CoreValve Aortic Bioprosthesis

Repositioning Techniques

In a recent issue of JACC: Cardiovascular Interventions, Latib et al. (1) presented images of a technique for repositioning a just-implanted CoreValve (Medtronic, Minneapolis, Minnesota) aortic bioprosthesis with a snare.

The “Snare” technique is a bail-out method, which has been described in detail by Vavouranakis et al. (2). This technique may be applied when the aortic prosthesis is initially positioned too low. A low deployment of the prosthesis would result in an angiographically significant aortic insufficiency (AI). In fact, an AI observed during implantation procedure could as well be attributed to an incomplete deployment of the valve. If this were the case, post-implantation balloon inflation would fully expand the frame of the prosthesis and the “skirt” of the prosthesis would effectively seal any perivalvular leaks. However, in the case of a truly low valve positioning, post-implantation inflation(s) would not improve the observed AI. In this case, the snaring and pulling technique might be used.

A critical point, regarding the “Snare” repositioning technique, is that the operator, when trying to capture the loop of the prosthesis with the snare, should be aiming at the loop that corrects the deep valve positioning. Of course, there are certain limitations to the possibility of full retraction of the valve in a correct position.

In addition to the presented technique, 1 more repositioning technique is available (2). This is the “Removing and Repositioning” technique, which may be used in the case of too-high initial positioning of the prosthesis. However, it can be performed only if the prosthesis is still semi-deployed. In this procedure, the prosthesis is: 1) retrieved within the housing sheath; 2) removed from the body and inspected; and 3) re-inserted and successfully implanted.

In conclusion, it should be noted that the CoreValve (Medtronic) was not primarily designed to be repositioned and the manufacturer does not promote it, so the described repositioning techniques should be used as bail-out techniques.

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REFERENCES


Reply

We thank Dr. Vavuranakis and colleagues for their interest in our report of “Post-implantation repositioning of the CoreValve percutaneous aortic valve” (1) and for the opportunity to discuss our experience with repositioning techniques of the CoreValve prosthesis (Medtronic Inc., Minneapolis, Minnesota), which was beyond the scope of an Image in Intervention article. At the outset, we would like to state that the best repositioning technique for the CoreValve bioprosthesis is to aim at implanting the valve correctly the first time without having to reposition the valve later. In their letter, Dr. Vavuranakis et al. allude to an important point about implantation of the CoreValve bioprosthesis, which in our opinion is not sufficiently stressed. It has now become routine practice in our institution to post-dilate all CoreValve prostheses that have more than trivial (>1+) aortic regurgitation. In the majority of cases, this additional post-dilation optimizes expansion of the nitinol stent and reduces the severity of aortic regurgitation, unless the prosthesis was truly implanted very low. Snaring and repositioning the CoreValve is a “bail-out” technique that should be attempted with caution due to the risk of embolization. A potential risk of snaring the CoreValve is that the valve moves up and the skirt covers the coronary ostium; in this event, the valve should be pulled back a little more. If the valve embolizes during this maneuver, a second valve can be implanted in the correct position. In our experience with implantation of the CoreValve in 72 patients to date, we have only performed the “snare” repositioning technique in the patient we published. Finally, the refolding and reinsertion technique is well described and is considered by some an advantage of the CoreValve Revolving System. We have used this technique successfully in 8 patients but would like to again stress that it is not without risk. Pulling the partially deployed valve back into the sheath can result in the stent struts scraping the aorta and atheroembolization. Indeed, in 1 of these 8 patients, we observed evidence of microembolization in multiple arterial beds immediately after this maneuver.

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