

Sudden, New-Onset Aortic Regurgitation During Off Pump Coronary Bypass Surgery

Abstract

During off pump coronary artery bypass grafting surgery, it is common to observe mitral or tricuspid regurgitation due to heart displacement. But it's very unusual to notice new onset aortic regurgitation in OPCABG.

Keywords: Aortic regurgitation, off pump coronary artery bypass grafting surgery, stabiliser

A 65-year-old male patient presented with shortness of breath on moderate exertion. He underwent coronary angiography, which revealed double vessels coronary artery disease. Patient was scheduled for off-pump coronary artery bypass grafting (OPCABG) surgery. Preoperative echocardiogram showed left ventricular (LV) ejection fraction of 55% with no regional wall motion abnormalities nor any valvular regurgitation in different views [Clip 1]. After anesthesia induction, sternotomy was performed and left internal mammary artery (LIMA) was harvested. LIMA was anastomosed with left anterior descending artery. Heart was elevated using starfish heart stabilizer and was given the proper position to visualize obtuse marginal (OM) artery. Surgeon found it difficult to achieve adequate exposure of the target vessel due to increasing size of the left ventricle. Transesophageal echocardiogram (TEE) was performed [Figure 1 and Clip 2]. Newly appearing moderate aortic regurgitation (AR) was observed and confirmed in two different views of TEE.

Owing to elevated position of the heart for OM grafting, there was distortion of aortic valve that led to malcoaptation of aortic valve leaflets resulting in AR. As the heart was given normal position,

AR disappeared. Surgeon preferred to perform the grafting on pump beating empty heart. Cardiopulmonary bypass was established and LV vent was introduced through right superior pulmonary vein. Heart was again given the position for grafting of OM vessel. TEE again revealed AR, but LV could have been decompressed by venting. Saphenous vein graft was anastomosed with OM artery followed by proximal anastomosis with aorta.

OPCABG needs cardiac displacement for proper exposure of target site to perform coronary anastomosis of the graft. Placing gauzes posterior to the heart raises the position and stabilizer application can aid the proper exposure.^[1] Eucleating the heart using a suction device or pulling the posterior pericardium with stitches are also commonly used techniques.^[2,3]

During OPCABG, vertical position of the heart bent intracardiac structures mainly at the atrioventricular groove. This creates distortions of the mitral and tricuspid annuli potentially causing significant regurgitation.^[4] However, it is very uncommon to observe AR during OPCABG. We believe that heart elevation by suction device might have deformed the left ventricular outflow tract-aortic valve axis. This resulted in geometrical distortion of aortic valve with malcoaptation causing AR.

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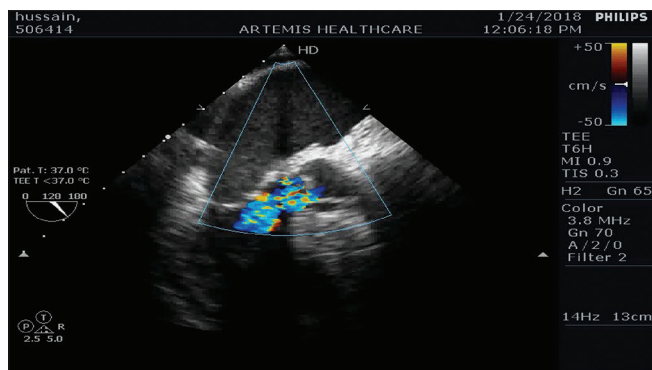


Figure 1: Transesophageal echocardiography long-axis view showing significant AR after elevating the heart

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not

be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

References

1. Chassot PG, van der Linden P, Zaugg M, Mueller XM, Spahn DR. Off-pump coronary artery bypass surgery: Physiology and anaesthetic management. *Br J Anaesth* 2004;92:400-13.
2. Benetti FJ, Naselli G, Wood M, Geffner L. Direct myocardial revascularization without extracorporeal circulation. Experience in 700 patients. *Chest* 1991;100:312-6.
3. Bergsland J, Karamanoukian HL, Soltoski PR, Salerno TA. 'Single suture' for circumflex exposure in off-pump coronary artery bypass grafting. *Ann Thorac Surg* 1999;68:1428-30.
4. George SJ, Al-Ruzzeh S, Amrani M. Mitral annulus distortion during beating heart surgery: A potential cause for hemo dynamic disturbance: A three-dimensional echocardiography reconstruction study. *Ann Thorac Surg* 2002;73:1424-30.