

IMAGES IN INTERVENTION

Mitral Annuloplasty Ring Fracture and Annular Injury During Transcatheter Mitral Valve-in-Ring Intervention



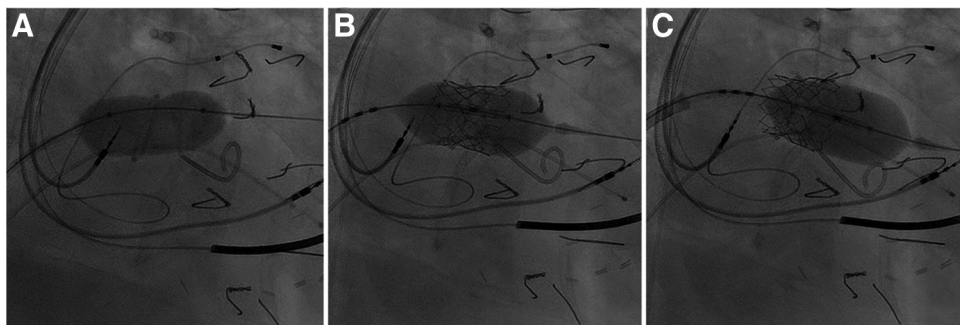
Tiberio M. Frisoli, MD,^a Dee Dee Wang, MD,^a Marvin Eng, MD,^a William W. O'Neill,^a Gaetano Paone, MD,^b Adam B. Greenbaum, MD^a

A 60-year-old man who underwent prior surgical repair of severe mitral regurgitation with a 28-mm Sorin 3-dimensional Memo complete semi-rigid annuloplasty ring (Sorin Group, Arvada, Colorado) developed symptomatic severe functional mitral stenosis (transmitral mean gradient: 10.7 mm Hg at a heart rate of 90 beats/min on echocardiogram). By multidisciplinary review, he was felt to be an appropriate candidate for transcatheter mitral valve replacement given multiple comorbidities.

Computed tomography scan showed mitral ring internal diameters of 23.3 mm × 23.3 mm, yet the

manufacturer's specifications suggest an inter-commissural distance of 25.9 mm. During transcatheter mitral valve-in-ring (TMViR) intervention, a 23-mm balloon was inflated within the surgical ring for sizing purposes with a slight waist appearance (Figure 1A). A 26-mm Edwards Sapien 3 valve (Edwards Lifesciences, Irvine, California) was deployed inside the ring, with 2 ml less than nominal volume (Figure 1B). To ensure stability, the balloon was advanced and, with an additional 2 ml in the balloon, reinflated to flare the ventricular side of the valve (Figure 1C). Transesophageal echocardiography

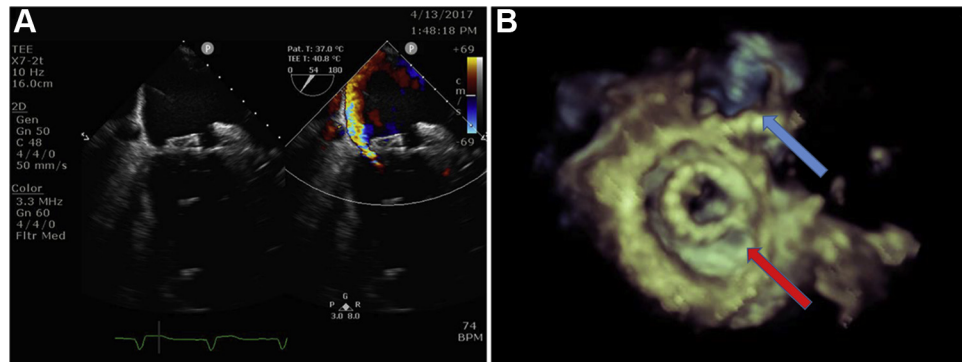
FIGURE 1 TMViR Deployment



(A) Balloon pre-dilatation. (B) Transcatheter mitral valve-in-ring (TMViR) valve deployment. (C) On same pacing run as for valve deployment: second inflation (with 2 cc added to balloon) to flare ventricular side of valve.

