TAVI in a challenging valve position with calcified aortic valve.

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Medical history

92-year-old male presented to our hospital with progressive dyspnoea

Risk factors: coronary artery disease, aortic valve stenosis, diabetes mellitus type 2, hypercholesterolemia, anemia

Life style: Active

Psychological status: No abnormalities

Primary diagnosis: dyspnoea probably related to the progression of aortic valve stenosis

Risk evaluation

- **Echocardiography:** severe aortic stenosis

aortic valve area: 0.8cm², mean Gradient: 57mmHg

ejection fraction of 50%

- **Coronary angiography:** one-vessel coronary artery disease with previous PCI in left circumflex artery

- **Euroscore II**: 8.2%
- **Society of thoracic surgeons risk score**: 7.52%

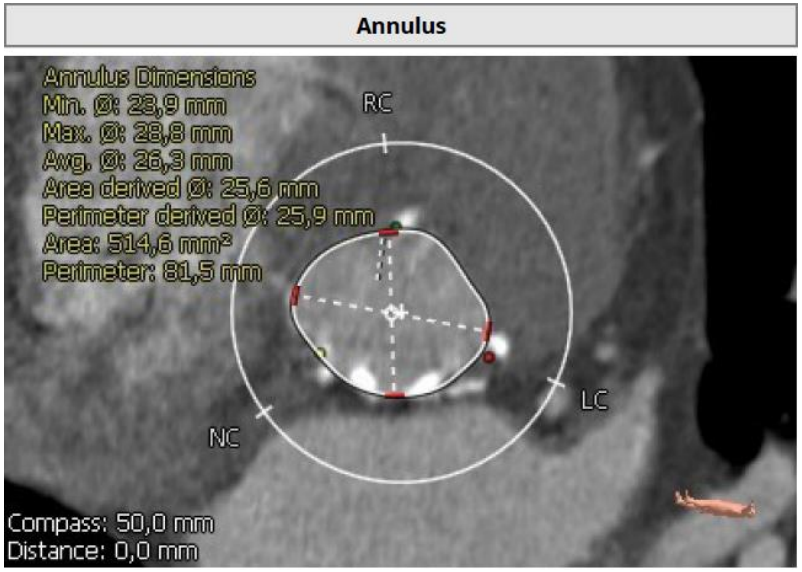
