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Successful percutaneous balloon mitral valvuloplasty in patients with left atrial appendage thrombus

Sol atriyal apendikste trombüs olan iki hastada başarılı mitral balon valvüloplasti

Introduction

Percutaneous balloon mitral valvuloplasty (PBMV) has become the treatment of choice for patients with symptomatic mitral stenosis since its successful use by Inoue et al. (1) in 1984. One of contraindications to this technique is the presence of thrombus in the left atrium (LA) or left atrial appendage (LAA). Nevertheless, there are some publications indicating that Inoue technique can be safely performed in patients with LAA thrombus (2).

In this report, we describe two patients with rheumatic mitral stenosis referred for PMBV and were found to have LAA thrombus. Despite the presence of LAA thrombus, successful PMBV, with the help of transthoracic echocardiography (TTE), was undertaken without complications.

Case Reports

Case 1

A 51-year-old woman was diagnosed with rheumatic mitral stenosis and referred to our hospital for PBMV. TTE revealed mild mitral regurgitation, moderate-severe mitral stenosis with a mitral valve area (MVA) of 1.1 cm^2 and systolic pulmonary artery pressure (PAP) of 70 mmHg.

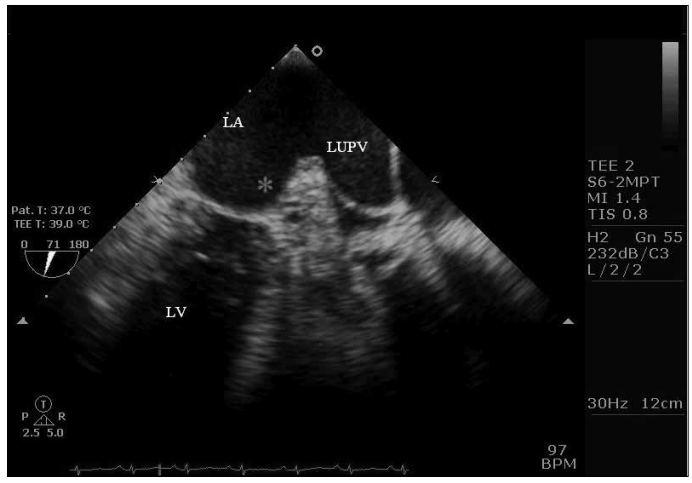

Figure 1. Transesophageal echocardiography: a vertical plane from mid-esophagus demonstrates left atrial appendage and thrombus within the left atrial appendage (*) (Case 1)
LA - left atrium, LUPV - left upper pulmonary vein, LV - left ventricle

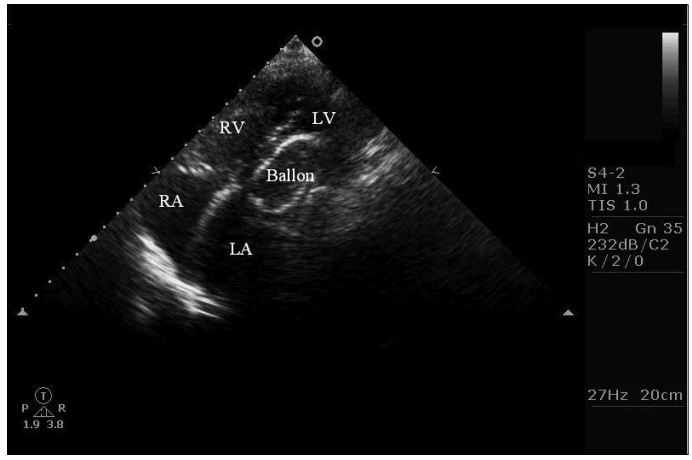

Figure 2. Transthoracic apical four-chamber view recorded during PBMV (Case 1)
LA - left atrium, LV - left ventricle, PBMV - percutaneous balloon mitral valvuloplasty
RA - right atrium, RV - right ventricle

Maximum and mean gradients across the valve were 23 and 11 mmHg respectively. Transesophageal echocardiography (TEE) revealed thrombus in the LAA (Fig. 1). Wilkins mitral valve score was calculated as 7. Mitral valve replacement (MVR) was offered to the patient, but she refused. PBMV was explained to the patient with risks of complications. After her informed consent for the procedure, along with TTE guidance, interatrial septum was punctured from more basal than usual and dilatation was performed by Inoue balloon with as less manipulation as possible (Fig. 2). The catheter equipment was kept at the mid LA level and away from the appendage. When the balloon was defleated, great caution was exercised to avoid the catheter tip springing up to the appendage. The procedure was completed successfully without complications. TTE showed reduction of valve gradients, maximum gradient was 8.5 mmHg and mean gradient was 4 mmHg with MVA of 1.8 cm^2. Systolic PAP was 30 mmHg.

