Feasibility of transcatheter aortic valve implantation in systemic lupus erythematosus associated non-calcific aortic stenosis

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A 56-year-old female with systemic lupus erythematosus (SLE) and antiphospholipid syndrome, with severe aortic stenosis (mean gradient 50 mmHg, valve area 0.7 cm2) was referred for transcatheter aortic valve implantation (TAVI), due to multiple comorbidities including severe thrombocytopenia, long-term steroids, and tracheostomy for upper airway obstruction. Although transoesophageal echocardiography showed a severely thickened aortic valve (Panel A, Supplementary material online, Movie S1), there was negligible valve calcification on multidetector computed tomography (Panel B). During the TAVI procedure, an aortogram was performed during valvuloplasty to confirm no coronary ostial occlusion, in view of bulky native leaflets (Panel C). A 23 mm balloon-expandable Sapien XT valve (Edwards Lifesciences) was successfully implanted. Transoesophageal echocardiography confirmed a fully expanded transcatheter valve without paravalvular regurgitation (Panel D), but a flap-like structure was seen fluttering at the aortic end of the prosthesis, without causing flow turbulence (Panel E, Supplementary material online, Movie S2). At 1-month, echocardiography showed satisfactory gradient (mean 16 mmHg) and orifice area (1.3 cm2). Multidetector computed tomography confirmed that the flap-like structure was part of the native left aortic leaflet (overhanging leaflet), without compromising left coronary ostium (Panel F). The patient remained asymptomatic at 4 months. Systemic lupus erythematosus is typically associated with diffuse valvular thickening, while leaflet calcification is uncommon. This case reports the feasibility of TAVI in SLE-associated severe aortic stenosis, caused by thickened and fibrosed leaflets without calcification. It also demonstrates that TAVI can be safely performed in such patients with non-calcific aortic stenosis, with meticulous pre-procedural imaging, paying attention to leaflet lengths and coronary heights, and careful balloon inflation during the procedure.

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Supplementary material is available at European Heart Journal online.

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