Pseudoaneurysm of the mitral-aortic intervalvular fibrosa and complementary role of 3D transesophageal echocardiographic imaging

Mitral-aortik intervalvüler fibroza psödoanevrizması ve 3B transezofageal ekokardiografik görüntülemenin tamamlayıcı rolü

An 80-year-old male who had undergone bioprostetic aortic valve replacement because of severe aortic stenosis and double coronary artery bypass grafting four years ago was referred to our hospital with complaints of weakness and loss of appetite for two weeks. Physical examination revealed a 3/6 early diastolic murmur which best heard at the aortic area and fine crackling rales at the base of both lungs. Two -dimensional (2D) transthoracic echocardiography showed moderate paravalvular aortic regurgitation. Ejection fraction was 55%. Mild mitral and tricuspid regurgitation were also noted. Two and three dimensional transesophageal echocardiography (TEE) revealed a suspicious echo-free space consistent with pseudoaneurysm locating in the mitral–aortic intervalvular fibrosa and direct fistulous communication between pseudoaneurysm and left ventricle outflow tract (Fig. 1, 2, Video 1-7. See corresponding video/movie images at www.anakarder.com). Two cultures of blood samples drawn >14 hours apart were positive for *Enterecoccus faecium* susceptible to ampicillin/sulbactam. The patient underwent urgent aortic surgery but he developed ischemic stroke and multiple organ failure and he died in the postoperative period.

Communication of the perivalvular cavity with the cardiovascular lumens via by fistula and the pulsatility of the cavity during cardiac cycle are features differentiating pseudoaneurysms from ring abscesses. An estimate echocardiographic prevalence of pseudoaneurysm and fistula is 1.6% and *S.aureus* being the most commonly associated organism distinctively from our case. 3D TEE is able to define more accurately the anatomy and morphology of the perivalvular abscesses or pseudoaneurysm because of it improves the visualization in the assessment of perivalvular extension. It may supply complementary information useful in diagnosis and management of perivalvular extension. It also able to measure perforation areas, vegetation volumes, and estimate the area of the valve that is involved in the infective process.

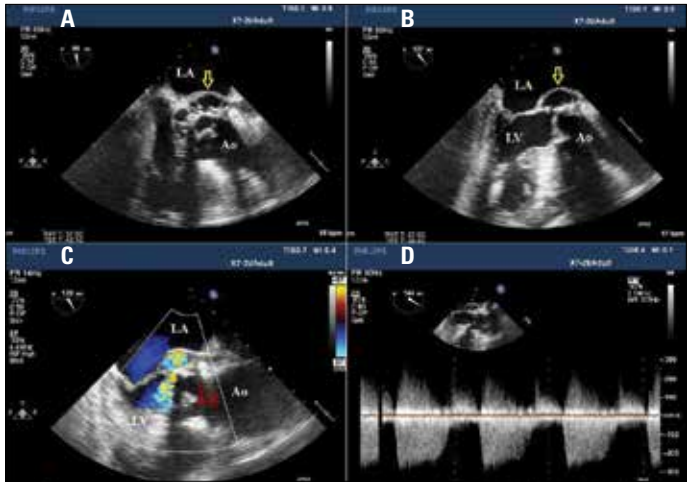

Figure 1. Two dimensional (2D) transesophageal echocardiographic views of pseudoaneurysm: (A) Parasternal short axis view; (B) Parasternal long axis view; (C) Color Doppler ultrasound image in the parasternal long axis view demonstrating fistulous communication between pseudoaneurysm and left ventricle outflow tract (D) CW Doppler ultrasound image in the parasternal long axis view demonstrating fistulous communication

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Video 1. Two-dimensional (2D) transesofageal echocardiographic parasternal long-axis view of the pseudoaneurysm
Video 2. Two-dimensional (2D) transesofageal echocardiographic parasternal short-axis view of the pseudoaneurysm
Video 3. Two-dimensional (2D) color Doppler image in the five chamber view demonstrating a fistulous communication between pseudoaneurysm and left ventricle outflow tract
Video 4. CW Doppler ultrasound image of the fistulous communication from parasternal long -axis view
Video 5. Real-time three dimensional (3D) transesofageal echocardiographic parasternal long-axis view of the pseudoaneurysm
Video 6. Real-time three dimensional (3D) transesofageal echocardiographic five chambers view of the pseudoaneurysm
Video 7. Real-time three dimensional (3D) transesofageal echocardiographic left ventricular side view of the pseudoaneurysm

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Figure 2. Real-time 3-dimensional (3D) transesophageal echocardiographic views of the pseudoaneurysm: (A) Parasternal long-axis view; (B) Five-chamber view; (C) Left ventricular side view

