

# Hypo-attenuated leaflet thickening after transcatheter aortic valve implantation

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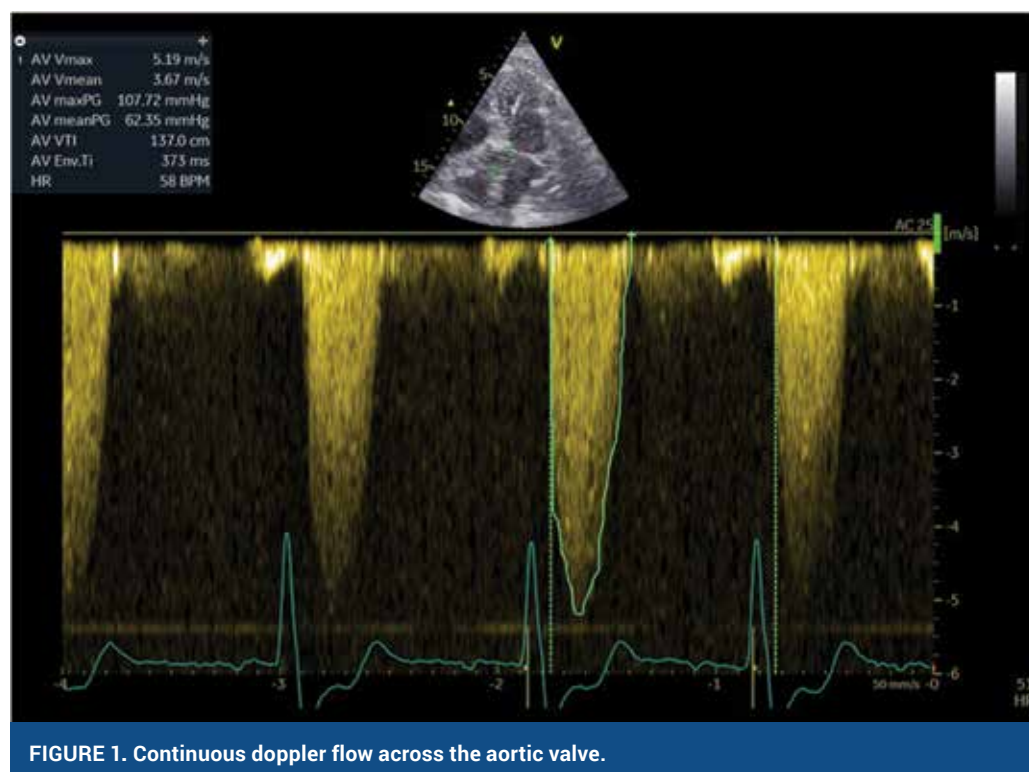
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**Introduction:** Transcatheter aortic valve implantation (TAVI) is recommended in elderly patients with severe aortic stenosis and high surgical risk<sup>1</sup>. This procedure offers survival benefit, but the development of valve degeneration is associated with impaired prognosis. There are several mechanisms for valve degeneration, including the under-expansion, leaflet damage, enhanced calcification, and valve thrombosis. Recent studies have shown an emerging phenomenon after TAVI, which can be seen in up to 13% of patients, that is characterized by hypo-attenuated leaflet thickening (HALT). This imaging feature can be associated with reduced leaflet motion (RELM) leading to valve failure in particular patients<sup>2</sup>. Studies have shown that introducing anticoagulation therapy with warfarin can lead to partial, and sometimes even complete resolution of valve thrombosis<sup>2,3</sup>. It is important to be aware of this potential complication of the TAVI procedure and to know how to proceed with further evaluation of patients who present with valve dysfunction early after TAVI.

**Case report:** We present an 80-year-old patient that underwent TAVI procedure with balloon-expandable valve. Early postprocedural transthoracic echocardiogram (TTE) confirmed good valve function with a maximal velocity of 1.04 m/s. However, five months later, he was scheduled for another control TTE which revealed an impaired anterograde flow at the aortic valve with maximal velocity over 5 m/s and a mean pressure gradient of 62 mmHg (Figure 1). The patient noticed exertion intolerance

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and dyspnea. He was admitted to the hospital for further evaluation, including focused multi-slice computed tomography (MSCT). Detailed analysis revealed substantial crescent-shaped thickening of all aortic leaflets with impaired motion, referring to HALT and RELM (Figure 2). After the initial parenteral anticoagulation, the patient was discharged with warfarin and is scheduled for control TTE after one month.

