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Challenging MitraClip imaging case



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ABSTRACT

MitraClip is a well-established method for treatment of mitral regurgitation. It is dedicated for patients, who cannot undergo surgery. But, we are facing some cases, which are out of standard indication criteria and they are technically challenging and uncommon, finally with very good results. We present a case report of a man, who suffered from severe mitral regurgitation after a previous surgical mitral valve repair.

This was successfully solved with MitraClip implantation.

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Introduction

MitraClip is a fully and well-established method for the treatment of severe mitral regurgitation (MR) since 2012. It is a recommended method of treatment in selected patients who are not able to undergo standard surgical mitral valve repair or replacement [1,2]. Common indications include degenerative leaflet impairment of the mitral valve (MV) in the meaning of the localized central prolapse (P2). However, most often patients with functional MR are indicated. This is due to dilating mitral annulus or restriction of movement of the posterior leaflet, commonly with severe left ventricular systolic dysfunction. The most common way of catheter-based treatment is to implant a MitraClip which stitches anterior and posterior leaflet of MV. This is a similar principle as to the Alfieri stitch of surgical mitral valve repair (MVR).

The whole procedure is especially guided by live 2D and 3D transesophageal echocardiography (TEE).

Recurrence of non-trivial MR after previous surgical MVR is up to 8% per year and of severe MR less than 4% per year [3]. Other data show recurrence of MR after 15 years of 13.3% [4].

We are presenting a case report of a man, who was treated by MitraClip after previous surgical MVR failure.

Case

Male, without previous history of ischemic heart disease, aged 65 years, in November 2009, had myocardial infarction with ST elevation (STEMI). This was treated by direct complex PCI LAD/Cx/D1/D2. He had a history of chronic obstructive pulmonary disease (COPD), mild renal insufficiency and paroxysmal atrial fibrillation followed by several electrical cardioversions.

After STEMI he suffered from severe MR (Fig. 1), his left ventricular ejection fraction (LVEF) was 35–40%. Clinically he was in class NYHA II. After the discussion in Heart team meeting, it was the recommended conservative approach at

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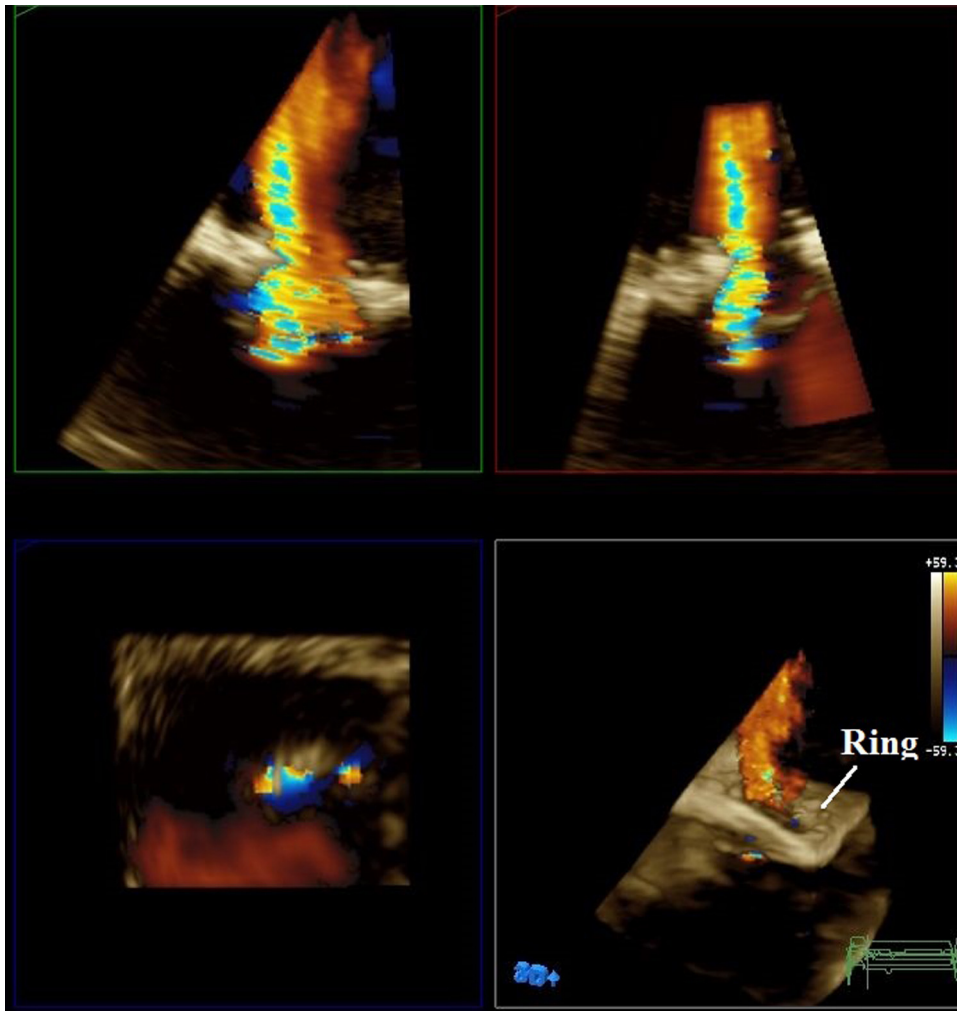


