TAVI in a low-surgical risk patient with bicuspid aortic valve regurgitation

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Echocardiography

**Transthoracic**

- **Left ventricular ejection fraction**: 40%
- **Left ventricular end-diastolic diameter**: 68mm
- **Effective regurgitant orifice area**: 38mm²
- **Regurgitant volume**: 70ml/beat
- **Pressure half time**: 205ms

**Bicuspid valve type I**
left coronary cusp/right coronary cusp

**Transesophageal**
Risk evaluation

- **Coronarography**: atherosclerotic coronary artery disease without any critical stenosis

- **Logistic Euroscore I**: 6.32%
- **Society of thoracic surgeons (STS) risk score**: 2.4%

- Patient at low surgical risk but he categorically denied surgery

- Heart Team decision: TAVI
Multislice computed tomography

**Aortic valve annulus**
Perimeter mean diameter: 26.5mm  
Area mean diameter: 25.5mm  
Area: 510.6mm²

**Left ventricular outflow tract**
Perimeter mean diameter: 26.1mm  
Area mean diameter: 25.2mm  
Area: 500.6mm²
1. Endovascular aneurysm repair (EVAR) extended below the renal arteries up to external iliacs
2. Moderate tortuosity in both iliac arteries and in the thoracic aorta before the aortic arch

Borderline access for 20F-introducer via femoral artery
Procedure

Pre-procedural aortography with 40ml contrast – severe aortic regurgitation
Procedural strategy

Local anesthesia, conscious sedation

Right femoral access

2nd generation Lotus valve:

a. Repositionable and completely retrievable

b. Adaptive seal

c. Can evaluate the final implantation result before release and after mechanical deployment, being in its final configuration and position
Take Home Messages

• TAVI in pure aortic valve regurgitation is feasible to use the 2\textsuperscript{nd} generation Lotus valve in a patient with low-surgical risk

• Follow up (clinical, echo) after 6months – asymptomatic patient without aortic regurgitation in echocardiography

• Further investigation is needed to confirm whether TAVI in a bicuspid aortic valve regurgitation is safe with the 2\textsuperscript{nd} generation Lotus valve.