Case 2

A 56-year-old women was diagnosed with mitral stenosis and atrial fibrillation in 2007. She was being followed on β-blocker and anticoagulant therapy. She was admitted to our clinic with progressive dyspnea, which limited her daily activity. On TTE, biatrial dilatation, moderate mitral

stenosis, mild mitral regurgitation, MVA was calculated as 1.2 cm^2 with planimetry and 1.35 cm^2 with Doppler. The maximum and mean gradients across the mitral valve were 19 and 11 mmHg respectively. TEE revealed a thrombus at LAA base, not protruding into LA and measured as 1.2x1.5 cm. The Wilkins valve score was calculated as 9 (Fig. 3). The patient refused to undergo open-heart surgery for mitral valve replacement. Based on the success of the previous case, and the same type of thrombus, which was restricted to the base of the LAA, PMBV was offered and the risk of the procedure was explained in detail. PMBV was performed with the help of TTE. After completion of the procedure without any complication, echocardiographic parameters were as follows, MVA was 1.7cm^2, systolic PAP was 35 mmHg, maximum and mean gradients across the valve were 10 mmHg and 5 mmHg respectively.

Discussion

PBMV is the treatment of choice for patients with rheumatic mitral stenosis and suitable valve anatomy. Stroke was one of the catastrophic complications of PBMV. While ACC/AHA guidelines emphasizes LA thrombus as a contraindication for PBMV (level of evidence C), there is no solid evidence for cases with left atrial appendage thrombus (3).

Some operators do not consider LAA thrombus as an absolute contraindication (4).

Koca et al. (5) performed PBMV to nine patients with symptomatic mitral stenosis and thrombus restricted to the LAA. These procedures were performed under TEE guidance and there were no thromboembolic events. Consequently, researchers concluded that in selected cases, PBMV under TEE guidance was safe and thrombus restricted to the LAA is not an absolute contraindication to the procedure.

The most comprehensive research about this comes from small scale trials comprising 28 and 30 patients. Manjunath et al. (4) performed PBMV to 30 patients with LAA thrombus and observed no systemic thromboembolic event. In this study, Manjunath et al. (4) grouped LA thrombus into five subtypes. In patients with type 1a (LAA thrombus confined to appendage), type 1b (LA appendage thrombus protruding into LA cavity) and type 2a (LA roof thrombus limited to a plane above the plane of fossa ovalis) thrombus, PBMV was considered as safe and effective with modified techniques. Shaw et al. (6) performed PBMV to 28 patients with LAA thrombus and none of the patients experienced embolic event.

Our patients had type 1a thrombus according to the classification denoted by Manjunath et al. (4). The procedures were performed with lower septal puncture and with less manipulation. Contrary to previous researchers, we used TTE.

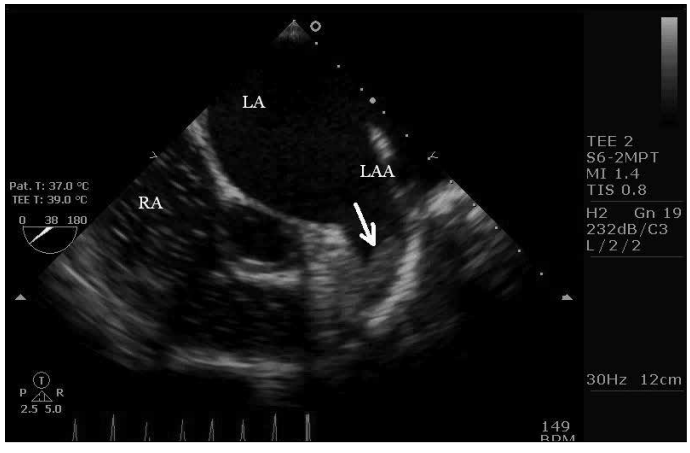

Figure 3. Transesophageal echocardiography shows LAA thrombus at mid-esophageal aortic valve short-axis view (Case 2). Arrow-thrombus in LAA

LA - left atrium, LAA - left atrial appendage, RA - right atrium

Conclusion

PBMV is a safe option for patients with suitable valve anatomy and thrombus localized to LAA. Systemic thromboembolism is rare if performed by an experienced operator. TTE seems as a safe and effective alternative to TEE.

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The role of two-dimensional speckle -tracking echocardiography in a patient with Behçet's disease

Behçet hastalığı olan hastada iki boyutlu benek takip yöntemli ekokardiyografinin önemi

Introduction

Behçet's disease (BD) is a systemic inflammatory disorder of unknown origin characterized by variable clinical manifestations. Most