

#### **IMAGING VIGNETTE**

### Early Bioprosthetic Valve Failure

# CrossMark

#### A Pictorial Review of Rare Causes

Paul C. Cremer, MD,\* L. Leonardo Rodriguez, MD,\* Brian P. Griffin, MD,\* Carmela Tan, MD,† Rene Rodriguez, MD,† Douglas R. Johnston, MD,‡ Gosta B. Pettersson, MD,‡ Venu Menon, MD\*

**IN OLDER ADULTS, BIOPROSTHETIC VALVES RARELY FAIL WITHIN 5 YEARS OF THE INDEX SURGERY.** Such failures pose a challenge to patients, clinicians, and surgeons. Although clinicians are generally aware of valve dysfunction related to overt endocarditis, patient-prosthesis mismatch, and technical error, less-recognized causes of early bioprosthetic valve failure include valve thrombosis (**Figures 1 and 2**, Online Videos 1 and 2), excessive pannus formation (**Figures 3 and 4**, Online Videos 3, 4, 5, and 6), and accelerated structural valve deterioration (**Figures 5 and 6**, Online Videos 7, 8, 9, and 10). Given their rarity, these failure mechanisms have

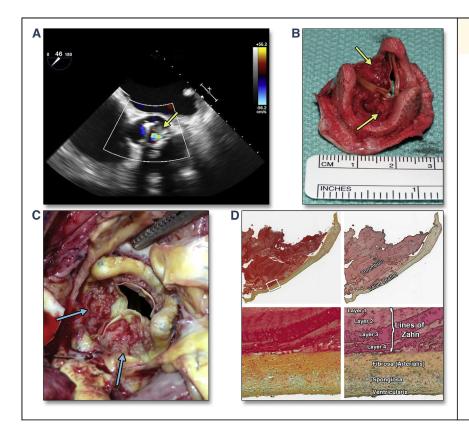


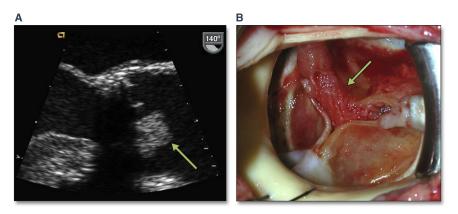
FIGURE 1 Thrombi on the Nonflow Surface of a Bioprosthesis Leading to Stenosis

One year after aortic valve replacement with a 25mm Medtronic Mosaic valve (Medtronic, Minneapolis. Minnesota), severe aortic stenosis recurred in a 78-year-old patient (A and B) (Online Video 1). Thrombi suspected on transesophageal echocardiography are confirmed on the nonflow surface of the valve (yellow arrows). A 67-year-old man presented similarly with recurrent severe aortic stenosis 1 year after aortic valve replacement with a 25-mm Biocor bioprosthesis (St. Jude Medical, St. Paul, Minnesota) (C and D). Thrombi are seen on the nonflow surface of the valve (C, blue arrows), and Movat stain reveals thrombus in red and leaflet in yellow-green (D). Lines of Zahn represent layering of thrombus over time that stiffens the leaflet and renders it immobile. Even though results of blood cultures had been negative, culture of the valve grew Propionibacterium acnes, emphasizing the importance of a comprehensive assessment for infection because thrombus and infective endocarditis may both be present.

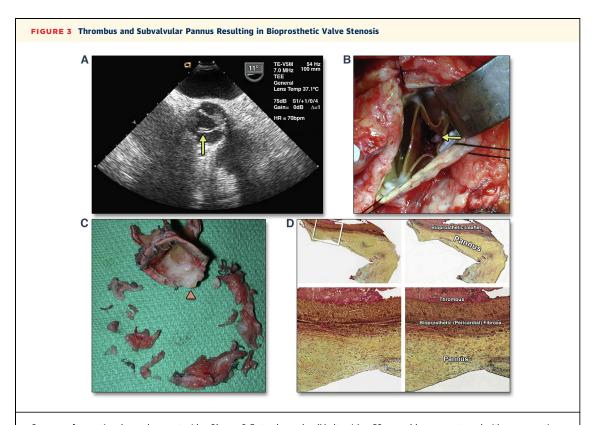
From the \*Department of Cardiovascular Medicine, Heart and Vascular Institute, Cleveland Clinic, Cleveland, Ohio; †Department of Anatomic Pathology, Heart and Vascular Institute, Cleveland Clinic, Cleveland, Ohio; and the †Department of Thoracic and Cardiovascular Surgery, Heart and Vascular Institute, Cleveland Clinic, Cleveland, Ohio. The authors have reported that they have no relationships relevant to the contents of this paper to disclose.

Cremer et al.

FIGURE 2 A Large Thrombus Causing Bioprosthetic Valve Stenosis



Three years after receiving a 21-mm Carpentier-Edwards valve (Edwards Lifesciences, Irvine, California), a 51-year-old woman returned with severe aortic stenosis and a large thrombus (green arrows, A and B) (Online Video 2). The microbiologic assessment was unremarkable, and she received a 24-mm homograft. With aortic valve thrombosis, the threshold for root replacement may be lower because aortic homografts may have decreased thrombogenicity.



One year after aortic valve replacement with a 21-mm, 3-F stentless valve (Medtronic), a 58-year-old woman returned with severe aortic stenosis. A focal thrombus (yellow arrow, A and B) (Online Video 3) was observed, as well as extensive subvalvular pannus (pink arrowhead, C). Movat stain of the valve (D) revealed the fibrosa layer of the bovine pericardium as dark yellow-orange, rich in fibrous tissue. Small thrombi may serve as a nidus for exuberant pannus formation. Both the thrombus and subvalvular pannus contribute to immobilization of the leaflet and valvular stenosis.

#### Download English Version:

## https://daneshyari.com/en/article/2937769

Download Persian Version:

https://daneshyari.com/article/2937769

<u>Daneshyari.com</u>