

Robotic Left Internal Mammary Artery Harvest With Multi Vessel Coronary Artery Bypass In A Patient With Left Chest Adhesions

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Background

Adhesions in the left chest is considered as one of the contra-indications for robotic left internal mammary artery (LIMA) harvest. We demonstrate the use of a right chest approach to go across the mediastinum to the left side and perform the LIMA harvest and multi vessel Coronary Artery Bypass Grafting (CABG) in a patient with dense adhesions in the left chest.

Methods

The patient is a 60 year old male patient with no prior history of left chest surgery or trauma. His studies showed left main disease and left anterior descending coronary artery (LAD) stenosis at the bifurcation of the first diagonal artery. We started with a left chest approach with the three port technique. Upon entering the left chest with the camera, dense adhesions were encountered. The Robotic arms were rotated to perform a right chest approach. Robotic unipolar cautery was used to takedown the mediastinal tissue.

Methods (Continue)

After crossing the mediastinum, the left internal mammary artery (LIMA) was harvested with a skeletonized technique. On further entering the left chest, the robotic arm was used to take down adhesions from the left anterior chest wall to free space for performing the coronary anastomoses. Endovascular vein harvesting was performed. Open femoral artery and vein cannulation was performed and cardiopulmonary bypass was initiated for hemodynamic support without aortic cross clamping or cardioplegic arrest. A small left thoracotomy (3 inch) was performed. The ascending aorta was exposed and proximal anastomosis of the vein graft was performed first to the ascending aorta. With the heart decompressed, placing stay sutures and using the coronary artery stabilizer the distal anastomosis was performed between the vein graft and the Ramus Intermedius artery. Subsequently sequential anastomoses between LIMA and LAD and Diagonal artery was performed.

Results

The patient came off bypass easily and the operation was completed without any complication.

Conclusion

Robotic LIMA harvest can be safely performed in patients with left chest adhesions. The Robot can be used to free enough space in the left chest to facilitate the pump assisted minimally Invasive multi vessel bypass surgery through a small left thoracotomy on a beating heart.