



Mitral valve replacement on a beating heart through right thoracotomy in a patient with patent coronary grafts

Açık koroner greftli hastada sağ torakotomi yoluyla çalışan kalpte mitral kapak replasmanı

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Re-sternotomy after coronary artery bypass grafting (CABG) is a problem especially in presence of patent grafts. Cardiac injury, bleeding, injury of patent graft (especially internal mammarian artery), and difficulty of organ preservation are major complications that may increase morbidity and mortality of these category of patients.

A 57 years old male was admitted to outpatient clinic with symptoms of fatigue, tachycardia, and orthopnea. In history, patient had underwent CABG operation (left internal mammarian-left anterior descending artery, saphenous vein (SV)-obtuse marginal 2, and SV-right coronary artery grafts) 4 years ago. Patient had New York Heart Association functional class IV. Transthoracic and transesophageal echocardiography showed 3rd degree mitral insufficiency. Coronary angiography showed that all coronary grafts were patent and severe mitral insufficiency was present (Fig. 1, Video 1. See corresponding video/movie images at www.anakarder.com). On the operation,

first right femoral artery cannulation was performed. After that right thoracotomy was made on the fourth intercostal space, bi-caval cannulation was performed. Ascending aorta and right upper pulmonary vein were vented for air removal and maintain clear surgical field. Operation was performed with the use of normothermic cardiopulmonary bypass (CPB) (flow rate of 2.5 lt/m²) without cross-clamping the aorta in the beating heart. Bileaflet mechanical valve was implanted with interrupted suture technique (Fig 2, Video 2. See corresponding video/movie images at www.anakarder.com). The CPB time was 80 minutes and patient was discharged from hospital on the fifth postoperative day.

Thoracotomy has a low complication rate and reduces the intensive care unit and hospital stay especially in patients who had open heart surgery via median sternotomy previously (1). Normothermic beating heart surgery also provides perfect myocardial protection against hypothermia related coagulopathy

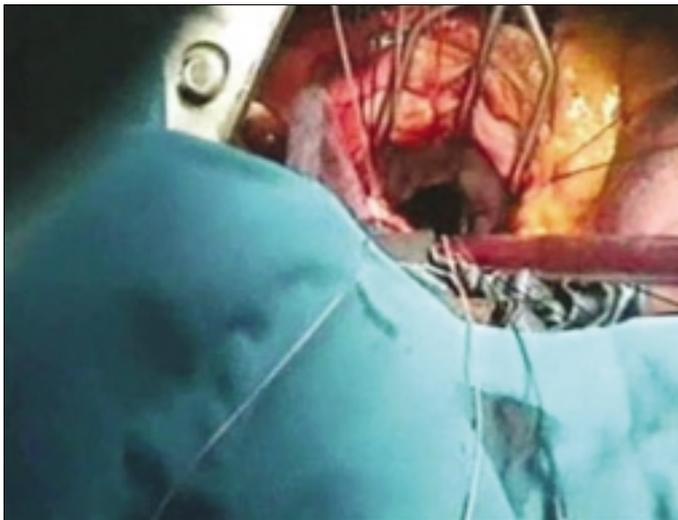


Figure 1. Right lateral view of the operative field. Native valve was excised, and stitches were placed using interrupted suture technique

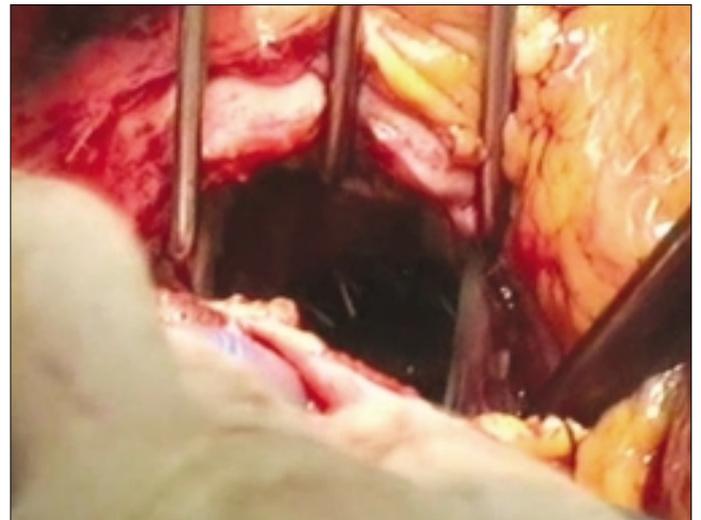


Figure 2. Right lateral view of the operative field. Bileaflet mechanic mitral valve was implanted without cross clamping the aorta in the beating heart conditions through the right thoracotomy

and cardioplegia related ischemia reperfusion injury (1). Trendelenburg position, continuous aortic venting, filling the cardiac chambers before the termination of CPB and trans-mitral apical venting are useful to avoid air embolism.

In conclusion, on-pump beating heart normothermic mitral valve replacement without the cross clamping the aorta through the right thoracotomy is simple and safe approach instead of re-median sternotomy.

References

1. Thompson MJ, Behranwala A, Campanella C, Walker WS, Cameron EWJ. Immediate and long-term results of mitral prosthetic replacement using a right thoracotomy beating heart technique. Eur J Cardiothorac Surg 2003; 24: 47-51.



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