Multislice computed tomography

Aortic valve annulus

Perimeter mean diameter: 25.9mm

Area mean diameter: 25.6mm

Area: 514.6mm²

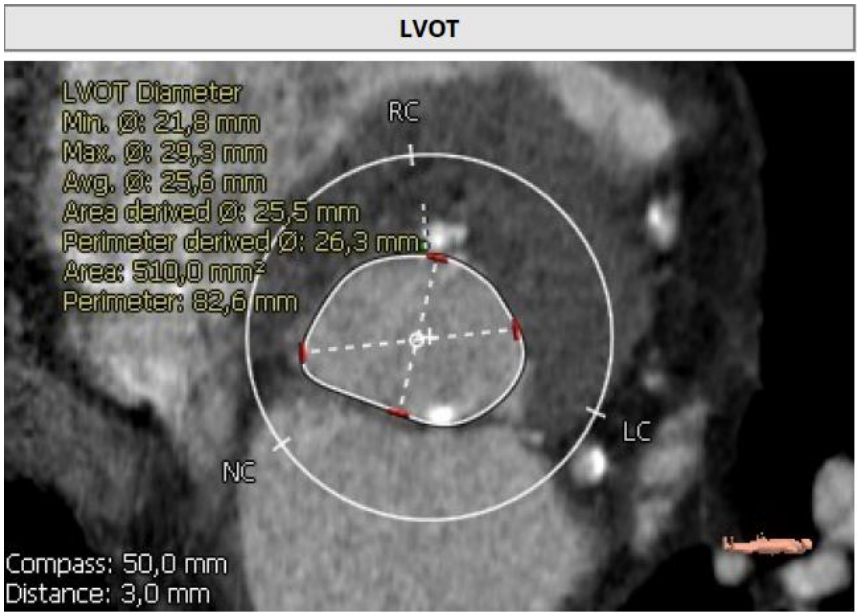


Left ventricular outflow tract

Perimeter mean diameter: 26.3mm

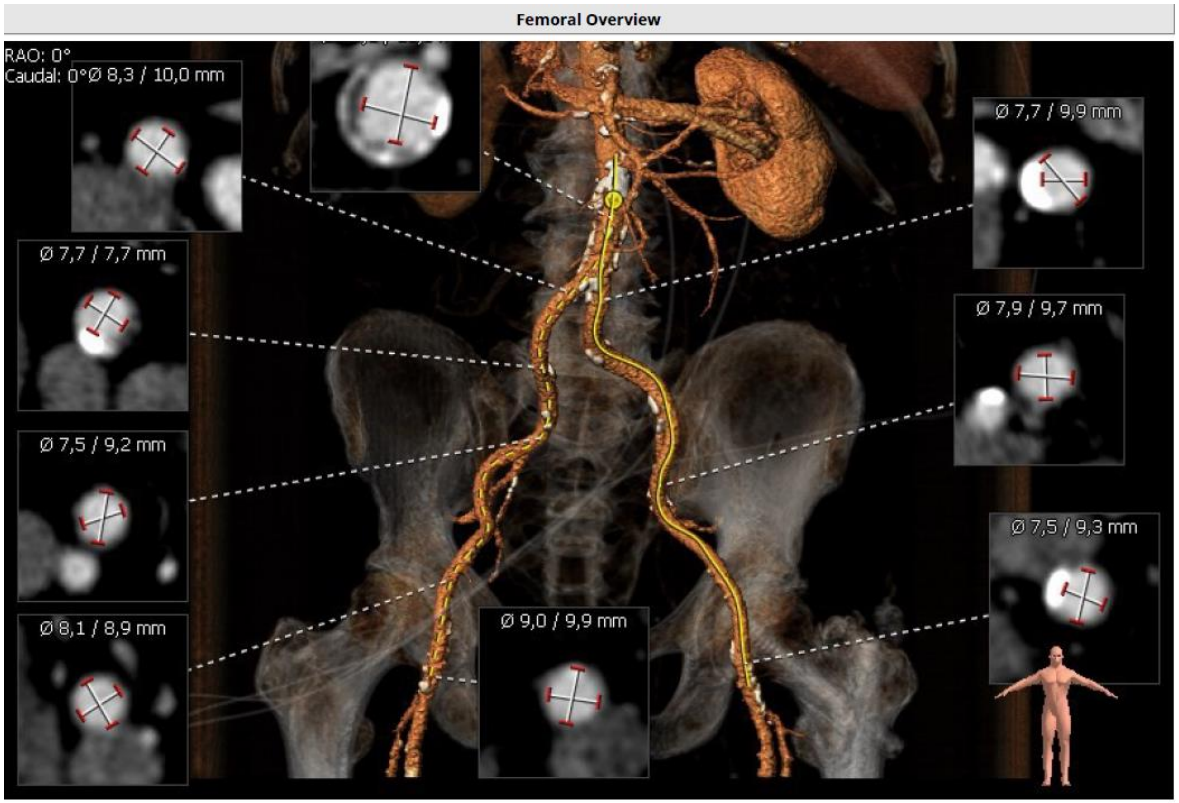
Area mean diameter: 25.5mm

Area: 510.0mm²



Procedural strategy

Heart Team decision: TAVI



