The Heart Matters
MICC Medical Bulletin
MICC
all about heart
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DUAL BALLOON CALCIUM MODIFICATION STATERGY FOR COMPLEX TORTOUS CALCIFIC CORONARY LESION

CORONARY ARTERY CALCIFICATION

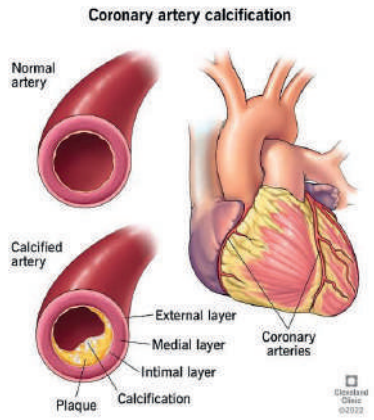
Coronary artery calcification is a condition in which calcium builds up in the walls of the coronary arteries, which are the arteries that supply oxygen and nutrients to the heart muscle. This reduces blood flow to the heart and increase the risk of heart attack and stroke. Coronary artery calcification is a symptom of CAD, which is the narrowing and hardening of the arteries, usually due to the formation of fatty deposits (plaque).

WHO DOES CORONARY ARTERY CALCIFICATION AFFECT

. Chronic kidney disease
. Family history of CAD
. Diabetes mellitus
. Elevated LDL
. Smoking
. Older age
. Parathyroid hormone irregularities
. High calcium level

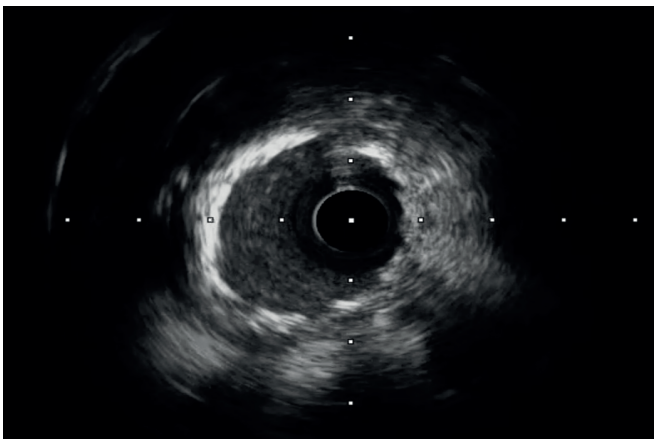
SYMPTOMS

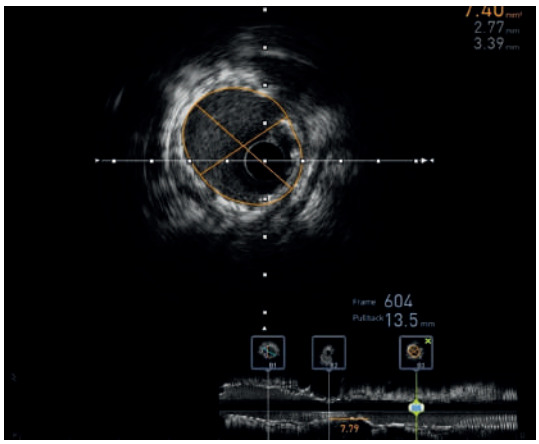
. Stable angina
. Shortness of breath
. Myocardial infarction
. Fatigue
. Irregular heartbeat



WHAT IS IVUS GUIDED PCI

Intravascular ultrasound (IVUS) is an intravascular imaging modality primarily in interventional cardiology to analyse guide stent size, calcium & plaque morphology. This test uses sound waves to see inside blood vessels. It is useful for evaluating the coronary arteries that supply heart.