Fig. 1 – 3DTEE severe MR due to posterior leaflet restrictive motion.

this time. The reason was the risk of in-stent restenosis and favorable clinical condition. It was recommended to perform checks of coronary angiography and transthoracic echocardiography (TTE) after 6 months.

With these checks we found in-stent restenosis of D1 and Cx closure in February 2010. There was still severe MR, but the patient was free of angina pectoris (AP), still in NYHA II class. LVEF remained 35%. Because of his good clinical condition, conservative strategy was chosen again.

Unfortunately, worsening of the symptoms was discovered in June 2010. He was in NYHA II-III and suffered from AP grade II (CCS classification). Identical findings in coronary arteries and TTE were observed. He was referred to the Heart team again, and he was selected for coronary artery bypass grafting (CABG) and mitral valve repair. He underwent surgery in July 2010. Resynchronization therapy and ICD was implanted in October 2010 in relation of primary prevention of sudden cardiac death and LBBB.

A year later, in November 2011, he came to our cardiology clinic with worsening shortness of breath - NYHA class III-IV. Echocardiographic finding revealed worsening of left ventricular dysfunction, it was 25%, and also severe MR. After a complex examination he was referred to the Heart team again.

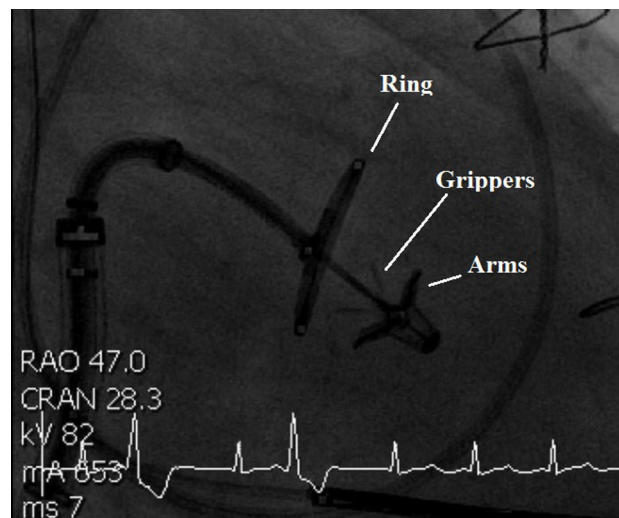


Fig. 2 – Skioscopy from right anterior oblique view (RAO). Visible MitraClip guiding catheter and steerable sheath with opened MitraClip passed through mitral valve annuloplasty ring toward left ventricle cavity. MitraClip is in grasping position with opened grippers.

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