

Cardiac E learning module

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This E learning module is computer based training. It incorporates a live surgical video of MVR performed by the author describing the steps, an animation that explains the steps and adds a three dimensional view for the student and finally a practice session.

In the practice session the student has to pick up the correct instrument, go to correct spot and perform the actual movement using the mouse. This way, the student can practice many times and learn each step of the surgery without fear. It helps to build confidence in low volume centres where hands-on training may be deficient in numbers. It is particularly useful for the shy and relatively unskilled student to hone their skills without any complications.

It is also useful for the qualified surgeons who wish to learn to perform this operation. It is the ideal virtual training tool for all cardiovascular training programs. The steps of surgery for MVR are standard and this module explains how to for both mechanical and Tissue valves. This is exclusively for teaching purposes and can be purchased by the student, teacher, qualified surgeon or institution.

The singular advantage is that the

operation can be seen, studied and performed a number of times until one gains confidence to be able to reproduce the steps in a real life situation. The three parts are interconnected, while performing a step of the operation the student can view the same in the video. It speeds up the learning of skills and steps.

It is particularly useful when this surgery is not performed routinely or frequently. The surgeon can then quickly refresh his skills to follow the steps. It can also be displayed in the operating room while performing the operation.

Reduction of sternal wound infection

Using modified pedicle bilateral internal thoracic artery harvest technique using mammary artery surgical platform (MASP)

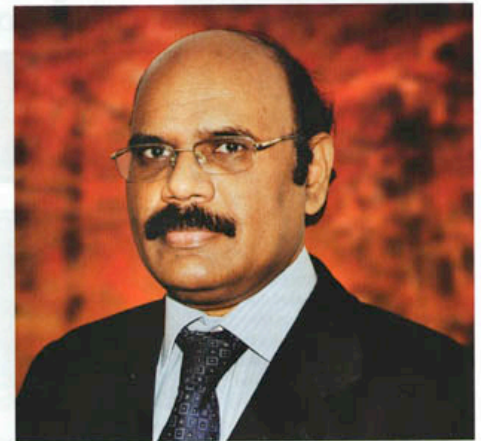
Dr Lokeswara Rao Sajja Star Hospitals, Hyderabad, India

Coronary artery bypass grafting surgery is the best method of treatment for multivariate coronary artery disease. Left internal thoracic artery is universally accepted as the best conduit in CABG. Use of bilateral internal thoracic arteries in CABG is associated with better long-term and event free survival. However, only 4% of patients undergoing CABG receive two internal thoracic arteries due to a perceived higher incidence of sternal wound infection following BITA harvest particularly in diabetics and also the associated technical difficulty in BITA grafting.

To address the problem of sternal wound infection following bilateral ITA harvest, a modification of pedicle harvest of ITA was developed by Dr Lokeswara Sajja of Star Hospitals, Hyderabad, India, which is a simple and reproducible technique. The main stay of the technique is to divide the harvested ITA 1 cm proximal to its bifurcation, so that the luminal communication between the musculophrenic and superior epigastric arteries is preserved.

The principle of sparing of communicating musculophrenic and superior epigastric arteries to the chest wall and preservation of pericardioacophrenic artery facilitates the development of substantial collateral blood flow to the sternum in the absence of ITAs through anterior intercostal and sternal branches of ITA. The preservation of blood supply of the sternum via the collaterals reduces sternal ischemia and thereby reduces the incidence of sternal wound infections. About 380 patients (206 diabetics) received BITA grafting using this modified pedicle harvest technique. The incidence of deep sternal wound infection in BITA group was 0.52% and superficial infection was 1.65% which was comparable to that of single ITA group – deep infection 0.69% (p value 0.8338) and superficial 1.64% (p value 0.994).

When two internal thoracic arteries are used in CABG, these grafts are used either as two in situ grafts or as a 'Y' graft constructed using in situ LITA or free RITA grafts. The technical difficulty of constructing a 'Y' graft is overcome by use of a novel device called mammary artery surgical platform (MASP) which was de-



Lokeswara Rao Sajja

signed, developed and patented by Dr Sajja. MASP device was used in construction of 'Y' grafts in about 50 patients. MASP contains a rectangular 5.5 X 4.5 cm platform made up of stainless steel and a cylindrical rod with a diameter of 6mm which is attached to the platform, which keeps the platform at a desired depth in the mediastinum. The in situ left and free right ITAs are placed on the MASP platform and this facilitates a meticulous and faster construction of 'Y' graft without the transmission of pulsations of the heart and aorta to the anastomotic area. It reduces the time taken for the construction of 'Y' graft by 25%.

The use of this modified BITA harvest in conjunction with the MASP device would facilitate the wider acceptance of BITA grafting in CABG.

Intra-operative image of BITA harvest and mammary artery support platform