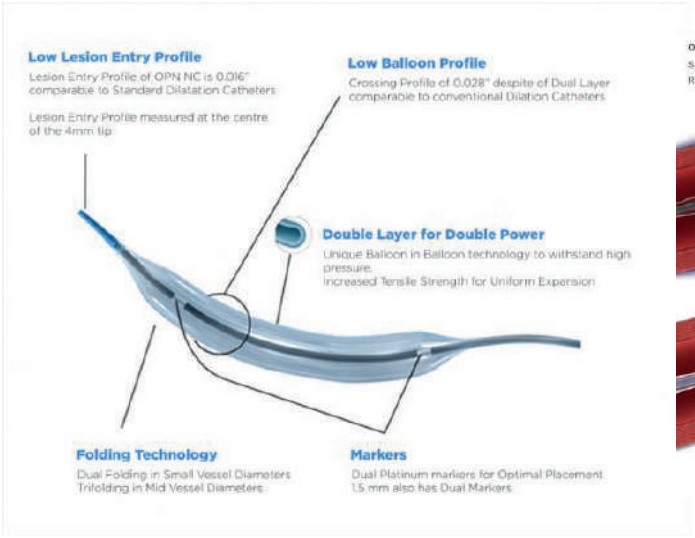


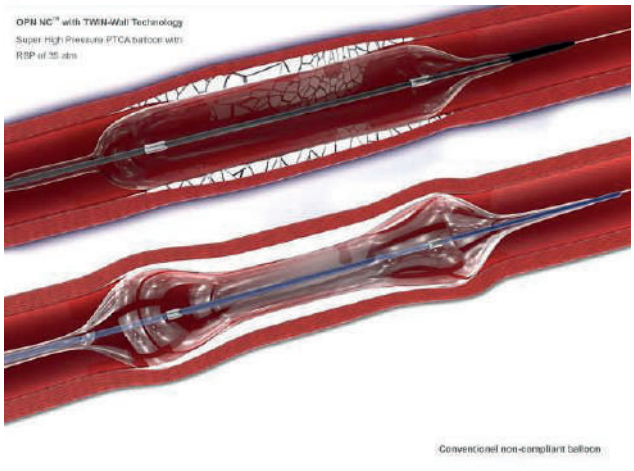
WHAT IS IVL (SHOCKWAVE INTRAVASCULAR LITHOTRIPSY)

Shock wave intravascular lithotripsy is a new method to treat hardened arteries that have narrowed due to calcium deposits. It uses sound waves to break down calcium, making arteries more flexible. This helps improve blood flow and make it easier to insert stents, which are small tubes and keep arteries open. Shockwave intravascular lithotripsy is a simple and safe procedure that can help patients with heart disease or other condition that affect blood vessels.

OPN BALLOON

Ultra high pressure balloon goes up to 50 atm compare to usual balloons go up to 20 atm used to break calcium after lithotripsy, Rotablation etc...
Can be used after stent deployment as well. (FIGURE)





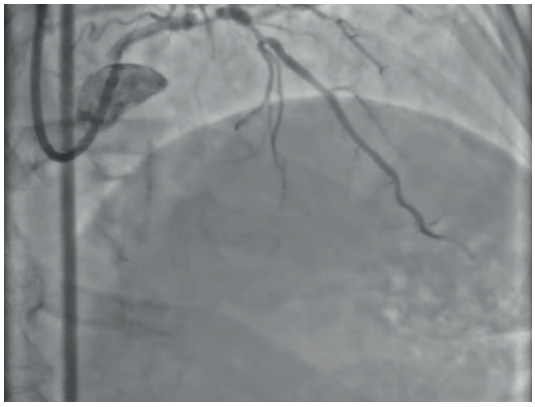
OUR CLINICAL EXPERIENCE AT MICC

A 75-year-old hypertensive, COPD, obese female, presented with symptoms of typical angina & dyspnoea for 1-day acute onset increase on lying down. ECG showed ST depression with T wave inversion in I, AVL, V5, V6. ECHO done showed severe concentric LVH, RWMA (+), mild LV systolic dysfunction, mild MR / TR. NSTEMI – pulmonary oedema CAG done showed Triple Vessel Disease + Left main critical disease. Not willing for high surgical risk CABG.

CAG REPORT:

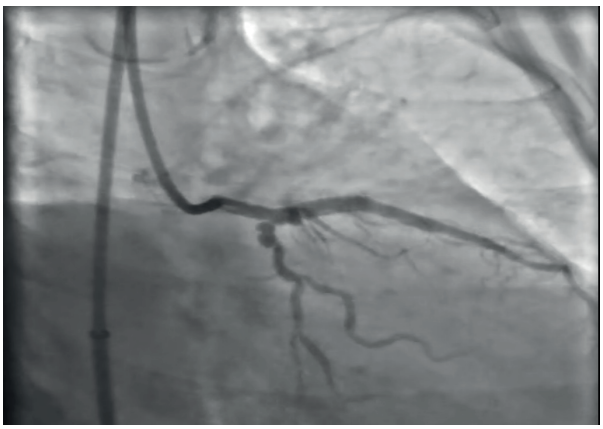
LMCA: ostium has 40-50 % stenosis followed by mid to distal shaft has 70 % stenosis Long Lesion , LAD: type III vessel, ostio proximal has 90 % CALCIFIC TORTOUS ORGIN stenosis followed by aneurysm, mid has 70 % stenosis followed by myocardial bridging OM1: Ostium has 50 % stenosis followed by 50 % stenosis

RCA: Dominant , CHRONIC TOTAL OCCLUSION . (figure)