Local anesthesia, conscious sedation

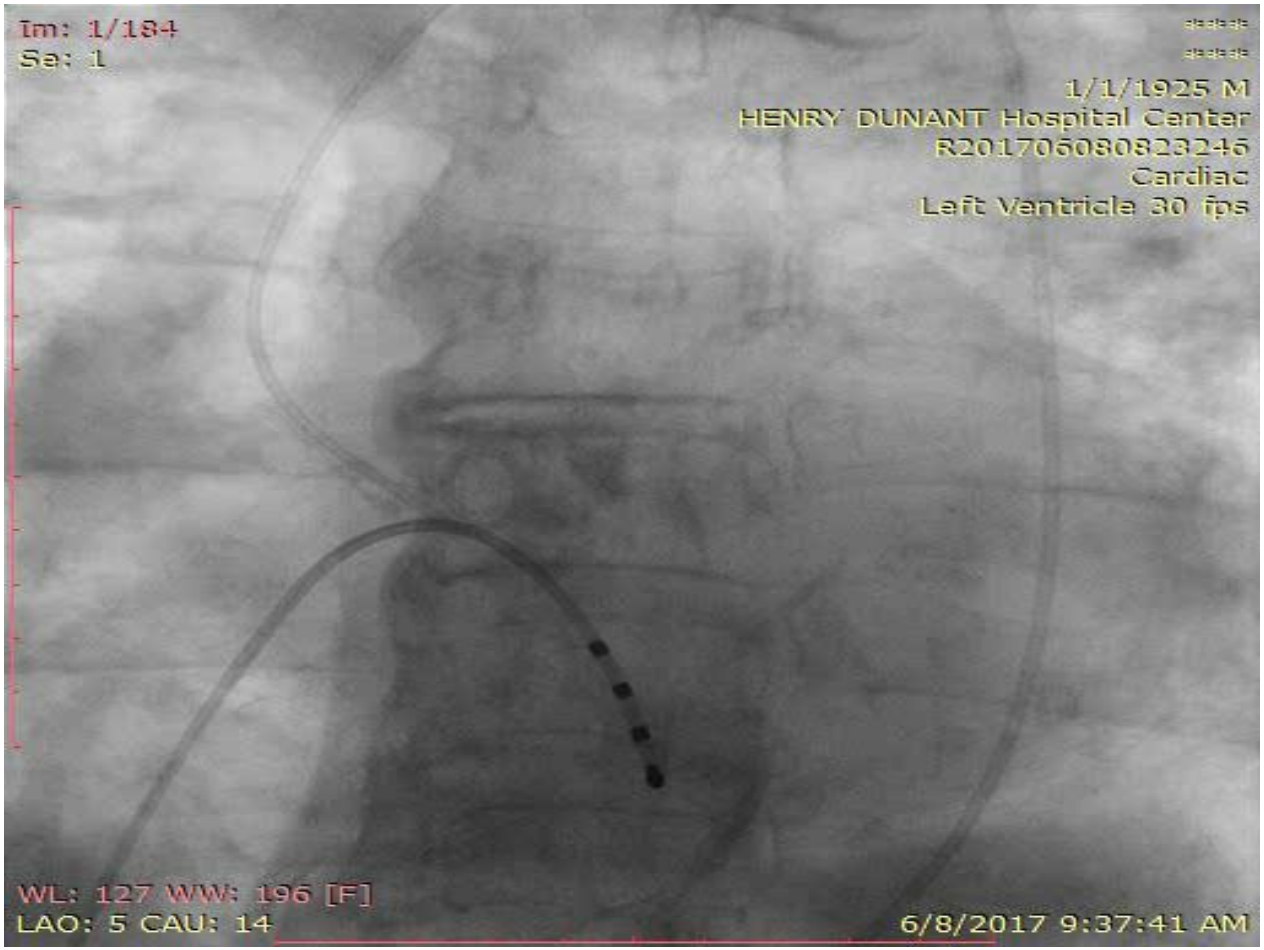
Right femoral access, surgical cutdown

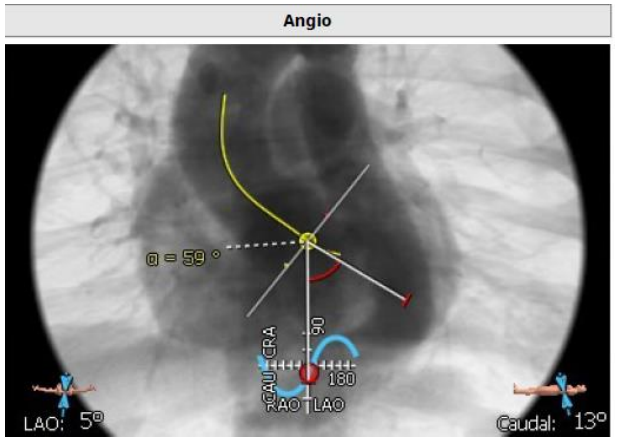
<u>Portico™ 29mm valve:</u>

Repositionable and completely retrievable

Self-expanding valve

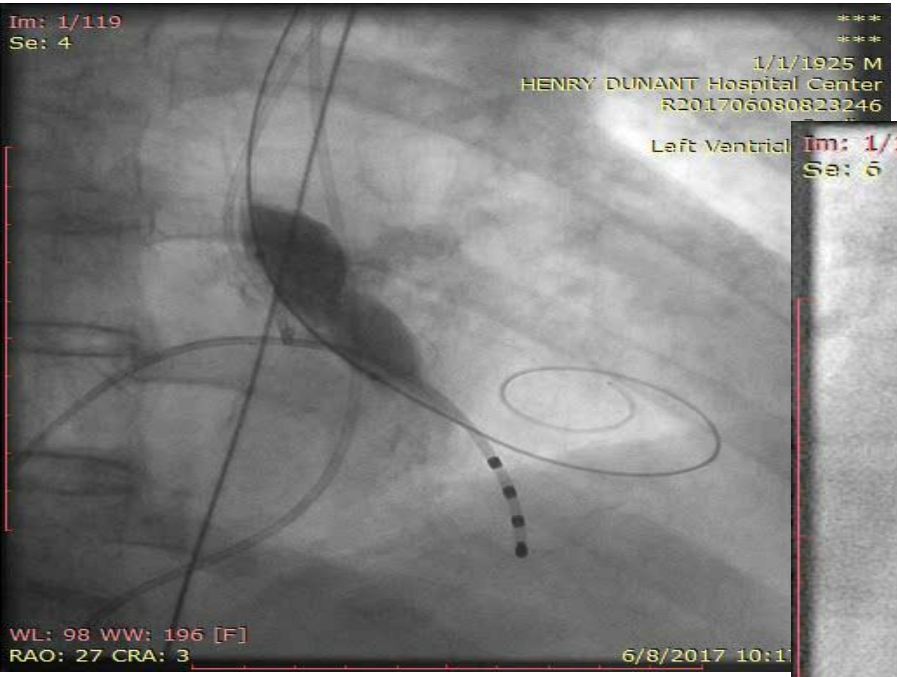
Procedure

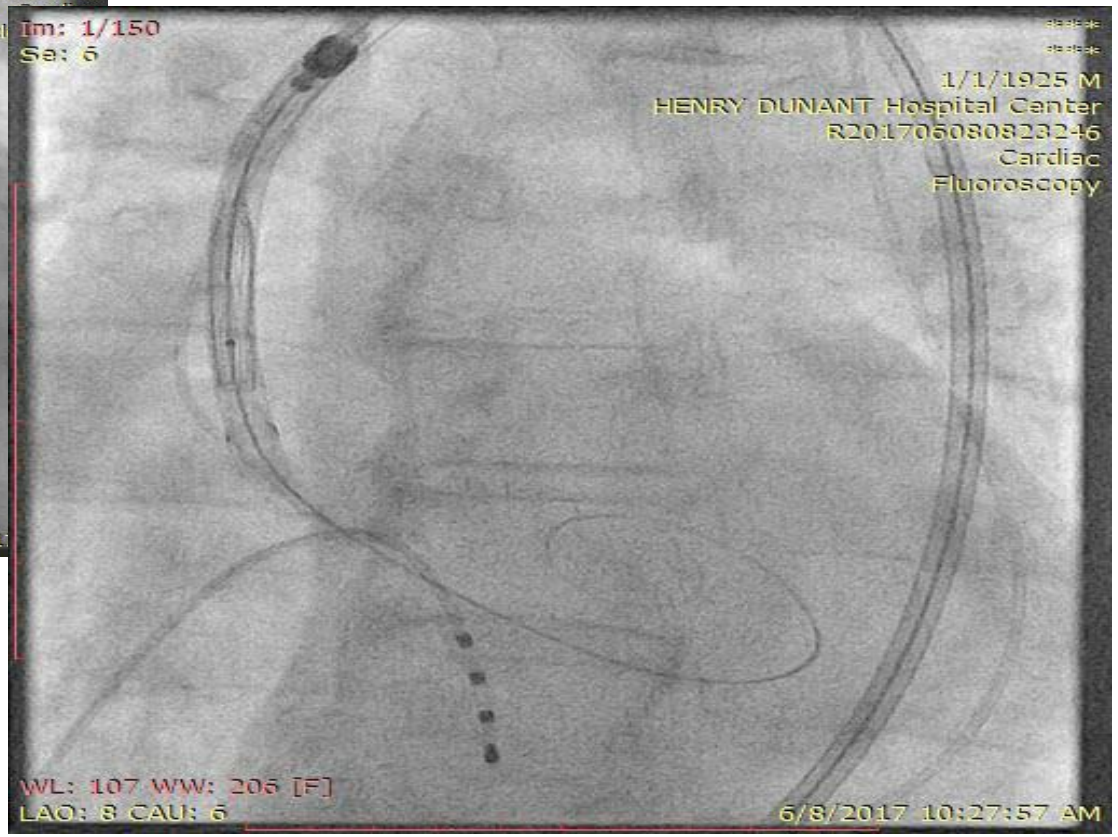




Calcified aortic valve and horizontal aorta

Procedure



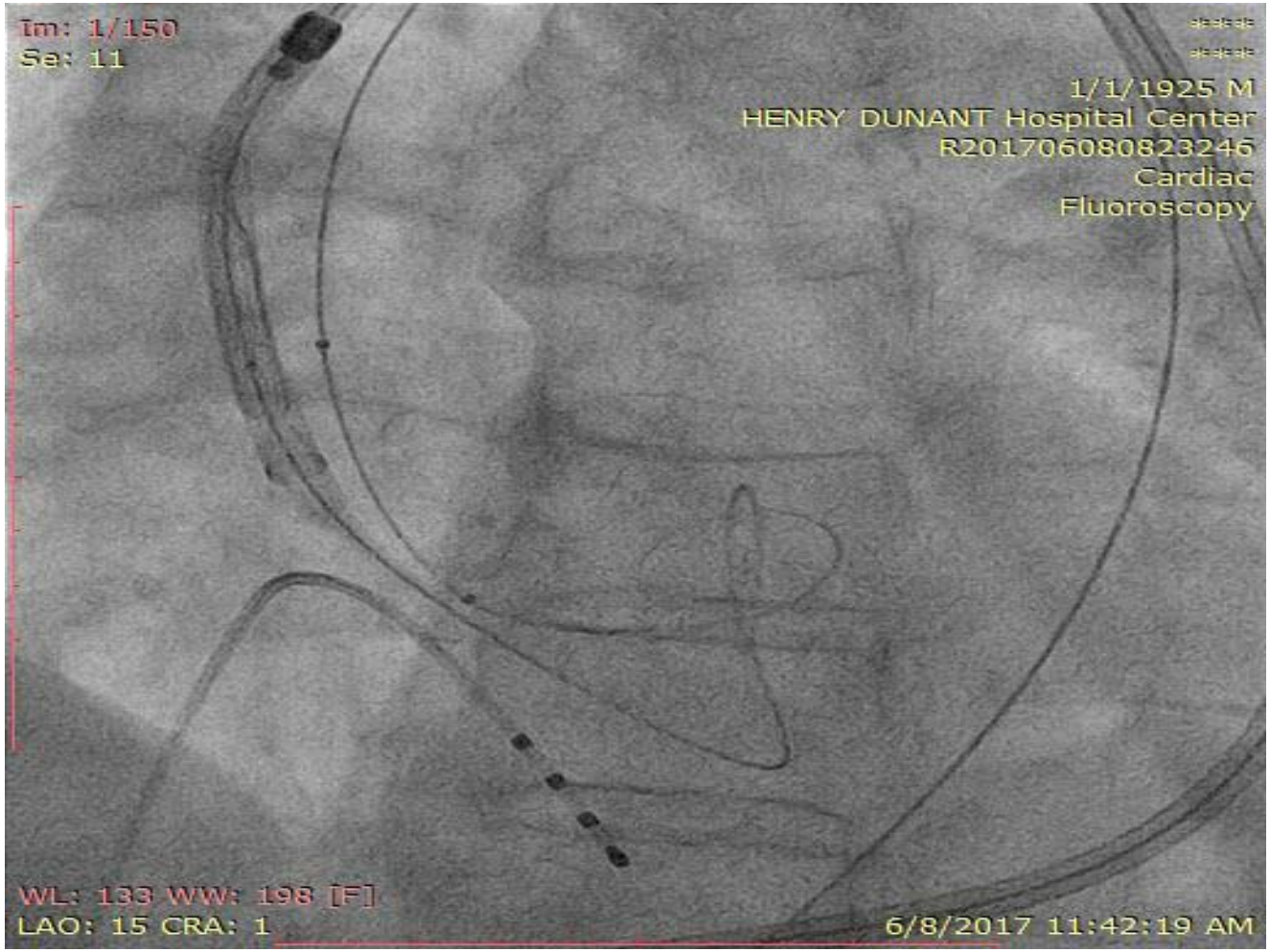


