

diologists. Aortic valve replacement has proven efficacy and should always be the first treatment option; TAVI should be considered only in patients with high risk.

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References

1. Cribier A, Eltchaninoff H, Bash A, Borenstein N, Tron C, Bauer F, et al. Percutaneous transcatheter implantation of an aortic valve prosthesis for calcific aortic stenosis: first human case description. *Circulation* 2002; 106: 3006-8. [CrossRef]
2. Gül M, Yıldırım A, Uslu N, Eksik A, Erol MK, Uyarel H, et al. The outcomes of transcatheter aortic valve implantation with Edwards SAPIEN or CoreValve devices: Single-center experience in Turkey. *Türk Göğüs Kalp Damar Cerrahisi Dergisi* 2012; 20: 434-41.
3. Gül M, Akgül O, Ertürk M, Yıldırım A. Simultaneous percutaneous peripheral arterial intervention and transfemoral transcatheter aortic valve implantation in bilateral iliac artery occlusive disease. *Anadolu Kardiyol Derg* 2012; 12: 371-3.
4. Cribier A, Eltchaninoff H, Tron C, Bauer F, Agatiello C, Nercolini D, et al. Treatment of calcific aortic stenosis with the percutaneous heart valve: mid-term follow-up from the initial feasibility studies: the French experience. *J Am Coll Cardiol* 2006; 47: 1214-23. [CrossRef]
5. Gül M, Türen S, Sürgit O, Aksu HU, Uslu N. Acute severe occlusion of the left main coronary artery following transcatheter aortic valve implantation. *Anadolu Kardiyol Derg* 2012; 12: 282-3.

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A challenging case of transcatheter aortic valve implantation under left main coronary artery protection

Sol ana koroner arter koruması altında yapılan zorlu bir transkateter aort kapak implantasyon vakası

For patients presenting with severe aortic stenosis having high risk for surgery transcatheter aortic valve implantation (TAVI) is an alternative therapy. TAVI is associated with major complications including, valve embolization, stroke, perforation, coronary obstruction, atrioventricular block (1-5). Herein we presented a case of aortic stenosis that had a small distance of coronary to annulus, treated successfully with transfemoral TAVI under left main coronary artery (LMCA) protection.

An 85-year-old man with severe symptomatic aortic stenosis presented with dyspnea and angina despite medical treatment. The patient had high risk for surgery. Computed tomography demonstrated moderate tortuosity of iliac arteries. The annulus diameter was measured 23mm at transesophageal echocardiography. The annulus to LMCA ostial distance was measured 10 mm on aortography (Fig. 1A). Thus transfemoral TAVI with 26 mm Edwards Sapien XT valve was planned after informed consent was taken. The transient pacemaker was implanted through left femoral vein to apex of right ventricle. A 6F sheath was introduced to the left and right common femoral arteries under fluoroscopy. A pigtail catheter was introduced to the ascending aorta through left femoral artery. The transient pacemaker was implanted to the right ventricular apex. A Judkins right-4 catheter was introduced to the ascending aorta over a regular 0.38 guide wire from right common femoral artery. The guide wire was exchanged with a 0.035 Amplatz extra stiff guide wire than 6F sheath was exchanged with E-sheath. The calcified left coronary cusp partially obstructed the left main coronary ostium during the aortic balloon valvuloplasty without hemodynamic compromise (Fig. 1B, Video 1. See corresponding video/movie images at www.anakarder.com). Because of the risk of LMCA obstruction a 7F catheter was introduced to the left common femoral artery than LMCA was engaged with a 7F Judkins left 4 guiding catheter. The floppy coronary wire was advanced through the LMCA to the left anterior descending coronary artery (LAD) and a 3.0x15 mm coronary balloon was crossed to the LAD over the guide wire (Fig. 2A, Video 2. See corresponding video/movie images at www.anakarder.com). Then guiding catheter was disengaged 1 cm above from LMCA ostium. The valve was successfully implanted (Fig. 2B, Video 3. See corresponding video/movie images at www.anakarder.com). Control angiography showed patent LMCA thus the guide wire and balloon was removed (Fig. 2C, Video 4. See corresponding video/movie images at www.anakarder.com). Control aortography revealed successfully implanted aortic bioprosthetic valve with patent coronary arteries (Fig. 2D).

