Royal Brompton and Harefield hospitals

NHS

Successful Redo-robot Assisted Minimally Access Bypass Graft In A Complex Congenital Patient

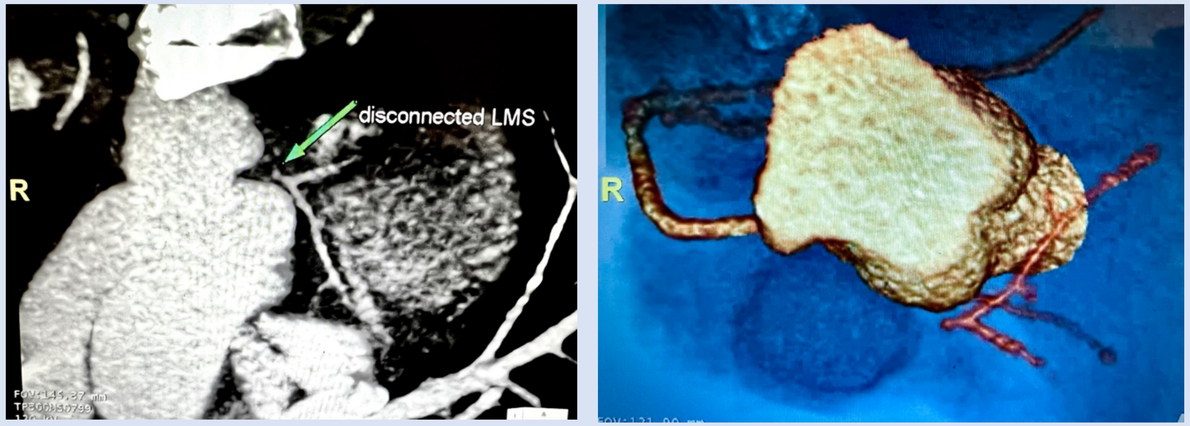
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Objectives

Endoscopic atraumatic coronary artery bypass grafting has been introduced in our institution more than 20 years ago. Over 900 procedures have been performed (n=932), with excellent results both as isolated procedure and as part of hybrid revascularization strategy. Through the years it has been proven to be a safe procedure even in high risk and complex patients. We successfully performed an Endo ACAB on a congenital patient undergone arterial switch operation and coarctation repair as a baby, recently found to have a disconnected left main.

Methods

A 26 years old woman recently started complaining of atypical chest pain on exertion radiating to her left arm. As a baby she was born with transposition of the great arteries and underwent balloon atrial septostomy first, followed by arterial switch with re-routing of coronary arteries to neo-aorta re-implanted via pericardial patch. Two months later she underwent coarctation repair though left thoracotomy. Investigations showed reversible ischemia involving septum, lateral, anterior wall and apex at a low workload. Coronary angiogram showed a disconnected LMS with back filling from right coronary artery, confirmed by a CT scan which showed close proximity of sternum with RV. Surgical revascularization was proposed through redo sternotomy with peripheral cannulation. Femoral cannulation was planned but both femoral arteries were found to be extremely small therefore this original plan was abandoned. Central cannulation was previously excluded because of close proximity of RV to sternum and axillary cannulation was consider but her body habitus made it difficult. It was decided to explore the left chest thoracoscopically to potentially perform an off pump EndoACAB despite concerns in terms of possible adhesions, given the previous left thoracotomy for coarctation repair. Endotracheal tube was changed to a double lumen tube to allow single lung ventilation and a 3D camera was inserted through 10 mm port at the 4th intercostal space. Fortunately there were few adhesions and through 3-port access and with the aid of a robotic arm (AESOP: Automated Endoscopic System for Optimal Positioning) and an harmonic scalpel, these were divided and LIMA harvested. Though left anterior minithoracotomy the septum and the LAD were identified using ultrasound scan and stabilised. The LIMA was anastomosed to the LAD with 7/0 prolene suture. On completion a chest drain was inserted.



Figures : (a) pre operative angiogram shows LM lesion, (b) CT reconstruction of totally disconnected LM.

Results

The patient made an excellent post-operative recovery despite reduced sensation in her right leg following her right groin exploration which gradually improved and was discharged in stable conditions.

Conclusions

We demonstrate that robotic assisted EndoACAB can be performed safely in complex redo cases with excellent results.

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