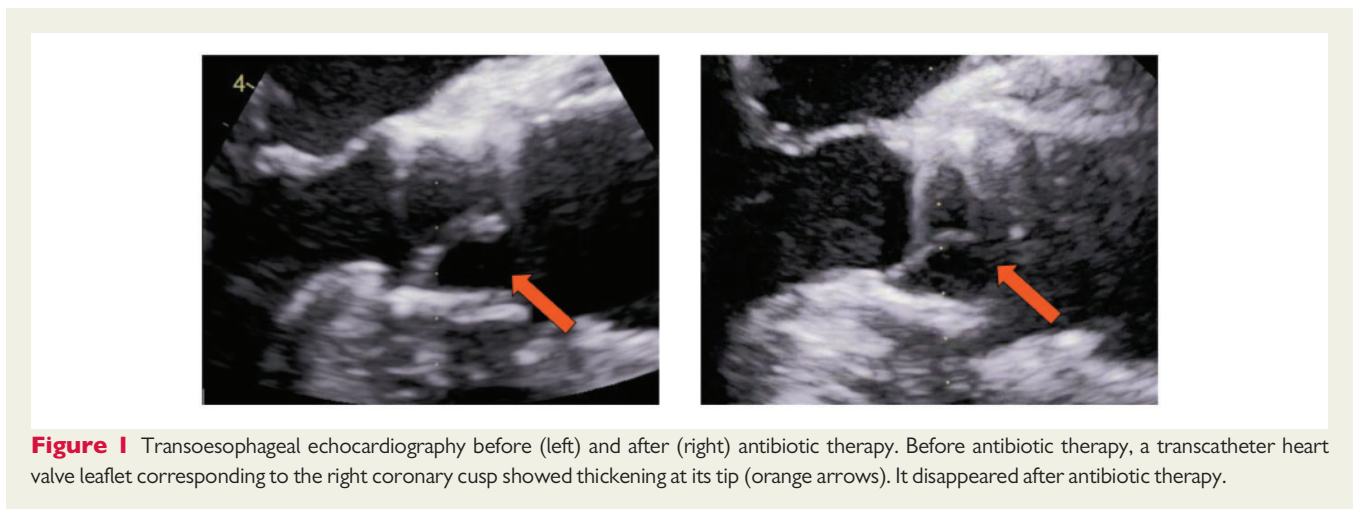


Figure 1 Transoesophageal echocardiography before (left) and after (right) antibiotic therapy. Before antibiotic therapy, a transcatheter heart valve leaflet corresponding to the right coronary cusp showed thickening at its tip (orange arrows). It disappeared after antibiotic therapy.

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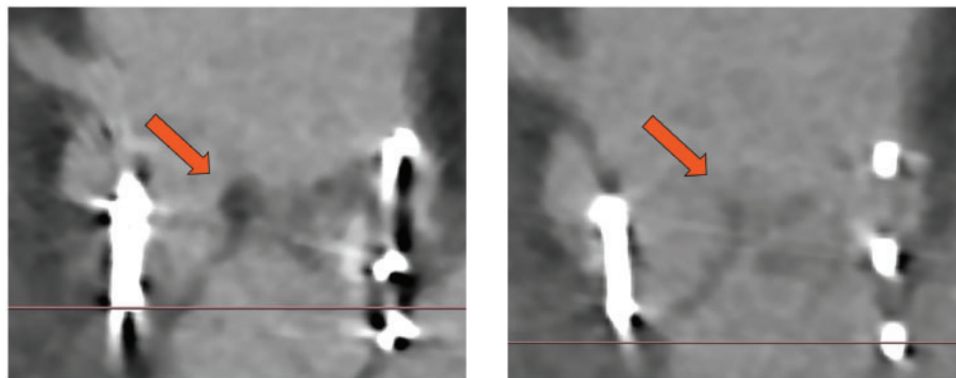


Figure 2 Multislice computed tomography before (left) and after (right) antibiotic therapy. Multislice computed tomography obtained an image of the same leaflet (orange arrows) showing hypo-attenuated leaflet thickening corresponding to transoesophageal echocardiography findings. After completion of antibiotic therapy, follow-up multislice computed tomography confirmed the disappearance of the hypo-attenuated leaflet thickening.

Prosthetic valve endocarditis (PVE) was diagnosed with one major criterion (positive repeat blood cultures) and three minor criteria (predisposing heart condition, fever, and vascular phenomena) of modified Duke criteria.

After 6-week antibiotic therapy with intravenous ampicillin, leaflet thickening was not found on follow-up TOE (Figure 1, right) and the HALT disappeared on MSCT (Figure 2, right). Finally, the thickening was considered as vegetation, not thrombus, because its location was atypical for leaflet thrombosis and she had never been anticoagulated. With 2-year follow-up, she experienced no recurrent endocarditis or THV dysfunction.

Although HALT is the hallmark of leaflet thrombosis,^{1,2} this case suggests that TAVI-associated PVE can also exhibit HALT with different image characteristics from leaflet thrombosis. It was located at the tip of THV leaflet and not causing RLM, whereas previously reported HALT was mostly found on periphery or base of THV leaflet and often exhibited RLM.² Additionally, its disappearance with antibiotics indicates the efficacy of MSCT for evaluation of treatment success.

Considering that acoustic shadowing caused by THV stents sometimes limits image quality of echocardiography, HALT on MSCT

could be a diagnostic alternative to TOE and a treatment indicator for TAVI-associated prosthetic valve endocarditis.

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Consent: The author/s confirm that written consent for submission and publication of this case report including image(s) and associated text has been obtained from the patient in line with COPE guidance.

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