disease (65%), and squamous cell carcinoma (80%). Although all thoracic surgeons maintain these principles during sleeve lobectomy for lung cancer, bronchostenosis and fistula remain fearful complications.

The etiology of airway complications in most cases is related to airway ischemia. The resultant ischemia of the airway can lead to mucosal ulceration and subsequent granulation tissue formation or transmural necrosis. Preservation of the airway blood supply is the most critical factor for obtaining a successful airway anastomosis in bronchoplasty patients. The primary blood supply to the common sites of anastomosis, including the distal trachea and main bronchus, is derived from the bronchial circulation. The bronchial arteries form the peribronchial arterial bronchial plexus. These plexuses also give rise to small arterioles that penetrate the muscular layer to reach the bronchial mucosa, where they form the submucosal plexus.[3] However, after sleeve lobectomy, the systemic connection to the bronchial arteries is usually not restored. A flow reversal from the pulmonary circulation into the bronchial circulation by way of the bronchial venous network occurs, resulting in perfusion of the peribronchial and submucosal plexuses of the airway.[4] Compromising the bronchopulmonary collateral flow can lead to ischemic sequelae at the site of anastomosis. Clinical experience suggests that the amount of perfusion achieved by this flow reversal from the pulmonary circulation to the bronchial circulation is sufficient to maintain airway viability and allow for anastomotic healing. During bronchial dissection, we can examine the blood supply of the resected bronchus. If the bronchial segment is saved by bronchial wedge resection, the blood supply can also be maintained by way of the submucosal plexus in the remnant bronchus.

Regarding the geometric issue, we must see both the forest and the trees. Lobectomy leads to the geometric alteration of the bronchus by the expansion of the remnant lung with resolution of the space. In particular, for upper lobectomies, in which sleeve lobectomy is commonly performed, the main bronchus and main pulmonary artery are frequently angulated to resolve the space problem. In this study, approximately 70% of the patients who underwent upper lobectomy. Sleeve lobectomy appears to be a geometric reconstruction during deflation of the lungs in the operative field. However, after chest closure with lung inflation, the intraoperative geometric stability can deteriorate, with increased tension at the counterpart site of the resected bronchus. However, a transverse or oblique approximation of the bronchus and retaining the counterpart bronchus during wedge bronchoplasty can be more tolerable to this geometric alteration. An intraoperative bronchoscopic confirmation of the patency at the anastomotic site is thought to be enough to perform a successful anastomosis.

Oncologically, we have already shown acceptable oncologic results after wedge bronchoplastic lobectomy. Dr Nosotti's case was a 15-year-old girl with low-grade mucoepidermoid carcinoma of the left lower lobar bronchus who underwent a video-assisted thoracic surgical sleeve lobectomy.[5] However, I believe this type of polypoid tumor protruding into the main bronchus without mucosal spread is the best indication for wedge bronchoplastic lobectomy, because it is the easier and simpler method and does not have the potential for oncologic compromise. The usefulness of wedge bronchoplastic lobectomy for lung cancer is based on anatomic, geometric, and oncologic evidence, as well as a surgeon's psychological health.

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CAN THE SUCCESS OF TRANSCATHETER AORTIC VALVE IMPLANTATION BE INCREASED?

To the Editor:

We congratulate the authors on their study.[1] After application of a size 26 Sapien valve to one third of the patients, the postoperative effective orifice area was noted to be 1.67 cm^2 and the geometric size was 2.5 cm^2 in the size 21 Sapien valve. This suggests that the balloon should be inflated more. Instead of ''hinge-to-hinge'' or ''virtual ring'' calculations, we suggest that an experienced cardiac surgeon can decide which leaflet should be dilated to what degree, while inflating the valve using computed tomography or echocardiography, because the Sapien valve is located at the leaflet and not at the annulus.

Unbehaun and colleagues[2] examined transvalvular insufficiency in this study. If the location of the prosthesis over the leaflet is asymmetric, a transvalvular gradient can occur. Transvalvular regurgitation necessitates balloon dilation.

The shapes of the Edwards valves is different from that of the CoreValve.

To avoid migration of the Edwards valve, the prosthesis can be overinflated or its shape can be manufactured according to this structure.

Although the aortic valve area was found to be 2.1 ± 0.5 cm^2, the 26-mm valve was replaced in 65% of the patients, demonstrating that the valve can be widened by 35%. This additional widening will diminish paravalvular regurgitation.

There could be disagreement concerning additional widening, because some investigators favor the theory that this widening will obliterate the coronary orifices, resulting in complications. However, Kalavrouziotis and colleagues[3] applied a 23-mm Edwards Sapien to a small annulus and had a success rate of 97%. We believe that additional widening using balloon dilation will further lower the incidence of regurgitation.

Although Sherif and colleagues[4] showed that 1 reason for paravalvular regurgitation was the angle between the preoperative septum and the left ventricular outflow tract, we do not believe this is possible because, after the operation, the flow, pressure, wall thickness, and angle will change. Also, this change in angle is not the precise reason for paravalvular regurgitation.

Blanke and colleagues[5] compared the hinge-to-hinge and virtual-ring methods for transcatheter aortic valve implantation and found no differences. We think both methods are insufficient, because the prosthesis is located over a thick leaflet and not the annulus, and this necessitates a calculation of the leaflet thickness and the amount of opening.

In these studies, the hinge-to-hinge and virtual-ring calculations do not correlate with the fact that the valve is seated over the leaflet. To what point should the leaflet be opened and at what point should the leaflet thickness be calculated? It has been shown that leaflet opening is not enough (although the diameter is 32 mm); thus, we recommend that valve dilation by conserving the coronary orifices will help prevent paravalvular regurgitation. We have concluded that transvalvular regurgitation is the consequence of asymmetry. The point to which it needs to be dilated can be calculated using elliptic balloons. The noncoronary cusp, at which most calcifications are located, can be dilated. Today, we have determined that there are enough findings to indicate that the actual valves can be dilated. The transcatheter aortic valve implantation team leader should be a cardiac surgeon experienced in aortic valve surgery.

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Reply to the Editor:

We thank Dr Bozok and colleagues for their useful comments and suggestions to reduce paravalvular leak after transapical aortic valve implantation. In our study based on data from the Italian Registry of Trans-Apical Aortic Valve Implantation,[1] the incidence of paravalvular leak (trivial and mild) was 38%, and this is consistent with the incidence reported by other series.[2] Reducing the incidence of paravalvular leak is of outmost importance to improve patient outcomes. In fact, it has been demonstrated that the presence of paravalvular aortic regurgitation after transcatheter aortic valve implantation is associated with an increased rate of late mortality and that the effect of aortic regurgitation on mortality is proportional to the severity of the regurgitation. Furthermore, even mild aortic regurgitation is associated with an increased rate of late deaths.[3]

Overexpansion of the Sapien valve after deployment might be useful, but it is controversial and should be performed carefully. Many complications can occur after this procedure, including not only coronary ostia occlusion, but also rupture of the aortic annulus and injury to the prosthetic valve leaflets. Furthermore, in our experience, overexpansion of the Sapien valve after deployment is often associated with a small (or none) reduction of the degree of paravalvular regurgitation. We agree with Dr Bozok that asymmetry of the calcium distribution over the leaflets and annulus is a major determinant of paravalvular regurgitation; however, other important causes should be also carefully considered such as correct sizing and correct positioning. Correct sizing needs an experienced multidisciplinary and multimodal