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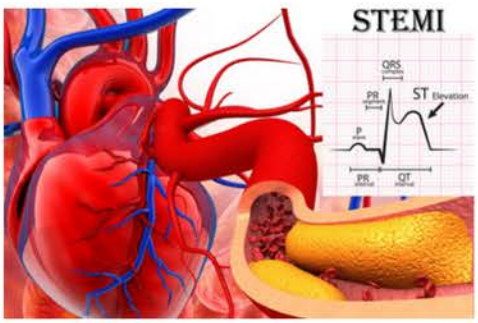
# HEART BEAT

*The Cardiovascular Newsletter for Our Partners in Care*

SAN ANTONIO REGIONAL HOSPITAL


## Novel Tools in Coronary Interventions & Heart Support

It was Saturday, a perfect weekend to lay some decorative rocks in the planters. Mr. X and his wife enthusiastically started working. Suddenly, there was the onset of chest pain, pain in both arms, and profuse sweating. The wife called 911 immediately and the paramedics arrived at their home. Mr. X collapsed due to Cardiac Arrest. The paramedics defibrillated him and achieved ROSC (Return of Spontaneous Circulation). The EKG (electrocardiogram) showed STEMI (ST-segment Elevation Myocardial Infarction), a form of heart attack usually caused by a complete blockage of the coronary artery. At San Antonio Regional Hospital (SARH), a STEMI Receiving Center, the STEMI was confirmed along with Cardiogenic Shock (CS), a condition where the heart's pumping action is weak and the blood pressure is low, which can lead to death if not treated promptly. Emergency coronary angiography revealed a total occluded proximal left anterior descending artery (causing a "widow-maker" heart attack). The artery was filled with thrombus and a special device called CAT RX catheter was used to suck out the blood clot and reestablish blood flow. IVUS (intravascular ultrasound) was used to precisely measure the size of the artery. We implanted one of the latest generation Drug Eluting Stents (DES) to keep the artery open.

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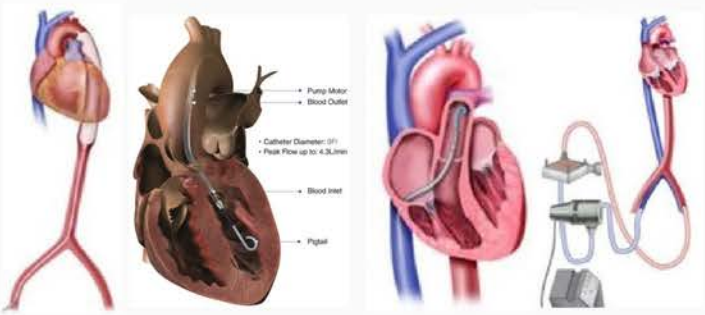
"SARH HAS AN OUTSTANDING STEMI PROGRAM AND MANY LIVES HAVE BEEN SAVED DUE TO THE EXTRAORDINARY DEDICATION OF THE CARDIAC CATHETERIZATION LABORATORY TEAM."

VATSAL MODY, MD
INTERVENTIONAL CARDIOLOGIST

Mechanical Circulatory Support Tools




*IABP* *Impella* *Impella RP* *ECMO*

Right heart catheterization was done to accurately measure the pressures in the heart chambers and appropriate mechanical circulatory support (MCS) was used to manage the CS. SARH is equipped with MCS such as the intra-aortic balloon pump (IABP), Impella CP (percutaneously placed left ventricular assist device), and Impella RP (percutaneously placed right ventricular assist device). SARH has an outstanding STEMI program and many lives have been saved due to the extraordinary dedication of the cardiac catheterization laboratory team. The patient was transferred to the coronary care unit (CCU) where the nurses are very knowledgeable, hardworking, and well trained to manage CS. Excellent care continued on within the telemetry unit. The patient did well and is back home. I feel very proud that with great teamwork we were able to save Mr. X.

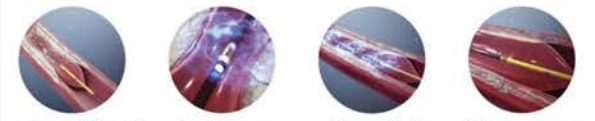
Calcified coronary stenosis is commonly seen in patients with diabetes, advanced age, renal failure patients on dialysis, and smokers. Difficult stent delivery and sub-optimal stent expansion in such stenosis often lead to poor outcomes such as stent thrombosis (blood clot in stent) and in-stent restenosis (scar tissue causing narrowing in the stent). The SARH cath lab is well-equipped with atherectomy devices including rotational atherectomy, orbital atherectomy, laser atherectomy, and Shockwave Coronary Intravascular Lithotripsy.

Recently, in several of my patients with heavily calcified stenosis, we have utilized a novel treatment, the Shockwave coronary intravascular lithotripsy, which uses a balloon that generates shockwaves to selectively crack calcified areas. We have also performed orbital atherectomy (OA) in many patients with calcified coronary stenosis. This device uses the elliptical movement of an eccentrically mounted diamond-coated crown that selectively treats the calcified plaque. Both techniques are excellent tools for the management of calcified coronary stenosis.

IVUS-guided stenting was performed in these cases leading to excellent stent expansion. These patients had no complications and were discharged on the same day. Repeated studies have shown that IVUS-guided coronary stenting has superior outcomes compared with angiographic guidance alone. IVUS also helps to prevent stent under-sizing which is linked with a greater than 10-fold risk of stent thrombosis. At SARH, we proudly provide state-of-the art IVUS imaging technology to our patients.

Lastly, a 78-year-old female was admitted to SARH with chest pain. Coronary angiography revealed in-stent restenosis along with other high-risk stenosis. The patient was not a surgical candidate for open heart surgery. Thus, we performed a High-Risk Percutaneous Coronary Intervention (HRPCI) with Protected PCI using Impella CP to support the patient's hemodynamics during the complex coronary interventions. The patient did well and was discharged home.

SARH has a state-of-the-art cardiac catheterization laboratory with cutting edge technologies available for managing complex cases. We strive to provide excellent cardiac care to all patients.



*Shockwave Intravascular Lithotripsy*

About the Author:

Dr. V. Mody is an interventional cardiologist on staff at SARH. He received his cardiology/interventional cardiology training at Los Angeles County/University of Southern California. He is particularly interested in intravascular imaging, calcified coronary stenosis, and bifurcation coronary stenosis. He enjoys working in his backyard orchard and playing with his Siberian husky dogs.