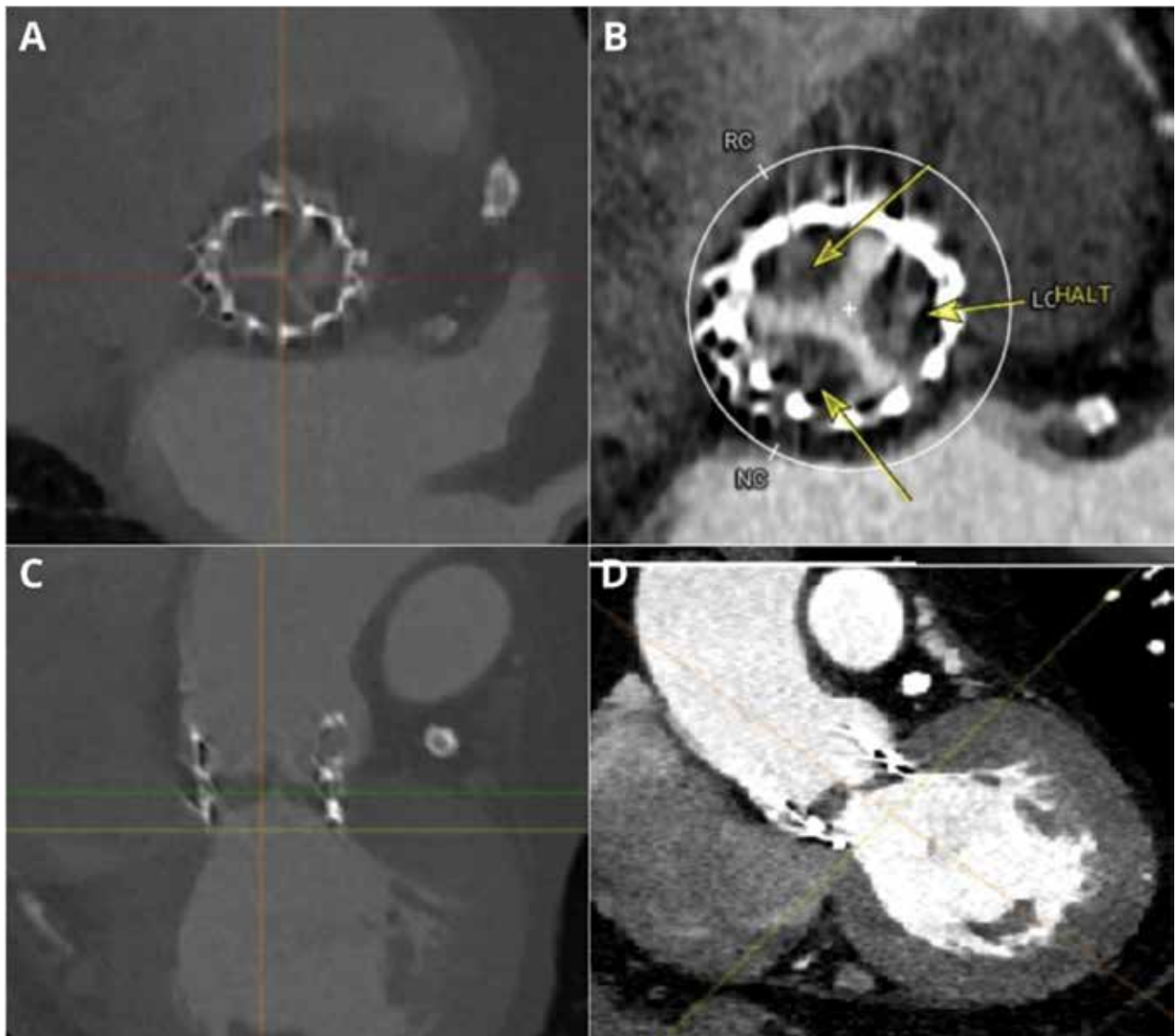


FIGURE 2. A and B. Short axis view of the aortic valve. Arrows are pointing to crescent-shaped thickening of all aortic leaflets. C and D. 2-chamber view.

**Conclusion:** HALT and RELM are important factors for early valve dysfunction. Timely diagnosis with focused MSCT is crucial to initiate anticoagulation therapy. Further studies should delineate the exact underlying mechanisms for HALT, including the importance of patient, prosthesis, and hematologic factors.

### LITERATURE

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