Unable to cross the aortic annulus with the prosthetic valve

1st option:

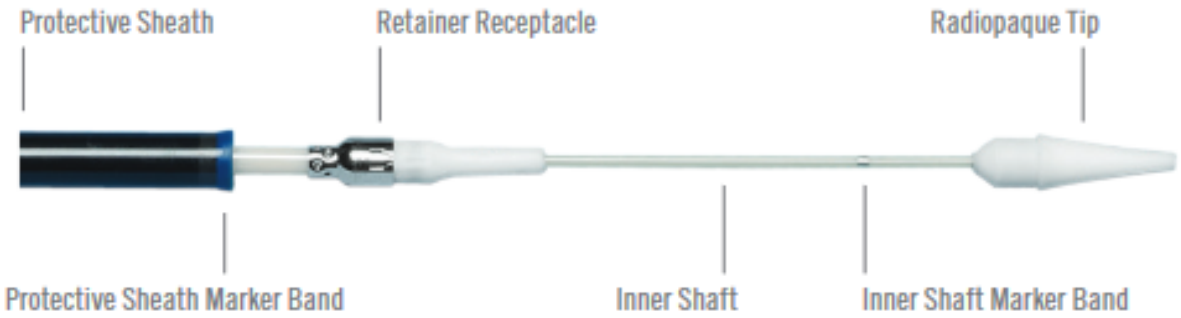
We performed two aggressive pre-dilatations (22mm balloon) without any result.

Procedure



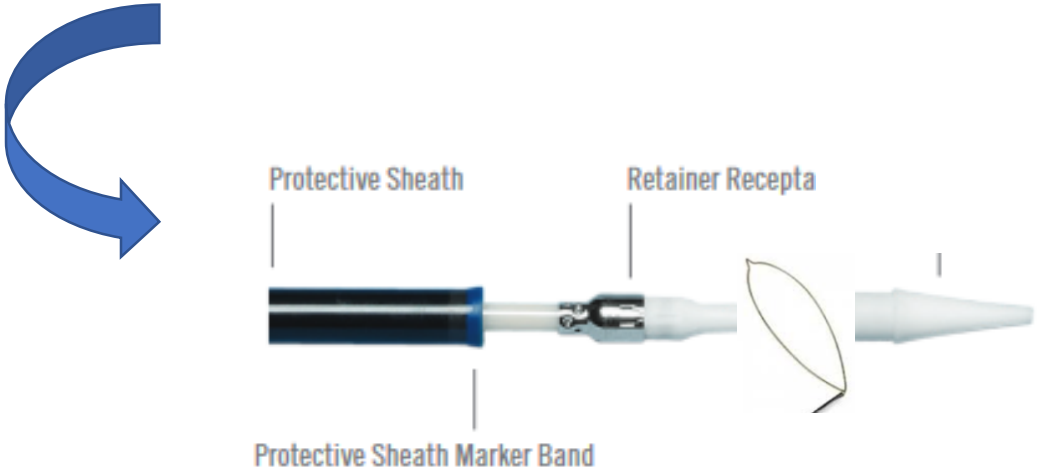
2nd option:
We placed two-Safari wires in the left ventricle in order to perform a buddy-balloon technique, but all efforts were unsuccessful