From the ^aCenter for Structural Heart Disease, Heart and Vascular Institute, Henry Ford Hospital, Detroit, Michigan; and the ^bDivision of Cardiac Surgery, Heart and Vascular Institute, Henry Ford Hospital, Detroit, Michigan. Dr. Frisoli is a consultant for Edwards Lifesciences and Abbott. All other authors have reported that they have no relationships relevant to the contents of this paper to disclose.

Manuscript received July 27, 2017; revised manuscript received August 17, 2017, accepted August 18, 2017.

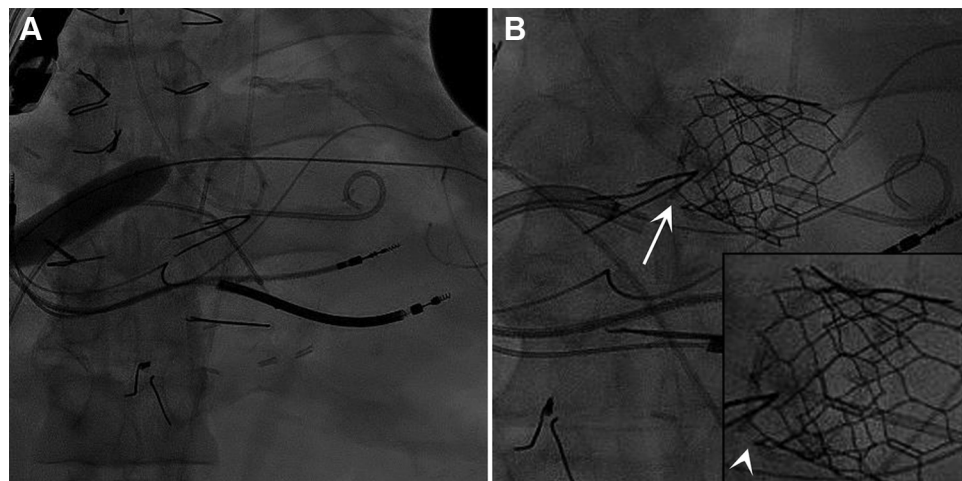
FIGURE 2 PVL After TMViR Seen by TEE Color Doppler and 3D TEE

(A) There is a new eccentric severe mitral regurgitation jet outside of the mitral valve-in-ring (red arrow). (B) The paravalvular leak (PVL) orifice is located at 4 o'clock (red arrow); aortic valve (blue arrow) is at roughly 12 o'clock. 3D = 3-dimensional; TEE = transthoracic echocardiography; TMViR = transcatheter mitral valve-in-ring.

now revealed severe paravalvular leak (PVL). Post-dilatation with a 24-mm noncompliant balloon was performed (Online Video 1) in the hope of reducing the PVL, which was felt to be located between the transcatheter valve and surgical ring. However, the severe PVL was unchanged and now noted by transesophageal echocardiography (TEE) to in fact be outside the surgical ring (Figure 2). Fluoroscopic comparison of the ring before and after valve deployment illustrated a fracture in the mitral ring (Figure 3, Online Videos 2A and 2B). Over a

veno-arterial rail, 3 occluders (two 6/4 Amplatzer Duct Occluder II followed by one 14-mm Amplatzer Vascular Plug II occluder [both St. Jude Medical, St. Paul, Minnesota]) were deployed, reducing PVL to trivial (Online Videos 3A and 3B). The 3 occluder devices can be seen adjacent to the fractured segment of the mitral ring (Online Video 4). Left atrial peak pressure was reduced from 48 to 27 mm Hg (Figure 4).

TEE evaluation pre-TMViR/PVL repair as compared to post-TMViR/PVL repair revealed the following: pulmonary vein pattern changed from systolic flow

FIGURE 3 Comparison of Surgical Ring Pre- and Post-TMViR

(A) Pre-TMViR surgical ring appears intact. (B) Post-TMViR surgical ring fracture (arrows). TMViR = transcatheter mitral valve-in-ring.

Download English Version:

<https://daneshyari.com/en/article/8664351>

Download Persian Version:

<https://daneshyari.com/article/8664351>

[Daneshyari.com](https://daneshyari.com)