PROCEDURE

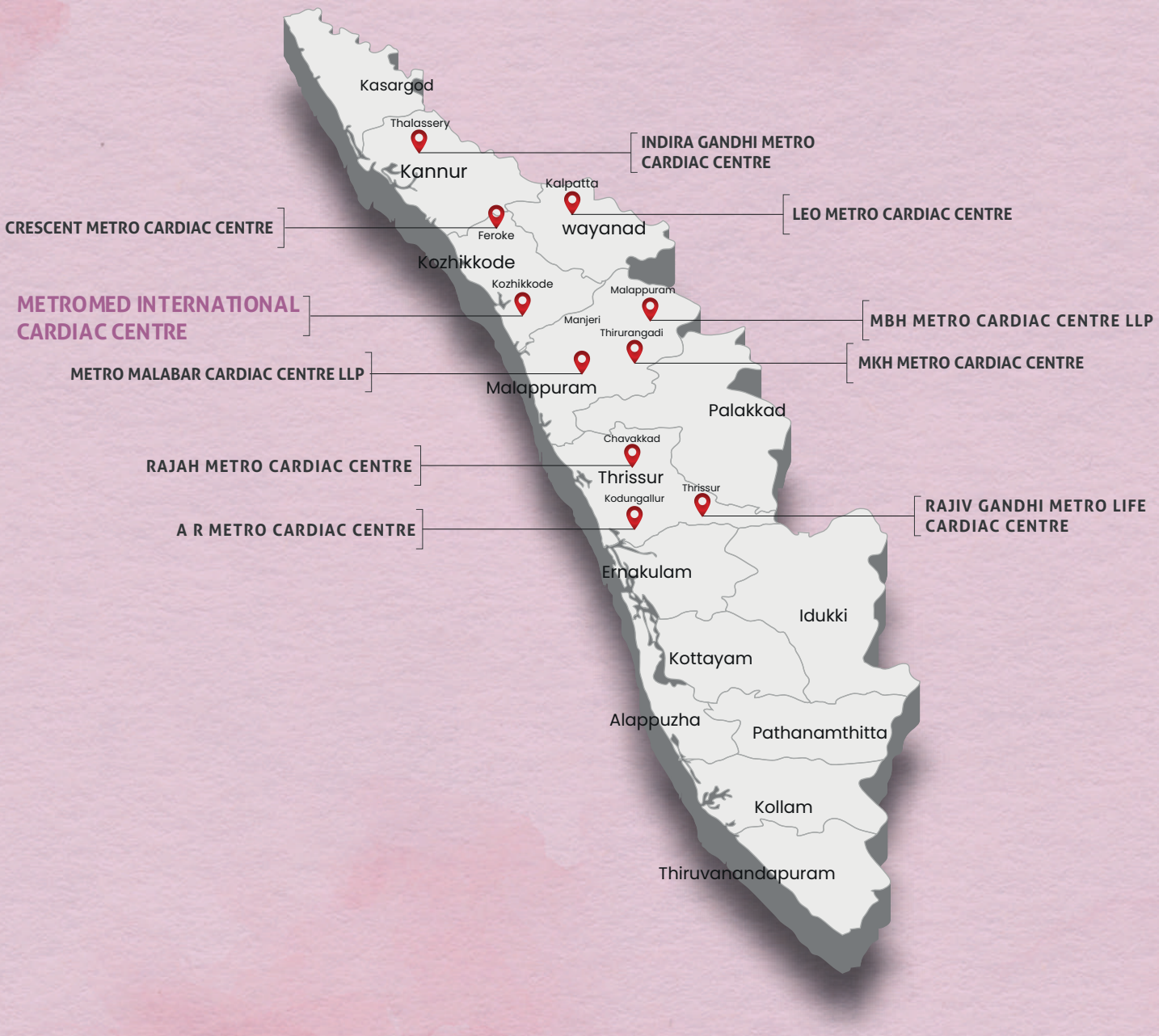
The procedure was done through right femoral artery approach, EBU 3.5 (SH) / 7F guiding catheter was engaged into LMCA. After serial pre-dilation Pre-dilation done was with 2.5 x 12 mm (NC QUANTUM APEX). Intravascular lithotripsy was done on with 3.0 x 12 mm (SHOCKWAVE C2) at 4 atm pressure for 10 sec / 5 cycles and final 3 cycles went up to 6 atm.. Stenting was done with 3.5 x 48 mm XIENCE XPEDTION at ostial LMCA to mid LAD with support of 6F guide plus. Post IVUS run showed no edge dissection and proximal, malposition. Hence, post dilation was done with 3.5 x 10 mm (OPN NC) high pressure balloon at 40 atm . During the procedure patient was pain free and hemodynamically stable. Patient has tolerated well. (figure)



FOLLOW UP

She was discharged on 3 rd day of the post procedure, and is following up clinically stable and functionally active 6 months post procedure on dual antiplatelets and hypertensive medicines.

Our Centres



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