Left main coronary artery obstruction is a life treating complication of TAVI, associated with inappropriately high positioning of valve, embolization of atheroma, calcium, thrombus, narrow sinus of Valsalva, bulky leaflet calcifications, and low-lying coronary ostia (1-5). It is crucial to assess these factors before the procedure. Also aortography during the balloon valvuloplasty is important to determine this complication. During balloon aortoplasty bulky leaflets may transiently occlude the LMCA ostium. This patient had enough coronary ostia to annulus diameter. During the balloon angioplasty, the LMCA ostium was transiently narrowed without hemodynamic compromise. Hence, the implantation of the valve was conducted under the protection of LMCA.

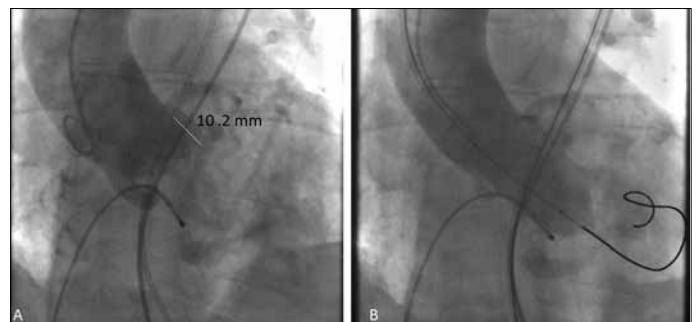


Figure 1. A) The annulus to left main coronary artery ostia distance was measured 10mm on aortography. B) The calcified left coronary cusp partially obstructed the left main coronary ostium during the aortic balloon valvuloplasty

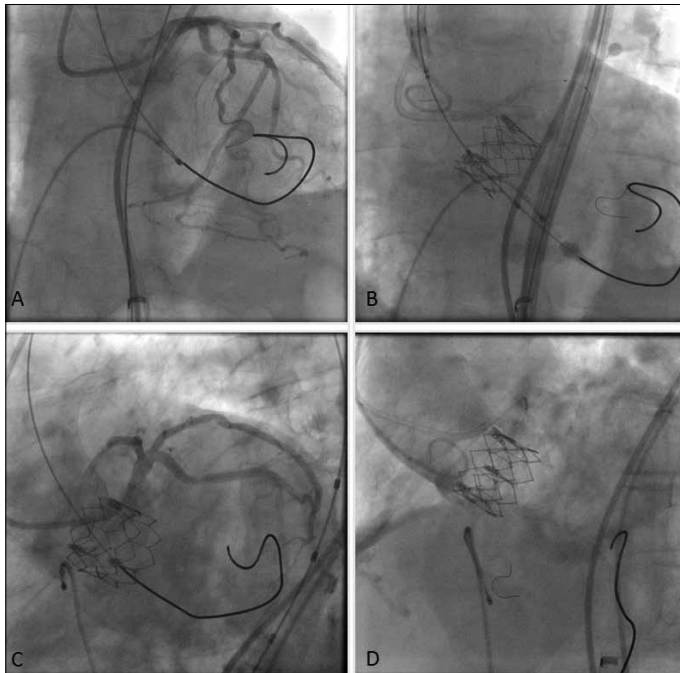


Figure 2. A) The coronary balloon over a floppy coronary wire in the LAD was shown. B) A 26-mm Edwards Sapien XT aortic bioprosthesis was successfully implanted C) Control angiography showed patent LMCA. D) Control aortography revealed successfully implanted aortic bioprosthetic valve with patent coronary arteries

LAD - left anterior descending artery, LMCA - left main coronary artery

Control angiogram during aortic balloon angioplasty may be beneficial to take appropriate measures to handle with probable complications including LMCA obstruction during the TAVI.