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Rupture of posterior chordae following percutaneous mitral balloon valvuloplasty for rheumatic mitral stenosis

Romatizmal mitral darlığı için yapılan perkütan mitral balon valvüloplasti sonrası posteriyor korda rüptürü

A 31-year-old female was referred to our echo-lab due to progressive dyspnea on exertion. In her history, she underwent percutaneous mitral balloon valvuloplasty (PMBV) due to rheumatic mitral stenosis two months ago. Transthoracic echocardiography with color Doppler revealed anterior eccentric mitral regurgitation jet (Fig. 1, Video 1. See corresponding video/movie images at www.anakarder.com). To clarify mechanism of regurgitation, we performed transesophageal echocardiography (TEE). Two-dimensional TEE demonstrated rupture of chordae on the posterior mitral leaflet (Fig. 2, Video 2. See corresponding video/movie images at www.anakarder.com). Three-dimensional TEE confirmed rupture of chordae at P2 scallop of posterior mitral leaflet (Fig. 3, Video 3. See corresponding video/movie images at www.anakarder.com). She was referred to surgery for mitral valve replacement.

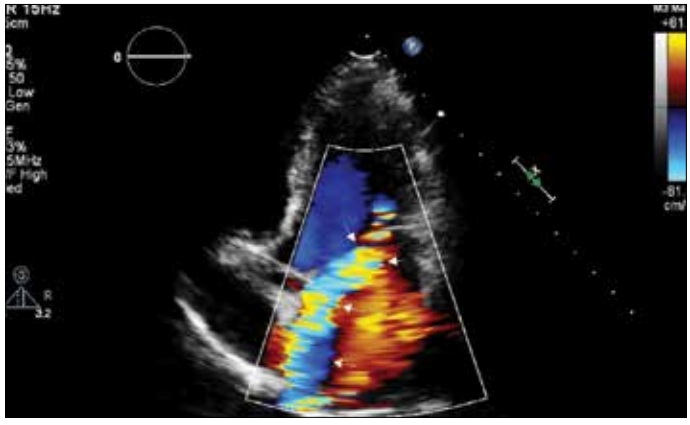

Figure 1. Two-dimensional transthoracic color Doppler echocardiography, apical four chamber view illustrating anterior eccentric mitral regurgitation jet (arrows)

Figure 2. Two-dimensional transesophageal echocardiography, midesophageal four chamber view illustrating rupture of chordae (arrow) at the middle segment (P2 scallop) of posterior mitral leaflet
LA - left atrium, LV - left ventricle

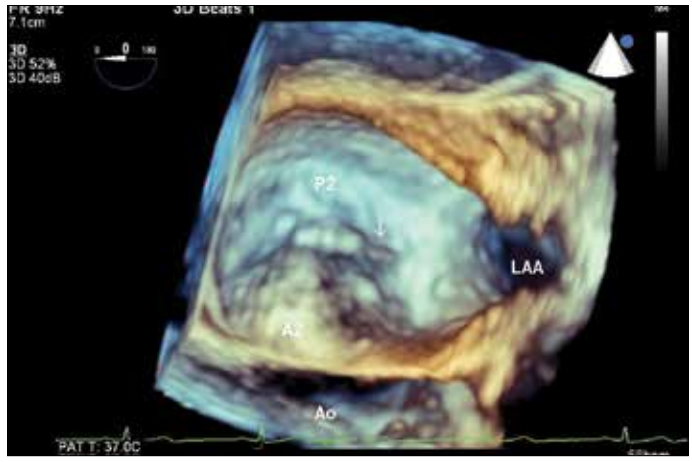

Figure 3. With three-dimensional en face view from the left atrial aspect, rupture of chordae (arrow) on the posterior mitral leaflet was identified at the middle segment (P2 scallop)
Ao - aorta, LAA - left atrial appendage

Mitral regurgitation is relatively common after balloon dilatation, but is mostly mild and caused by excessive commissural tearing or slight prolapse of the anterior leaflet. In this report, we describe mitral regurgitation secondary to rupture of posterior chordae following PMBV, rupture of chordae is rare complication of PMBV especially on the posterior mitral leaflet.

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Video 1. With three-dimensional en face view from the left atrial aspect, rupture of chordae (arrow) on the posterior mitral leaflet was identified at the middle segment (P2 scallop)
Ao - aorta, LAA - left atrial appendage
Video 2. Two-dimensional transthoracic color Doppler echocardiography apical four chamber movie showing anterior eccentric mitral regurgitation
Video 3. Three -dimensional transesophageal echocardiography movie, en face view from the left atrial aspect showing rupture of chordae on the middle segment (P2 scallop) of posterior mitral leaflet

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