

TRANSSEPTAL TRANSCATHER  
MITRAL VALVE REPLACEMENT  
USING BALOON EXPANDABLE  
TRANSCATHER HEART VALVES

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# INTRODUCTION

- TMVR HAS EMERGED AS ALTERNATIVE TREATMENT .
- SEVERE COMORBIDITIES.
- ADVANCED AGE.
- UNFAVORABLE ANATOMICAL CONDITIONS.

# INTRODUCTION

- TRANSAPICAL APPROACH IS ASSOCIATED WITH INCREASED RISK OF PERIPROCEDURAL COMPLICATIONS , MORTALITY AND SLOWER RECOVERY .
- TRANSSEPTAL APPROACH IS BETTER THAN TRANSAPICAL .
- SAPIEN XT OR SAPIEN 3 THV ARE COMMONLY USED .

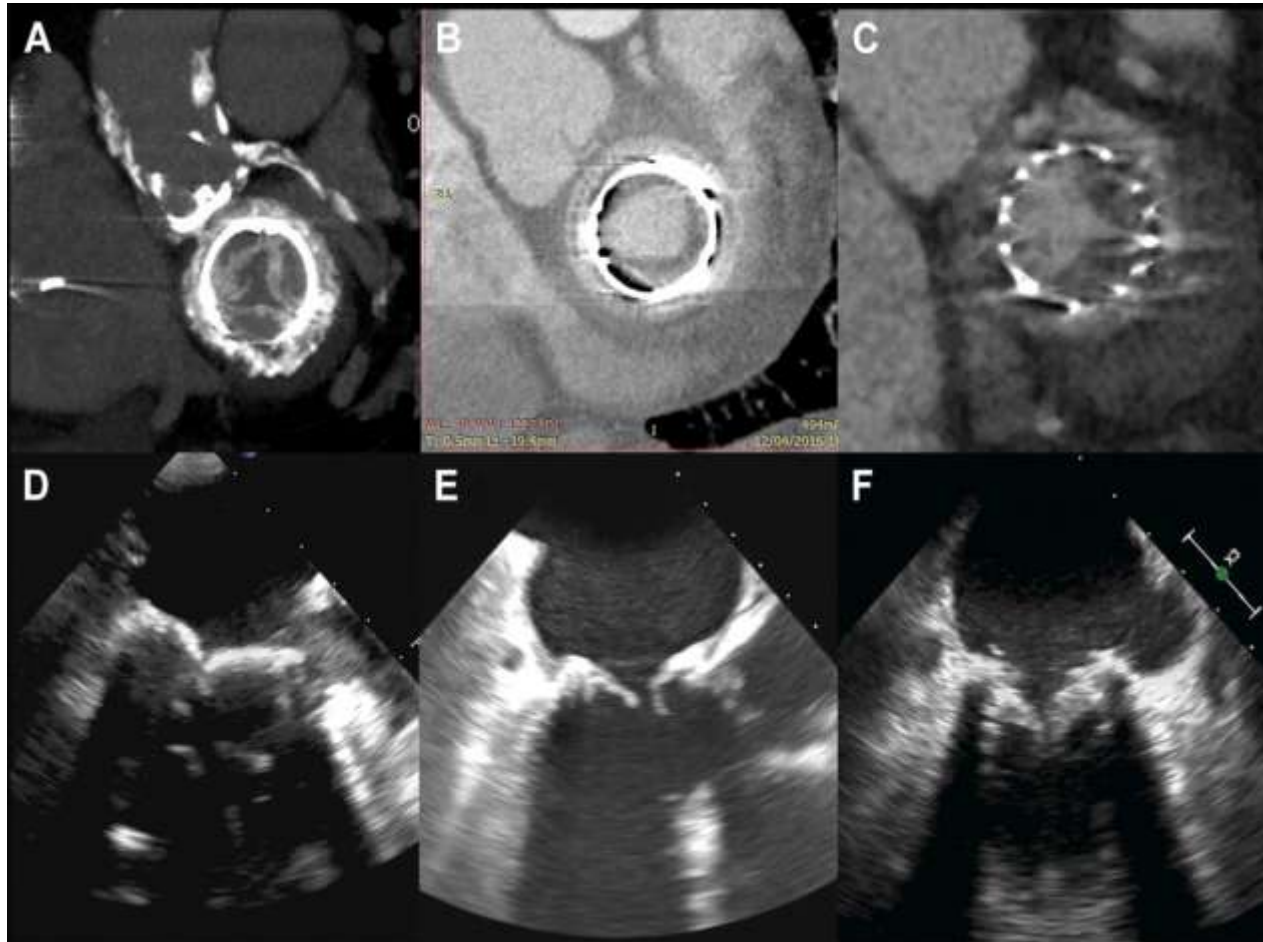
# PATIENT SELECTION

- FAILING BIOPROSTHESIS.
- FAILING RING ANNULOPLASTY.
- SEVERE MITRAL ANNULUS CALCIFICATION .
- SEVERE SYMPTOMATIC MITRAL VALVE DISEASE .

