

Robot-assisted mitral valve surgery without aortic cross-clamping: An alternative technique

Aortik kros klamp yerleştirilmeden robot yardımlı mitral kapak cerrahisi: Alternatif bir teknik

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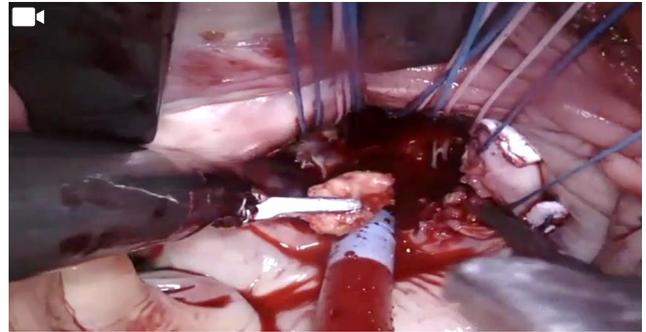
During conventional cardiac surgery, intracardiac repair is performed after placing an aortic cross-clamp in most cases. However, serious complications such as bleeding or thromboembolism may occur during or after the insertion of the cross-clamp in patients with severe adhesions in the mediastinum due to previous heart surgery or in patients with severe calcification in the ascending aorta.^[1-4] There is also a risk of damage for patent graft while attempting to place a cross-clamp during redo surgery. Robot-assisted surgery without aortic cross-clamping may prevent cross-clamp-related complications in these patients.

In this study, we present the operation videos of two patients, one with severe aortic calcification and other with patent bypass graft. Mitral valve intervention was achieved via robot assistance without aortic cross-clamping (Video 1).

CASE REPORT

Case 1- A 92-year-old woman was admitted with the New York Heart Association (NYHA) Class III symptoms and severe mitral insufficiency, mild-to-moderate aortic regurgitation, mitral annular calcification, severe peripheral arterial disease, and

severe aortic calcification. Arterial cannulation was achieved via subclavian artery and operation was completed without aortic cross-clamping. Left ventricular distension and air embolism was prevented by placing two sumps, one into the left atrium and other into the left ventricle via mitral valve. Additionally, carbon dioxide insufflation at a pressure of 6 mmHg and a flow rate of 6 L/min was applied. Mitral valve was replaced with bioprosthesis. Both sumps were left in place during deairing. Operation was completed in the usual fashion.



Video 1. Video presentation of robot-assisted mitral valve surgery without aortic cross-clamping.

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Case 2- A 62-year-old woman who had quadruple coronary artery bypass grafting previously presented with severe mitral valve regurgitation. Coronary angiography revealed patent bypass grafts. Operation was planned via robotic assistance and without placing an aortic cross-clamp. Four neochordae with 12 mm in length were implanted into the posterior leaflet along with an annuloplasty ring. Similar to Case 1, ventricular distension and air embolism was prevented by placing two sumps and carbon dioxide insufflation. Postoperative transesophageal echocardiography revealed no mitral regurgitation.

Postoperative outcome was uneventful in both cases. A written informed consent was obtained from both patients.

In conclusion, robot-assisted cardiac surgery without aortic cross-clamping may provide an alternative approach in patients with severe aortic calcification or mediastinal adhesions.^[5] However, the most important issues to be taken into consideration during the operation are the avoidance of left ventricular distention and air embolism.

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