

Hypoattenuated leaflet thickening (HALT) associated with symptomatic thrombotic prosthetic valve obstruction; early complication following transcatheter aortic valve implantation

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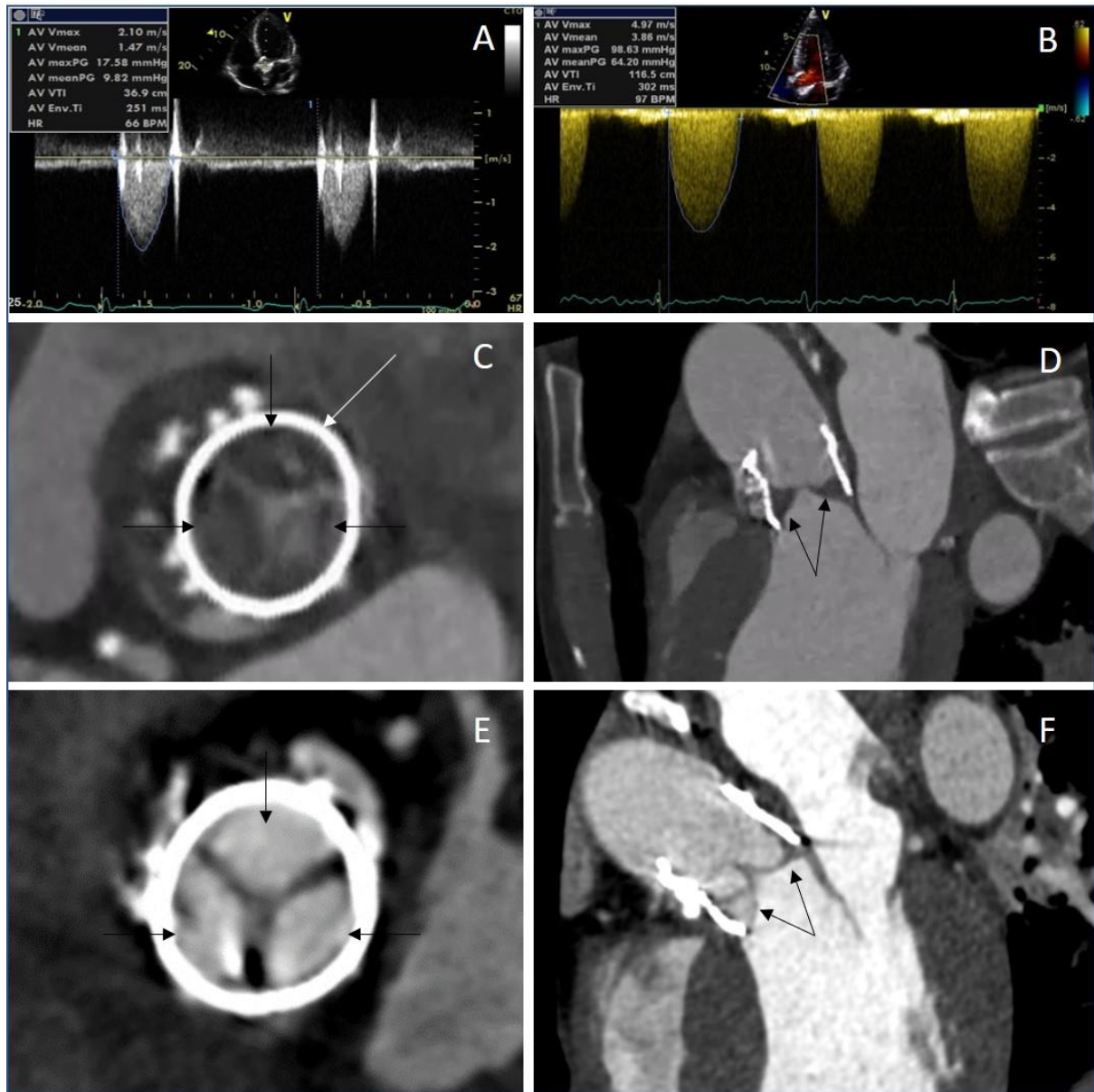
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A 58-year-old man with reduced exercise capacity and severe mixed aortic valve disease (mean gradient [MG] 45mmHg, aortic valve area 0.7cm²) was referred for valve replacement. He had a bicuspid valve with severe left ventricular (LV) dysfunction (ejection fraction 21%) and unobstructed coronaries. He underwent duodenal ulcer surgery 30 years prior. He was deemed high surgical risk due to severity of LV dysfunction and successfully underwent elective transcatheter aortic valve implantation (TAVI) with a 27mm Lotus™ valve. Post procedure transthoracic echocardiography (TTE) showed reduction of MG (10mmHg, Panel A). After initial improvement he became short of breath at 3-month follow-up with an ejection systolic murmur. Repeat TTE showed a considerable rise in aortic transvalvular gradient (MG 64mmHg, Panel B). Axial and sagittal oblique reconstructions of gated, retrospective, contrast enhanced computed tomography angiography (CTA) of the aortic valve showed hypoattenuation of all 3 cusps (Panel C, black arrows – Lotus™ valve ring, white arrow), with marked basal leaflet thickening (Panel D, black arrows) and severely reduced trileaflet motion (Supplemental video 1). Clopidogrel was replaced with anticoagulant (Apixaban). Repeat CTA one month later showed near normal leaflet thickness (Panel F, black arrows) and contrast enhancement (Panel E, black arrows). One year later he was asymptomatic with normal prosthetic valve function on anticoagulation (Supplemental video 2).

Early post TAVI hypoattenuated leaflet thickening (HALT) with associated reduced leaflet motion are increasingly recognised, but rarely associated with haemodynamically significant valve thrombosis causing symptoms. Trials are underway to determine the optimal post TAVI anticoagulation strategy.

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Panels A-F



Supplemental video 1 reduced aortic valve leaflet motion.



Supplemental video 2 normal prosthetic aortic valve function.