

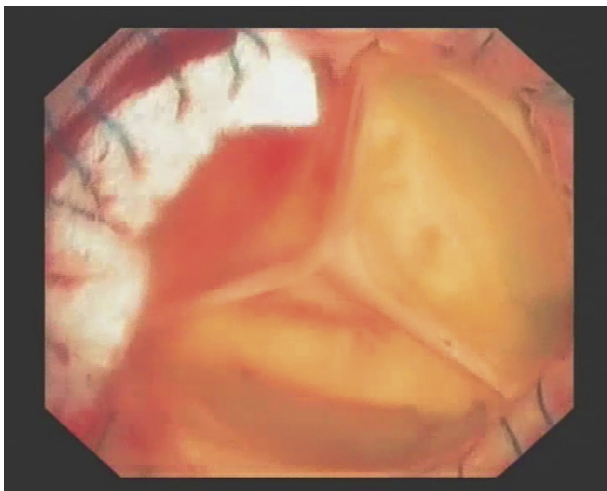
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Video clip is available online.

pathology according to the surgical steps. Prolapse postoperatively may result from isolated or combined findings, including commissural stretching, leaflet reduction or elongation by reimplantation, free margin under- or overcorrection, and annulus undersizing. Likewise, in case of a functional accurate but asymmetric valve after repair, no definitive statement to improve the surgeon's technique is given.

AV endoscopy enables the visualization and differentiation of such important details. The resulting leaflet position and symmetry can be studied and related to the commissural, supra-annular, or free-margin stitches. However, as Sievers⁴ mentioned, a pressure level of 60 mm Hg minimum is required to push the leaflets to the end-diastolic position and to evaluate coaptation and symmetry (Video 1). Endoscopy does not reduce the importance of intraoperative tools and techniques that are used for the standardization, safety, and durability of AV repair. Endoscopy enables only the control of the result before clamp release and initiates minor or major corrections, if required. It is the only instrument that can demonstrate directly the result of surgical techniques in cardiac and aortic surgery, giving important information to understand the AV pathology and to improve the surgical



VIDEO 1. A maintained pressure in the aortic root at a minimum of 60 mm Hg is required to assess the AV by endoscopy. The video demonstrates the movement of the noncoronary leaflet (on the right) to end-diastolic position under increasing pressure after supracoronary ascending aorta replacement in acute aortic dissection. Video available at: [http://www.jtcvsonline.org/article/S0022-5223\(16\)30298-7/addons](http://www.jtcvsonline.org/article/S0022-5223(16)30298-7/addons).

technique. In our department, endoscopy enabled a more sophisticated methodology to choose the repair technique.⁵

We apologize for overlooking and not citing Itoh and colleagues² important contribution from 1997, which paved the way for us and others, hopefully ameliorating the inevitable learning curve in performing more complex AV reconstructions.

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<http://dx.doi.org/10.1016/j.jtcvs.2016.04.084>



PATENT FORAMEN OVALE IS NOT A BENIGN PATHOLOGY IN PATIENTS UNDERGOING OFF-PUMP CORONARY ARTERY



BYPASS: A WORD OF CAUTION

To the Editor:

We thank Bozinovski and Caton¹ for their valuable article entitled "A Benign PFO in OPCAB Can Suddenly Take a Right Turn, but Maybe It Can't Tolerate It." They present a case with desaturation due to right-to-left shunt through a patent foramen ovale (PFO) during off-pump coronary artery bypass (OPCAB). Although rare, this is an extremely important problem in the OPCAB procedure. PFO is a frequent pathology with an estimated prevalence of 25%.² However, in cases without a known PFO, intermittent intra-atrial shunting due to an elevated right atrial pressure may be an important problem during OPCAB. Because most patients undergoing off-pump revascularization are high risk in terms of chronic obstructive pulmonary disease and elevated pulmonary artery pressures, opening of a PFO is not infrequent when the right atrial pressure increases. This is particularly evident in cases with left and posterior wall revascularization due to positioning of the heart leading to right atrial compression. These patients are not always capable of tolerating decreases in systemic oxygenation and cyanosis due to right-to-left shunting.

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In our practice, we routinely take precautions for securing the right atrium. These are extensive opening of the right pleura and intentional rightward luxation of the heart, opening the pericardial reflection over the superior venae cavae, and leaving the right pericardial stay sutures free while performing the anastomosis on the circumflex and distal right coronary artery target vessels. A second and more important measure is continuous monitoring of the interatrial septum with transesophageal echocardiography during the positioning of the heart. Right atrial distention due to intravenous fluid replacement and external compression of the heart may easily lead to intermittent right-to-left shunting during the procedure, which may lead to cyanosis, even to paradoxical embolization from right to left. In practice, because transthoracic echocardiography is less sensitive than transesophageal examination, it is not always possible to detect a PFO during routine preoperative evaluation. Therefore, we think these simple precautions should be considered in all cases with OPCAB to prevent untoward effects of a right-to-left shunting, such as hypoxemia and systemic paradoxical embolization.

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<http://dx.doi.org/10.1016/j.jtcvs.2016.03.062>



PFO IS GENERALLY BENIGN IN OPCAB: UNTIL IT ISN'T

Reply to the Editor:

In a letter to the Editor, Drs Ozyuksel and Cetin comment on our editorial commentary¹ on an original article by Morita and colleagues.² To be clear, the former incorrectly credited DrCaton and me with the case presentation rather than Dr Morita and associates, who authored the case report. Drs Ozyuksel and Cetin describe techniques to mitigate

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cardiopulmonary dysfunction due to positioning during off-pump coronary artery bypass (OPCAB) surgery. I agree that these are worthwhile maneuvers, providing probable benefit at low risk to patients. Drs Ozyuksel and Cetin suspect that shunts through a patent foramen ovale (PFO) are more likely to manifest detrimentally when positioning the heart to address left-sided lesions. However, among the limited published case reports of desaturation due to PFO shunting,²⁻⁶ all 3 reports that mention the targets being addressed during desaturation describe this occurring while addressing right-sided lesions.^{2,3,5}

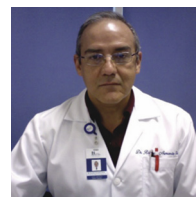
Another point that Drs Ozyuksel and Cetin make is that PFO is not a benign pathology in OPCAB patients. I counter that the fact that PFO is so common and yet infrequently results in shunting sufficient to cause desaturation during OPCAB demonstrates its generally benign nature. The point of our commentary was that PFO is usually untroubling but can take a turn for the worse, and that turn appears to be more commonly toward right-sided lesions.

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<http://dx.doi.org/10.1016/j.jtcvs.2016.04.042>



HYBRID MANAGEMENT IN ADULT CONGENITAL AORTIC DISEASE: AN ESTABLISHED APPROACH

To the Editor:

We read with interest the article by Belitsis and colleagues,¹ "Pseudoaneurysm at the Origin of the Left Subclavian Artery Following Type A Interrupted Aortic Arch Repair in