



Echo Valve Analysis - A Surgeon's View

With over 2,000 Mitral Valve Repair operations undertaken by the NHS every year, there is a growing interest among surgeons to be able to identify and interpret the relevant ultrasound views for themselves during this surgical procedure.

At the recent Edwards Lifesciences sponsored conference held at the Hospital Clinic Barcelona titled 'Fundamentals of Mitral and Tricuspid Repair', Dr. Paul Diprose, Consultant Cardiac Anaesthetist and Mr. Steve Livesey, Cardiac Surgeon from University Hospital Southampton, along with other leading international experts, facilitated the three day training programme supporting both discussions and workshops.

Accelerating the learning curve

"Echocardiography is a discipline that has not traditionally featured within a surgeon's formal training but with new teaching resources available, it is now a skill that we are seeing growing numbers of cardiac surgeons wishing to acquire", said Dr Diprose. "Transesophageal echocardiography (TEE) presents unique challenges for both the teacher and student. There is the practical aspect of learning to handle and manipulate a TEE probe to obtain required ultrasound views and then the cognitive aspect of being able to understand and interpret those views in relation to both the normal anatomy of the heart and presentations of pathology. Before mannequin based ultrasound simulation was possible, gaining a practical and working knowledge of TEE was a slow process dependent on the availability of teaching time and enough patient cases with appropriate pathological conditions. Through simulation, the learning curve is greatly accelerated

and available to more specialist groups beyond cardiology and cardiac anesthesia. It makes sense that cardiac surgeons have this knowledge."

Understanding a common language in inter-professional teams

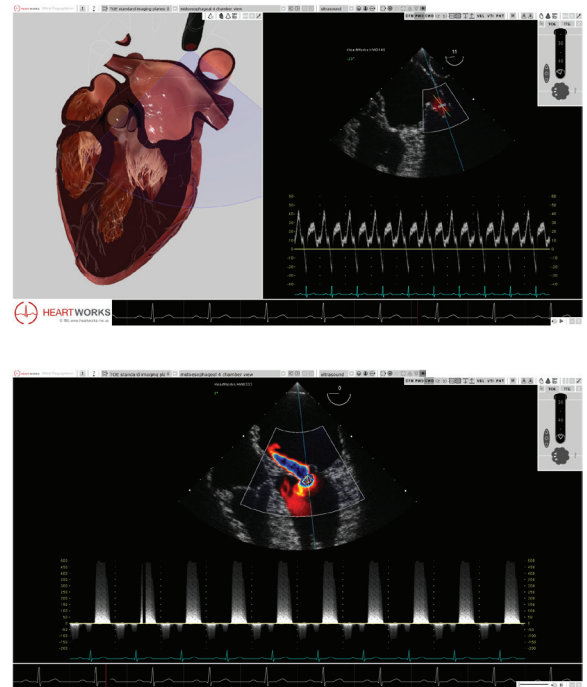
Echocardiography is very important to the safety of mitral valve repair procedures and is particularly critical at two stages of the operation; firstly, to assess valve pathology and determine the plan for repair before going onto bypass, and secondly, to assess the adequacy of the surgical repair after weaning the patient from bypass. Typically in the UK, it is the role of the cardiac anesthetist to elicit and interpret the echocardiographic images and to discuss with the surgeon accordingly. But for the surgeon to be able to view and respond to the same echo images during procedures is extremely beneficial to him or her and the overall progress of the operation. This "real-time feedback" allows the surgeon to understand the effect of the repair techniques used. But it is only through having the knowledge of TEE that is most easily gained using the

"All cardiac surgeons need to have knowledge of TEE. The simulator is the best way of training surgeons to understand the value of mitral valve views and the different lesions they can visualise. It should form part of every cardiac surgeon's training."

simulator, that the surgeon can have the understanding of the views he/she wants and can communicate with the anesthetist using the language of echo.

Effective teaching of mitral valve views

During the three day programme, practical workshops provided the opportunity for delegates to gain experience of TEE using the HeartWorks Dual Simulator from MedaPhor Ltd. The workshop was run by two cardiologists and an anesthetist with expertise in intra-operative TEE. The HeartWorks pathology model used on the simulators was of degenerative mitral valve disease as this was the main focus of the course. A standardized approach to the assessment of mitral valve pathology was taught with a series of six echocardiography views and five measurements. The taught echocardiography views allowed systematic assessment of all segments of the mitral valve. The five basic measurements permitted an assessment of the likely size of annuloplasty ring required, the risk of systolic anterior motion (SAM) of the mitral valve following repair, and the potential requirement for a tricuspid valve annuloplasty procedure in addition to the mitral surgery.



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