VALVE-IN-VALVE: ESTIMATING THE RISK OF OSTIUM OBSTRUCTION IN FAILED SORIN STENTLESS VALVES
To the Editor:

Transcatheter heart valve aortic valve-in-valve (ViV) implantation is likely to become increasingly important for the treatment of patients with degenerated and failing bioprostheses. In high-risk patients or in patients not considered candidates for operation, ViV treatment has emerged as an effective, less invasive option, despite considerable hazards of adverse procedural outcomes such as device malpositioning, ostial coronary obstruction, and death.¹ Risks reported with Sorin Freedom stentless valves have been particularly frequent, with a 50% likelihood of ostium obstruction and high mortality, presumably when leaflets of the existing valve are compressed onto the aortic wall by the transcatheter heart valve.¹ Understandably, the risk of ostium obstruction leads to significant concerns when considering potential candidates with Freedom stentless valves for ViV; however, risks must be established on a valve-specific basis. Importantly, confusion may arise from the often cited Global Valve-in-valve Registry reports,¹ in which the exact specifications for Sorin Freedom stentless valves were not provided. Indeed, in light of the considerable technical and design difference between the 2 Freedom stentless valves, the Pericarbon Freedom

FIGURE 1. The Pericarbon Freedom (A) and Freedom SOLO (B) valves (Sorin Biomedica, Saluggia, Italy). A = (external) diameter (mm), H [PF]/h [FS] = total height (mm).

(PF; Figure 1, A) and the Freedom SOLO (FS; Figure 1, B) valves (both manufactured by Sorin Biomedica, Saluggia, Italy), particularly with respect to the dimensions of their specific component parts, the distinction between these two valves is of critical and utmost importance for risk assessment and planning of ViV procedures.

The PF bioprosthesis, available since 1991, is implanted with 2 suture lines on the inflow and with a running suture in a subcoronary fashion on the outflow side (Figure 1, A). Because of its extra tissue, individual tailoring, and variable positioning, the precise location of the PF cannot be determined easily and is likely to differ considerably with respect to the coronary ostia. Patients with PFs must therefore be considered to be rather inappropriate candidates for ViV. The FS (Figure 1, B) emerged in Europe in May 2004 as a modified version of the PF and has just recently (June 2014) received Food and Drug Administration approval for use in the United States. The design modification implemented in the FS was aimed at allowing subcoronary, supra-annular implantation with only 1 suture line; this was achieved by removal of all extra tissue from the PF valve inflow side and scalloping of the outflow side.²

With correct implantation, the prosthesis leaflets imperatively originate immediately above the annulus, with the leaflet base being positioned 2 mm above the lower margin of the prosthesis. Furthermore, there is a 4-mm distance between the top of the commissure and the leaflets' upper edge. Thus as a general rule effective leaflet height for the FS can be calculated by assuming a length of approximately 6 mm less than the total height specified by the manufacturer.³ Unlike with the PF prosthesis, the precise location and effective height of leaflets are known with the FS prosthesis, and risk estimation for ostial obstruction is possible after the determination of coronary ostia location. Careful patient selection, understanding of prosthesis-specific design characteristics, and anticipation of complications are essential in the management of patients with failed bioprosthesis, particularly the Sorin Freedom stentless valves, for which we aim to provide insight with this communication.

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DOES VIDEO-ASSISTED THORACOSCOPIC SURGICAL (VATS) LOBECTOMY REALLY RESULT IN FEWER COMPLICATIONS THAN THORACOTOMY? THE BIASES ARE CLEAR, THE ROLE OF VIDEO-ASSISTED THORACOSCOPIC SURGERY LESS SO

To the Editor:

The article by Boffa and colleagues,¹ "Fewer Complications Result From a Video-Assisted Approach to Anatomic Resection of Clinical Stage I Lung Cancer," is an excellent attempt to compare video-assisted thoracoscopic surgery (VATS) and thoracotomy. There are many more limitations, however, than those stated in the article. We must be objective and honest with ourselves and our colleagues before we begin to claim that VATS is the criterion standard.

1. The nature of the Society of Thoracic Surgeons database does

not allow the accurate assessment of VATS conversions to thoracotomy. This limitation is stated in the article, but it must be emphasized. This alone can falsely favor VATS relative to thoracotomy.

2. The patients who had VATS and thoracotomy were excluded from the comparative analysis. This methodology is incorrect. This group should be included in the VATS group as an intent-to-treat analysis.²
3. How many VATS anatomic resections resulted in pneumonectomy or some other catastrophic complication? Catastrophic complications, including unexpected pneumonectomy, are frequently overlooked.³ In a previous study, unplanned pneumonectomy occurred in 1 of every 200 cases.³ This is not captured by the Society of Thoracic Surgeons database, and Boffa and colleagues¹ did not address this issue.
4. Individual surgeons decide whether to perform VATS or thoracotomy for many reasons, including body habitus, comorbidities, dense adhesions, the presence of anatomic issues such as a left internal thoracic artery in a left upper lobe lobectomy, and learning curves. These factors were not included in this analysis. Not taking this surgical bias into account makes thoracotomy appear unfavorable to a higher degree and VATS appear better to a higher degree.
5. Propensity matching cannot control for the selection biases occurring before surgery or during surgery in patients who had thoracotomy and VATS (possible conversions). It is up to the investigator to consider all possible factors that may bias outcome in favor of VATS and against thoracotomy and to attempt to control for such factors.

There is selection bias taking place at multiple levels here. VATS is not for every patient, nor is it for every surgeon. We need to monitor alleged

benefits carefully before subjecting patients to harm from overzealous performance of VATS lobectomy when thoracotomy is warranted. We must therefore be careful of falsely overstating the benefits of VATS lobectomy.

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THE VATS ADVANTAGE: SEEING IS BELIEVING ... AND VICE VERSA

Reply to the Editor:

My coauthors and I appreciate Dr Flores's thoughtful response to our study. Dr Flores has emphasized the potential for bias related to video-assisted thoracoscopic surgery (VATS) cases that were converted to thoracotomy. Although it is not possible to identify cases of conversion directly, it is possible to identify patients that underwent a VATS on the same day as an anatomic lung cancer resection by thoracotomy (subsequently referred to as "multiple approach patients"). The multiple approach patients would include patients with conversion as well as patients who underwent a diagnostic VATS before a planned thoracotomy for anatomic resection. We have evaluated 2 ways in which converted cases could bias the results.