

HEART BEAT

The Cardiovascular Newsletter for Our Partners in Care



SAN ANTONIO REGIONAL HOSPITAL



3-DIMENSIONAL ECHOCARDIOGRAPHY

The ongoing refinements in 3-dimensional (3D) echocardiography technology continues to expand the scope of this imaging modality in clinical cardiology. These refinements offer new features that stem from the ability to image the heart in its complete dimensionality. Over the years, countless publications have described these benefits and tested new frontiers where 3D echocardiographic imaging seemed to offer promising ways to improve patient's care.



TEE with 3D Mitral valve in surgical view GLASS technology (SARH 1/2023)

Where has this technology been clinically used in the hospital?

First, in an outpatient setting to help physicians and cardiologists accurately assess heart valve disease, congenital disease, etiology of recent stroke, etc.

Second, as an essential adjunctive tool in elective structural heart disease for non-surgical procedures such as TAVR (Transcatheter Aortic Valve Replacement), non-surgical patients with severe aortic stenosis, PFO (Patent Foramen Ovale) closure in patients with acute stroke or TIA, and in TEER (Transcatheter Edge to Edge Repair) for mitral valve repair in non-surgical candidates.

Third, as a guide to surgical cardiac procedures including valve repair and replacement in the operating room.

IN THIS ISSUE

"MAKING THE RIGHT DIAGNOSIS OR THE CORRECT SIZING AND POSITION OF A VALVE IS CRUCIAL IN THE CARDIOLOGY WORLD."

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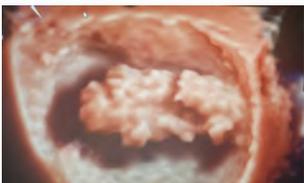
TEE with 3D Mechanical MV
(SARH 12/21)



Patent Foramen Ovale (PFO)
SARH 9/21



Case image with thrombus and
ASD secundum Light
technology (SARH 10/2021)



Case image with large
Myxoma
Truview Technology
(SARH 3/2022)

Finally, in an acute inpatient setting to identify new case of endocarditis, during cardioversions of atrial fibrillation to reduce the risk of stroke, to asses for aortic dissection immediately ...etc.

Q: What is the most common procedure with 3D echocardiography?

A: Transesophageal echocardiography (TEE) is the most common procedure that utilizes 3D echocardiography. TEE's are performed with the assistance of a registered nurse in a monitored unit.

Q: Does SARH have the latest 3-D echocardiography?

A: I am lucky to work in a place so invested in improving cardiac care. They have the latest technology in echocardiography including 3D imaging along with CTA coronary and cardiac MRI.

Medical case showing importance of TEE with 3D.

A 66 year old male with history of cardiomyopathy presented worsening shortness of breath in a setting of new onset atrial fibrillation with resistant rapid ventricular rate. He was scheduled for a TEE with cardioversion. TEE with 3D done prior to cardioversion showed a thrombus in right atrium near secundum atrial septal defect; this had not been diagnosed previously. Based on these findings the management and treatment methods where changed.

Surgical case

A 54 year old male with hypertension presented for progressive shortness of breath and recent history of transient ischemic attack (TIA). TEE with 3D was performed to assess the etiology of the TIA. The TEE showed a large myxoma on the septal atrial wall explaining the cause of the TIA. The myxoma was surgically removed without complication.

Future Outlook

3D printing of 3D TEE valve images will help the cardiac team, including cardiologists and cardiothoracic surgeons, to visualize valve sizing and morphology along with the disease process to guide the treatment and procedure planned.

About the Author:

Dr S. Samarany is a practicing Board Certified Cardiologist on staff at San Antonio Regional Hospital who specializes in advanced imaging. Dr. Samarany trained at Yale University in New Haven, CT from residency to chief resident to fellowships. He is married with two lovely daughters. He enjoys soccer, traveling and spending time with family.