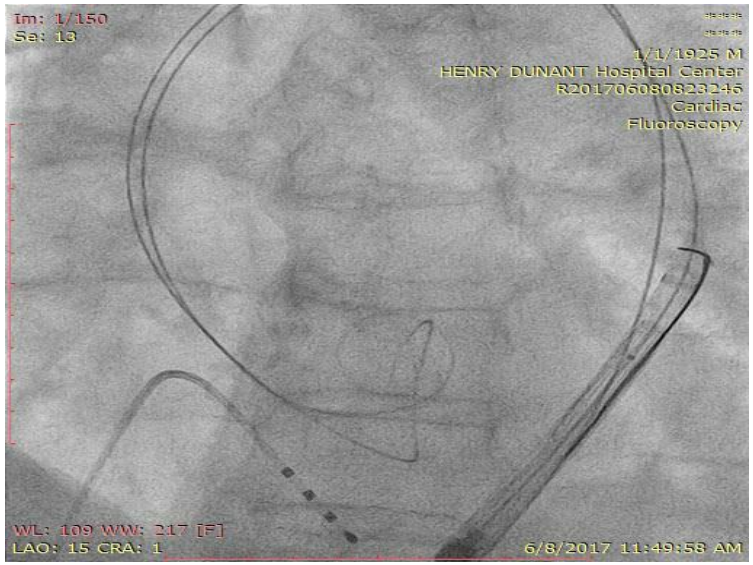
Snare technique



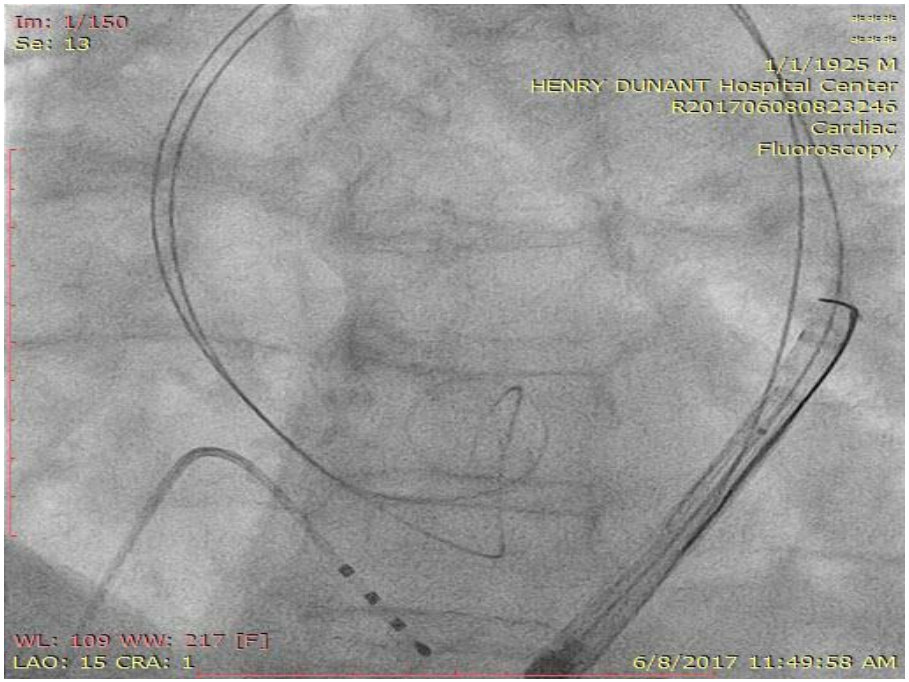
Portico delivery system: distal end

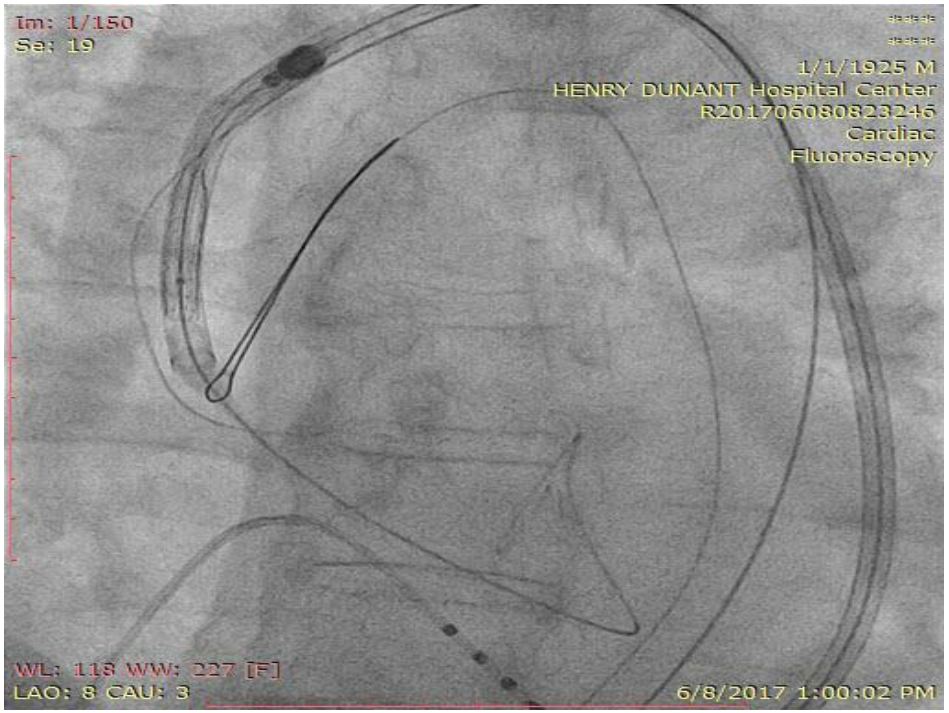
Amplatz Gooze neck snare





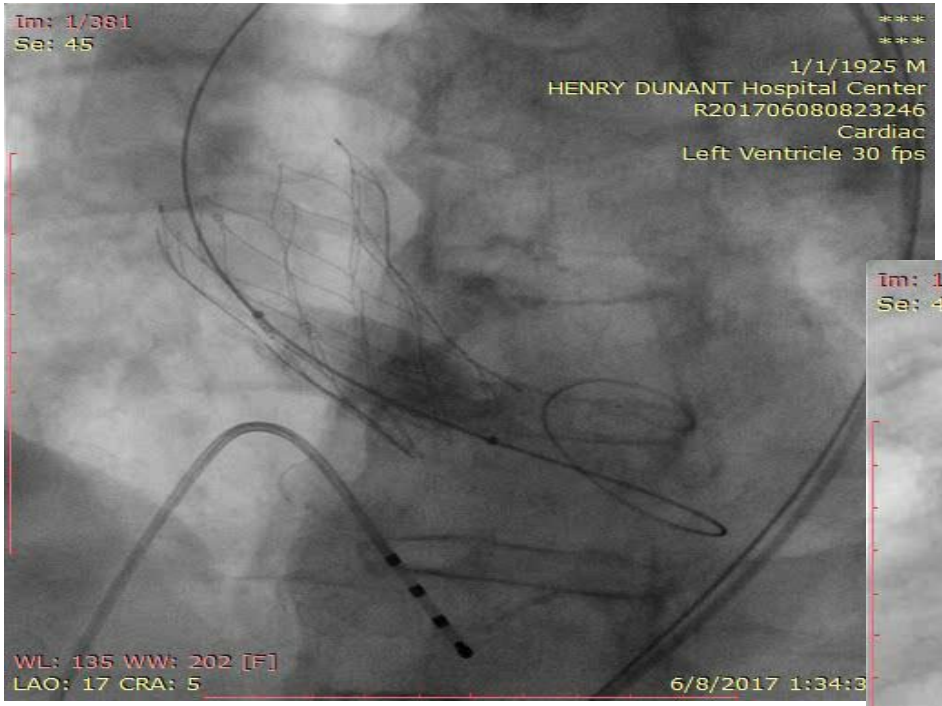
Snare technique

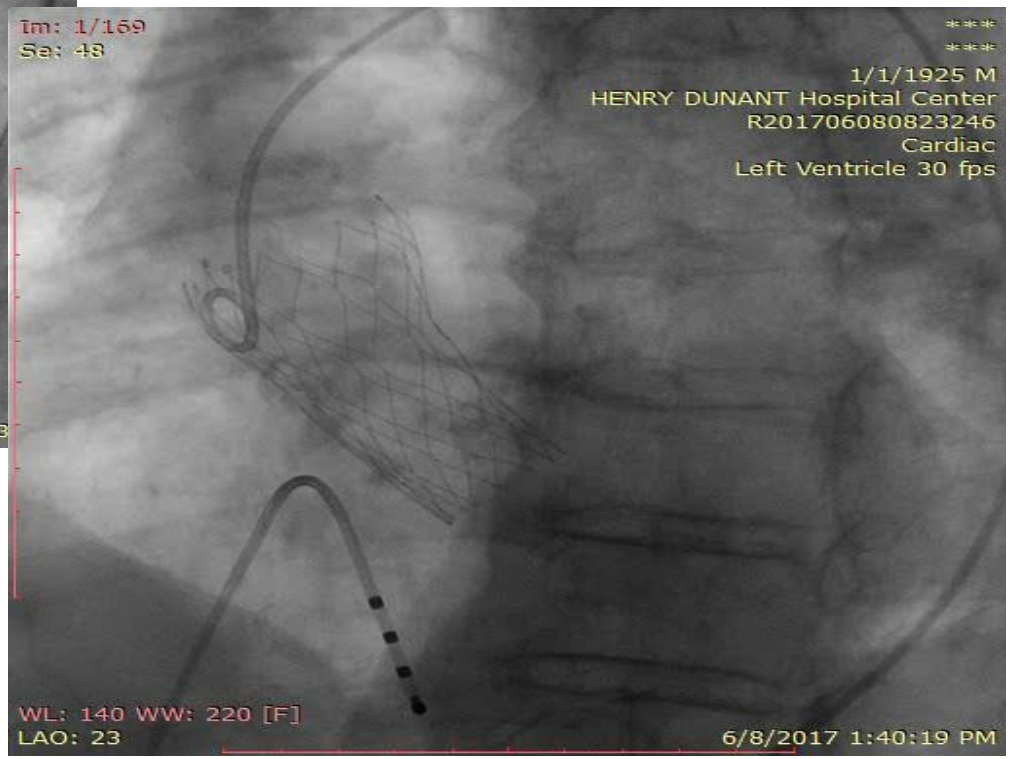




3rd option: we fully retrieved the prosthetic valve and we re-advanced it with a snare catheter (as a whole system)
