Where there is smoke, is there fire?

Patrick M. McCarthy, MD

From the Cardiac Surgery Division, Bluhm Cardiovascular Institute, Northwestern University Feinberg School of Medicine, Chicago, IL.

Disclosures: Dr McCarthy discloses commercial ties to Edwards Lifesciences (consultant, royalties, and intellectual property).

Received for publication Sept 12, 2017; accepted for publication Sept 15, 2017; available ahead of print Oct 19, 2017.

Address for reprints: Patrick M. McCarthy, MD, Executive Director of the Bluhm Cardiovascular Institute, Chief of the Cardiac Surgery Division, Heller-Sacks Professor of Surgery at the Northwestern University Feinberg School of Medicine, Northwestern University, Division of Cardiac Surgery, 201 E Huron St, Suite 11-140, Chicago, IL 60611-2908 (E-mail: pmccartn@nmh.org).

J Thorac Cardiovasc Surg 2018;155:72
0022-5223/$36.00
Copyright © 2017 by The American Association for Thoracic Surgery
https://doi.org/10.1016/j.jtcvs.2017.09.069

No sane surgeon wants to reoperate on an 82-year-old woman with a small aortic valve prosthesis who had previously undergone Dacron polyester fabric patch augmentation of her aorta and aortic annulus. But sometimes you need to do this. What are the options? The criterion standard approach would be to do a repeat median sternotomy, perform central cannulation (some surgeons may prefer axillary cannulation), and then attack the problem head on. Dacron polyester fabric patches can be difficult, because they may be firmly adherent to the right atrium. On opening the ascending aorta, the surgeon can expect that the sutures used to tie down the prosthesis can be removed by manipulating the valve, and then the previous valve can be explanted. Apparently, this was not possible for the patient in the surgical technique report of Inoue and colleagues1 in this issue of the Journal. I have not been in that situation. The adhesions of the Dacron polyester fabric patch are outside the aorta and not within the wall. If needed, the valve can be bent, deformed, or even removed in portions. A standard rereplacement can then be performed. Difficult, time-consuming, tedious—all are accurate descriptions of the procedure.

In today’s age, transcatheter aortic valve replacement as a valve-in-valve procedure should be seriously considered.2 It is now approved in the United States by the Food and Drug Administration (it was not available in Japan in 2012 when Inoue and colleagues1 performed their chimney procedure), and it is a practical alternative. Because the valve in this patient was a small 19-mm pericardial valve, the valve could be “fractured” with a balloon to facilitate valve-in-valve placement.3-5 If the patient had prosthetic aortic stenosis, then a left ventricular apical conduit to the descending aorta would be another consideration; in this case, however, with aortic regurgitation, it would not help. After the chimney procedure described by Inoue and colleagues,1 the patient has a 16-mm mechanical valve inside the 19-mm pericardial valve; fortunately, after 5 years, she still has a low-pressure gradient (mean gradient 6.4 mm Hg). Apparently, the patient has not had any embolic events and is being maintained on anticoagulation. With the mechanical valve lodged inside the bioprosthetic valve, imaging to detect thrombus or pannus forming below the mechanical valve would be extremely difficult to perform. It probably is there, though.

I would not draw the conclusion that Inoue and colleagues1 did, that this is a “simple and effective” procedure. It sounds complicated, and the hemodynamics in a larger series likely would be far from ideal. On the other hand, the latest outcomes with valve-in-valve in the aortic position look very encouraging, with 2.7% 30-day mortality, and 0.7% in 269 continued access patients.2 The chimney procedure may just be smoke, aortic valve-in-valve rereplacement is a bright flame.

References