

Severe aortic stenosis and intestinal bleeding: Difficult decisions with a positive outcome

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A 56-year-old man with obesity, hypertension, and hypercholesterolemia was admitted to the hospital for exertional dyspnea and stenocardial discomfort aggravating for several weeks. Medical history revealed recurrent unexplained anemia and positive results of fecal occult blood tests. However, gastroscopy and colonoscopy did not show the source of the bleeding.

Laboratory tests on admission revealed microcytic anemia (hemoglobin 7.8 g/dl), elevated NT-proBNP (787 pg/dl), and slightly elevated high sensitivity Troponin T (0.015 ng/ml) with normal creatine kinase values. The routine coagulation parameters were normal. Transthoracic echocardiography revealed severe, calcified, high-gradient aortic stenosis (AS), with an aortic valve area (AVA) — 0.93 cm²; an indexed AVA (AVA_I) — 0.41 cm²/m²; an AS gradient: maximal — 86 mm Hg, mean — 55 mm Hg, and a preserved left ventricular ejection fraction (55%). Six units of packed red blood cells were transfused, and stabilization of clinical status was achieved.

Coronary angiography showed medial stenosis of the left anterior descending artery (LAD). A detailed workup of coagulation disorders revealed an elevated von Willebrand factor (vWF) antigen — 187.1%. The vWF activity to antigen ratio was 0.59. Heyde syndrome was suspected — the co-existence of AS and gastrointestinal bleeding, originating from the small intestine angiodysplasias caused by acquired vWF type IIA disease [1–2].

The Heart Team suggested percutaneous coronary intervention to the LAD followed by transcatheter aortic valve implantation (TAVI)

due to the increased risk of bleeding during conventional surgery. However, multislice computed tomography showed a bicuspid aortic valve type 1N/T with massive, sharp, eccentric calcification of the commissure descending below the valve into the annulus (Figure 1A–C), which was a significant risk factor for TAVI complications, including asymmetric valve implantation and a potentially deadly ring rupture. Therefore, the Heart Team proposed high-risk surgical aortic valve replacement and LAD bypass implantation, with perioperative cryoprecipitate protection and vWF monitoring in the postoperative period.

The patient was operated on without hemorrhagic complications, however, the perioperative period was complicated by advanced atrioventricular block. Temporary pacing, followed by permanent pacing system implantation was used. The further course was uneventful. After surgery, echocardiography revealed a decrease in the flow gradient across the aortic ostium (Figure 1D). There was no recurrence of gastrointestinal bleeding during one year follow-up.

Heyde syndrome is a rare complication of severe AS and should be treated as AS and gastrointestinal bleeding, particularly if the origin cannot be identified on endoscopy. Aortic valve replacement is the causal treatment and can be used without excessive risk if the condition is identified and the patient is well prepared. Routine injection of protamine sulfate does not seem to significantly reduce the risk of major bleeding [3]. Other forms of treatment (e.g., blood transfusion, and electrocoagulation of gastrointestinal bleeding