A snare catheter is used to pull the nose cone of the Portico valve and centralize the whole system in order to have co-axiality with the aortic orifice and to successfully cross the aortic valve.

Procedure



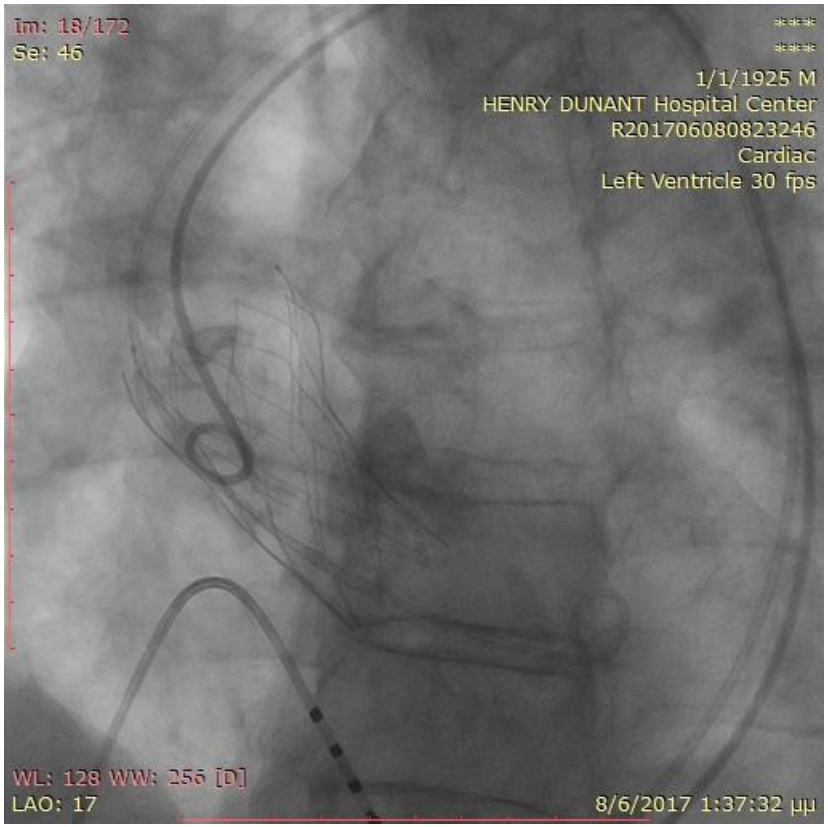


Final result – successful implantation of 29mm Portico valve with an acceptable angiographic and hemodynamic result

Take home messages

It is helpful to use *repositionable and fully retrievable valves* in difficult anatomies.

Snare technique can provide a safe solution in such cases.



Other possible solutions:

Pre-dilatations (aggressive)

Buddy - balloon technique

Push pull technique

Use of backup meier wire instead of Safari wire

Change access (ex. trans-aortic approach)