Salvage Tavi in Tavi for Treatment of Unexpected Prosthetic Valve Dysfunction

Jan Rychter[1], Michal Hawranek[2], Tomasz Niklewski[3], Mariusz Gąsior[2], Michał Zembala[3], Tomasz Hrapkowicz[1]

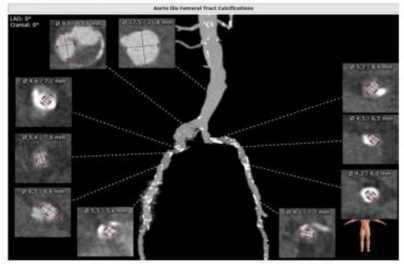
1. Department of Cardiac, Vascular and Endovascular Surgery and Transplantology, Medical University of Silesia in Katowice, Silesian Centre for Heart Diseases, Zabrze, Poland
2. 3rd Department of Cardiology, Medical University of Silesia in Katowice, Silesian Centre for Heart Diseases, Zabrze, Poland
3. Department of Cardiac Surgery, Heart and Lung Transplantation and Mechanical Circulatory Support, Silesian Centre for Heart Diseases, Zabrze, Poland

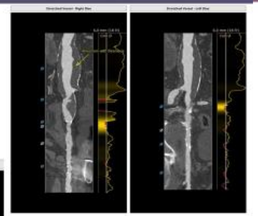
Introduction of the case

- 69-year-old patient was admitted to the cardiac surgery clinic for aortic valve replacement and coronary artery bypass grafting.
- Comorbidities:
  arterial hypertension; diabetes type 2; obese (BMI31).
- Coronarography:
  left main-30%, left anterior descending - 90%, circumflex - 70%.
- Echocardiography:
  ejection fraction - 40%; severe aortic stenosis.
- During the cardiac surgery procedure, the porcelain aorta was found. The original operating plan was abandoned.
- Left internal mammary artery anastomosis to left anterior descending in off pump fashion was performed.
- The patient was discharged home in a stable state.
- Heart Team planned two-stage treatment:
  1st step: PCI DES Circumflex
  2nd step: TAVI

Evaluation of the case

- After reevaluation heart team decision was to make transcatheter aortic valve implantation using self-expandable prosthesis.
- We decide to implant Boston Scientific **Acurate Neo size L** prosthesis.
- Due to narrow, calcified vessels and presence of abdominal aortic aneurysm with thrombus **transapical access** was preferred over transfemoral approach.

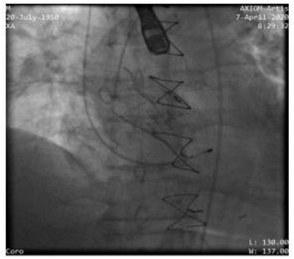




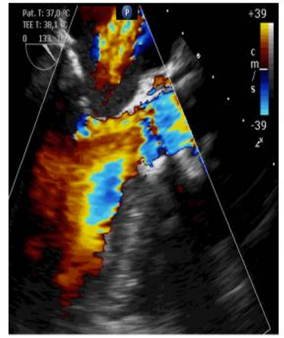
- The operation (April 2020) was performed under general anesthesia with standard hemodynamic monitoring.
- The left mini anterolateral thoracotomy in the fifth intercostal space was carried out.
- Once left ventricular apex was exposed, two 3-0 pledged polypropylene sutures were used to secure puncture site.

Acute severe aortic prosthesis regurgitation

- After implantation of self-expandable prosthesis we performed postdilatation because of moderate paravalvular leak.
- After postdilatation, the patient fell into cardiogenic shock due to severe aortic regurgitation. We suspected dysfunction of leaflets (perforation? rupture?).

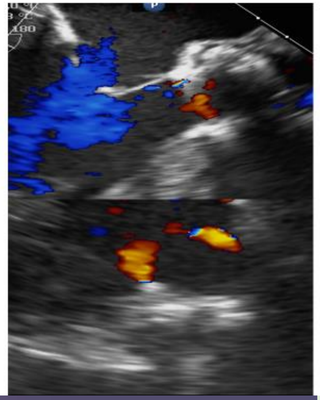


Acute severe
aortic prosthesis regurgitation.



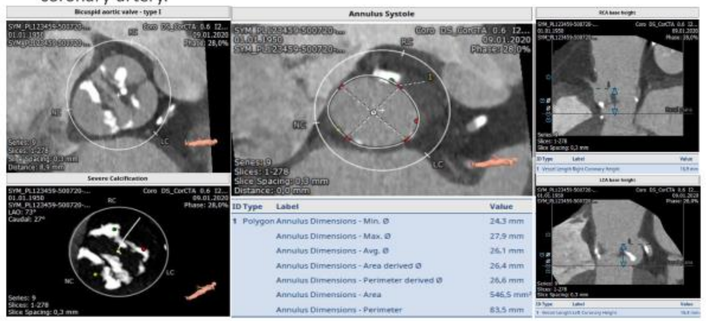
Final result

- Echocardiography revealed good function of Acurate Neo prosthesis with gradient max 10 mmHg, mean 5 mmHg, and mild PVL.
- Patient was extubated shortly thereafter and transferred to the surgical intensive care unit for further treatment and rehabilitation.
- Due to III° block in first 24h we have implanted DDD pacemaker.
- He didn't require blood transfusions.
- He was discharged home in overall good condition 4 days later.



Evaluation of the case

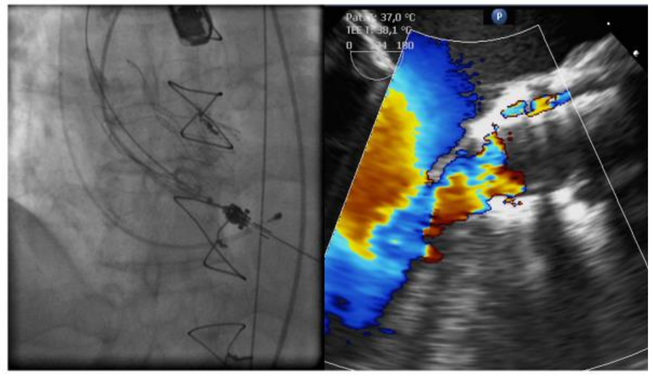
- Computed tomography showed severe calcification of bicuspid aortic valve type 1 with raphe between RCC and LCC.
- Perimeter derived annulus was 26.6 mm.
- Coronary height was 16 mm for the left coronary artery and 17 mm for right coronary artery.



Valve implantation

Valve implantation in bicuspid valve.

Mild to moderate paravalvular leak after implantation.



Valve in Valve procedure

- We made an immediate decision to carry out the valve in valve procedure with the same type of valve.
- After valve in valve patient's condition stabilized.



Conclusions

Emergency TAVI in TAVI for treatment of unexpected prosthetic valve dysfunction is effective method for patient in whom reoperation is impossible.