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Video 1. The calcified left coronary cusp partially obstructed the left main coronary ostium during the aortic balloon valvuloplasty
Video 2. A floppy coronary wire was advanced through the LMCA to the left anterior descending coronary artery and a 3.0x15 mm coronary balloon was crossed to the LAD over the guidewire

LAD - left anterior descending artery, LMCA - left main coronary artery

Video 3. A 26-mm Edwards Sapien XT (Edwards Lifesciences, Irvine, California) aortic bioprosthesis) was successfully implanted
Video 4. Control angiography showing patent LMCA

LMCA - left main coronary artery

References

1. Dağdelen S, Karabulut H, Alhan C. Acute left main coronary artery occlusion following TAVI and emergency solution. *Anadolu Kardiyol Derg* 2011; 11: 747-8.
2. Holmes DR Jr, Mack MJ, Kaul S, Agnihotri A, Alexander KP, Bailey SR, et al. 2012 ACCF/AATS/SCAI/STS expert consensus document on transcatheter aortic valve replacement. *J Am Coll Cardiol* 2012; 59: 1200-54. [CrossRef]
3. Masson JB, Kovac J, Schuler G, Ye J, Cheung A, Kapadia S, et al. Transcatheter aortic valve implantation: review of the nature, management, and avoidance of procedural complications. *JACC Cardiovasc Interv* 2009; 2: 811-20. [CrossRef]
4. Lefevre T, Kappetein AP, Wolner E, Nataf P, Thomas M, Schachinger V, et al. One-year follow-up of the multi-centre European PARTNER transcatheter heart valve study. *Eur Heart J* 2011; 32: 148-57. [CrossRef]

5. Gül M, Türen S, Sürgüt O, Aksu HU, Uslu N. Acute severe occlusion of the left main coronary artery following transcatheter aortic valve implantation. *Anadolu Kardiyol Derg* 2012; 12: 282-3.

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Left atrial appendix thrombus presenting with acute coronary syndrome in a patient with rheumatic mitral stenosis

Romatizmal mitral darlığı olan ve akut koroner sendrom ile başvuran hastada sol atriyal apendiks trombüsü

A 32-year-old female patient presented with a typical angina of 4-hour duration. She had a history of rheumatic mitral valve disease and had suffered from intermittent palpitations for a month. Physical examination revealed a 2/6 diastolic murmur. The surface electrocardiogram revealed atrial fibrillation with 0.5-1 mm ST segment elevation in leads DIII and aVF. Troponin I level was 0.83 mg/dL. On transthoracic echocardiographic examination (TTE), left ventricular ejection fraction was normal but there was mitral stenosis (mitral valve area: 1.45 cm², maximal/mean gradient: 18/ 8 mmHg), moderate level of mitral regurgitation and mild tricuspid regurgitation (pulmonary artery systolic pressure was estimated 40 mm Hg) (Video 1. See corresponding video/movie images at www.anakarder.com). Acetyl salicylic acid (ASA), clopidogrel and unfractionated heparin (UFH) therapy was initiated. Coronary angiography showed that the patient had normal coronary arteries except for a total occlusion in the distal obtuse marginal branch of circumflex artery (Fig. 1 A, B and Video 2. See corresponding video/movie images at www.anakarder.com). A thrombus and spontaneous echo contrast was revealed in the left atrial appendix (LAA) by 2D and 3D transesophageal echocardiographic examination (TEE) (Fig. 2 A-C and Video 3, 4. See cor-

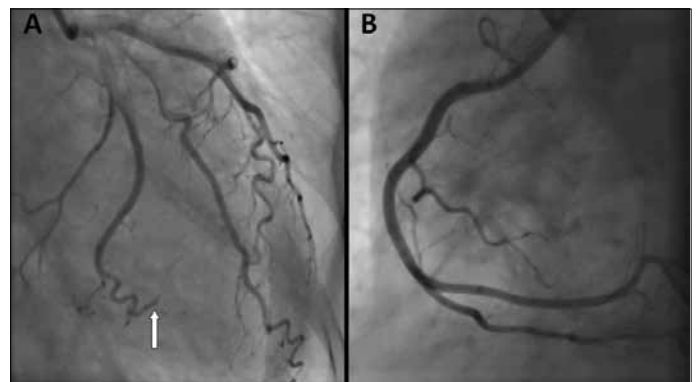


Figure 1. A) Right anterior oblique view of left coronary system. The arrow indicates total occlusion in the distal obtuse marginal branch of circumflex artery. B) Right anterior oblique view of right coronary artery