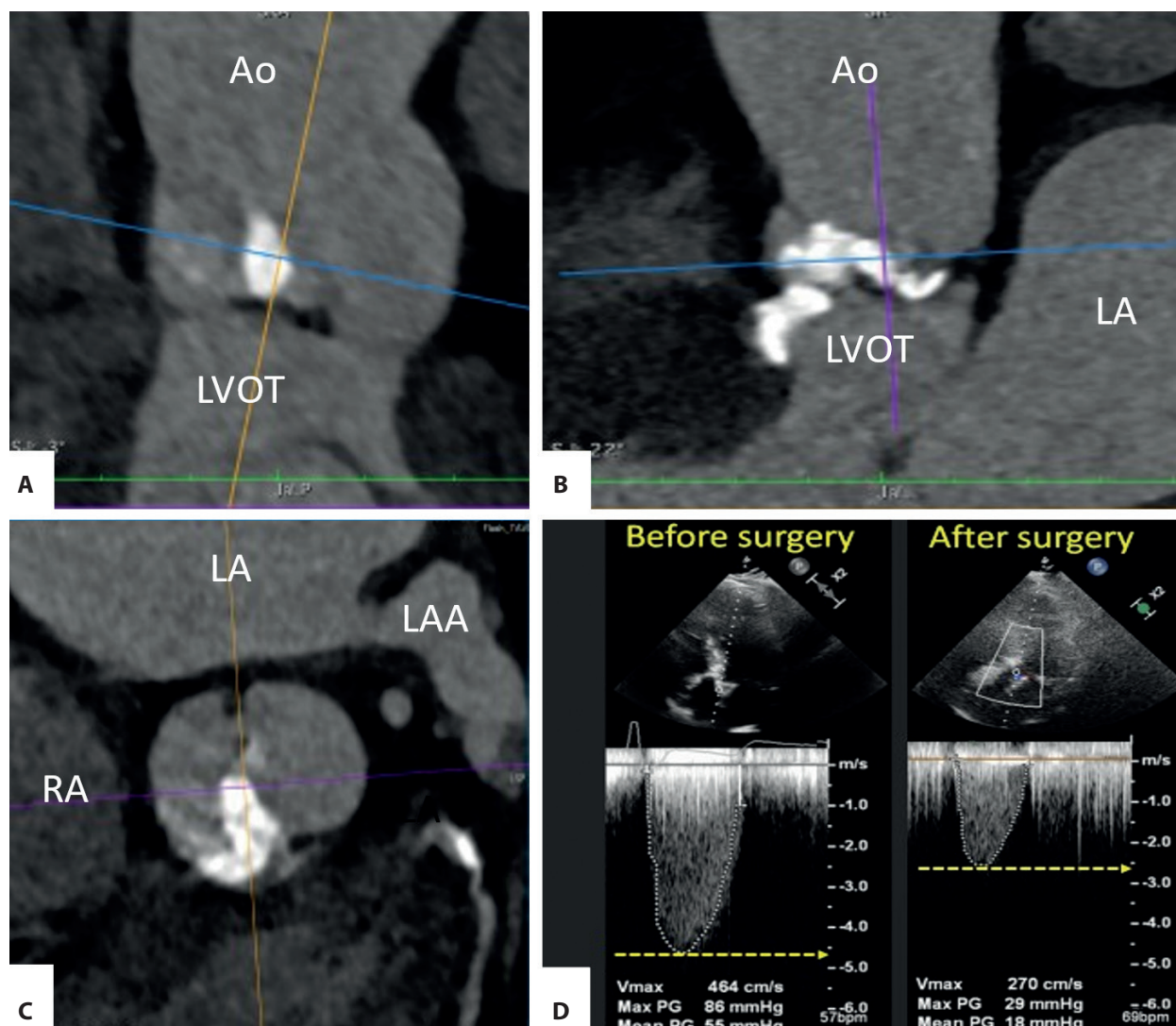


Figure 1. A–C. Computed tomography image analysis of the aortic valve — multiplanar reconstruction. The images show three orthogonal cross sections: longitudinal (A and B) and transverse (C). Orientation is facilitated by the colors of the section lines, which correspond to the color of the border of the respective image. The bicuspid aortic valve of the type 1N/T, with very asymmetric distribution of calcium (white color), has the shape of a “spike” passing locally to the ring. No calcium in the remaining elements of the valve. There is a risk of asymmetric, incomplete TAVI valve expansion with a probable ring rupture. D. Echocardiography, continuous wave Doppler spectrum before (left) and after surgery (right), showing a significant decrease in the velocities and pressure gradients across the aortic valve

Abbreviations: Ao, aorta; LA, left atrium; LAA, left atrial appendage; LVOT, left ventricular outflow tract; RA, right atrium

sources) are only temporary solutions and do not improve the outcome.

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