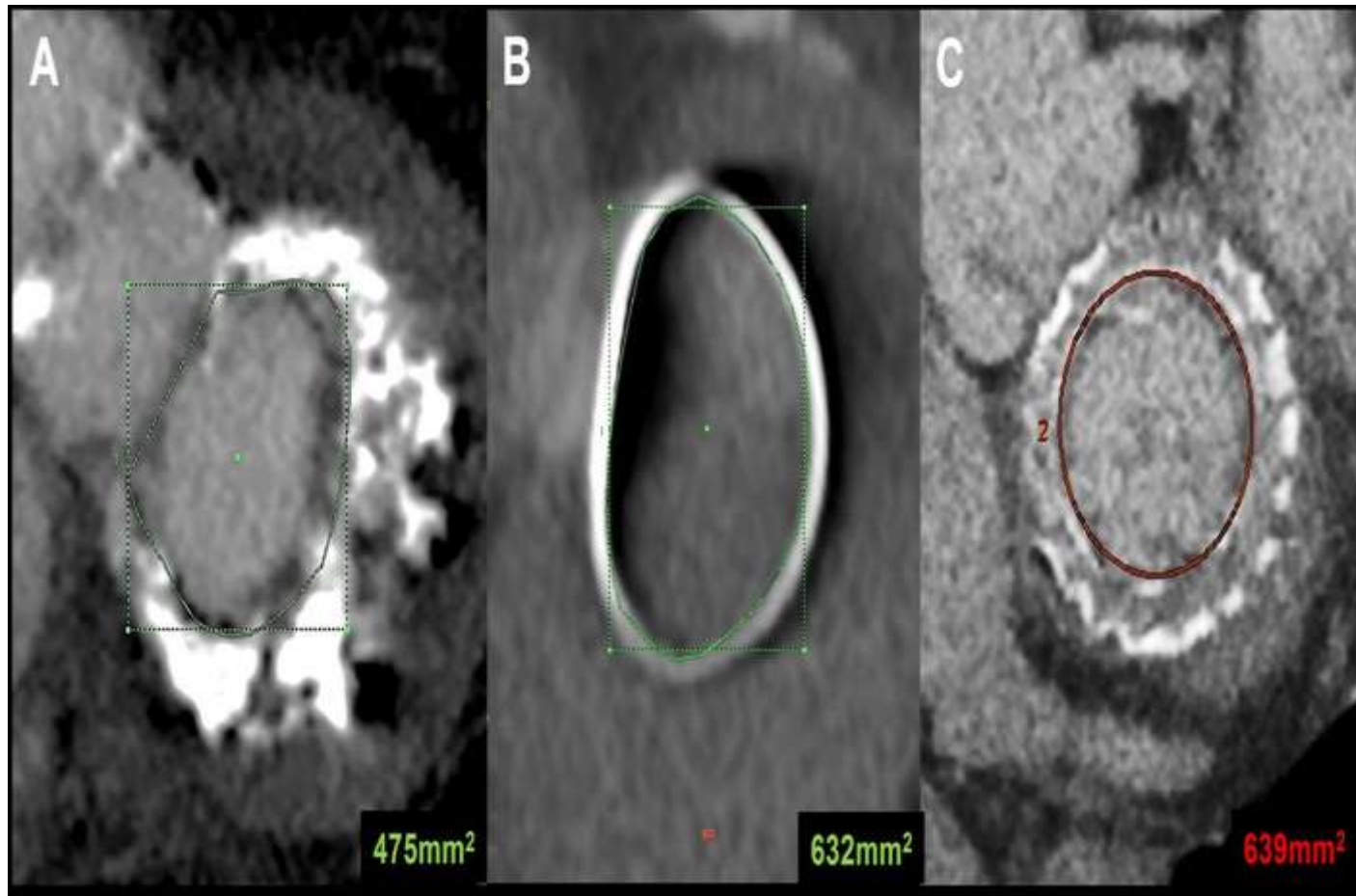
# PRE TMVR WORK-UP

- STANDARD BLOOD INVESTIGATIONS.
- ECG,CHEST X RAY , ECHO .
- CORONARY ANGIOGRAM.
- MDCT SCAN.

# CT AND TEE IMAGES



# CT IMAGES



# OBJECTIVES OF SCREENING

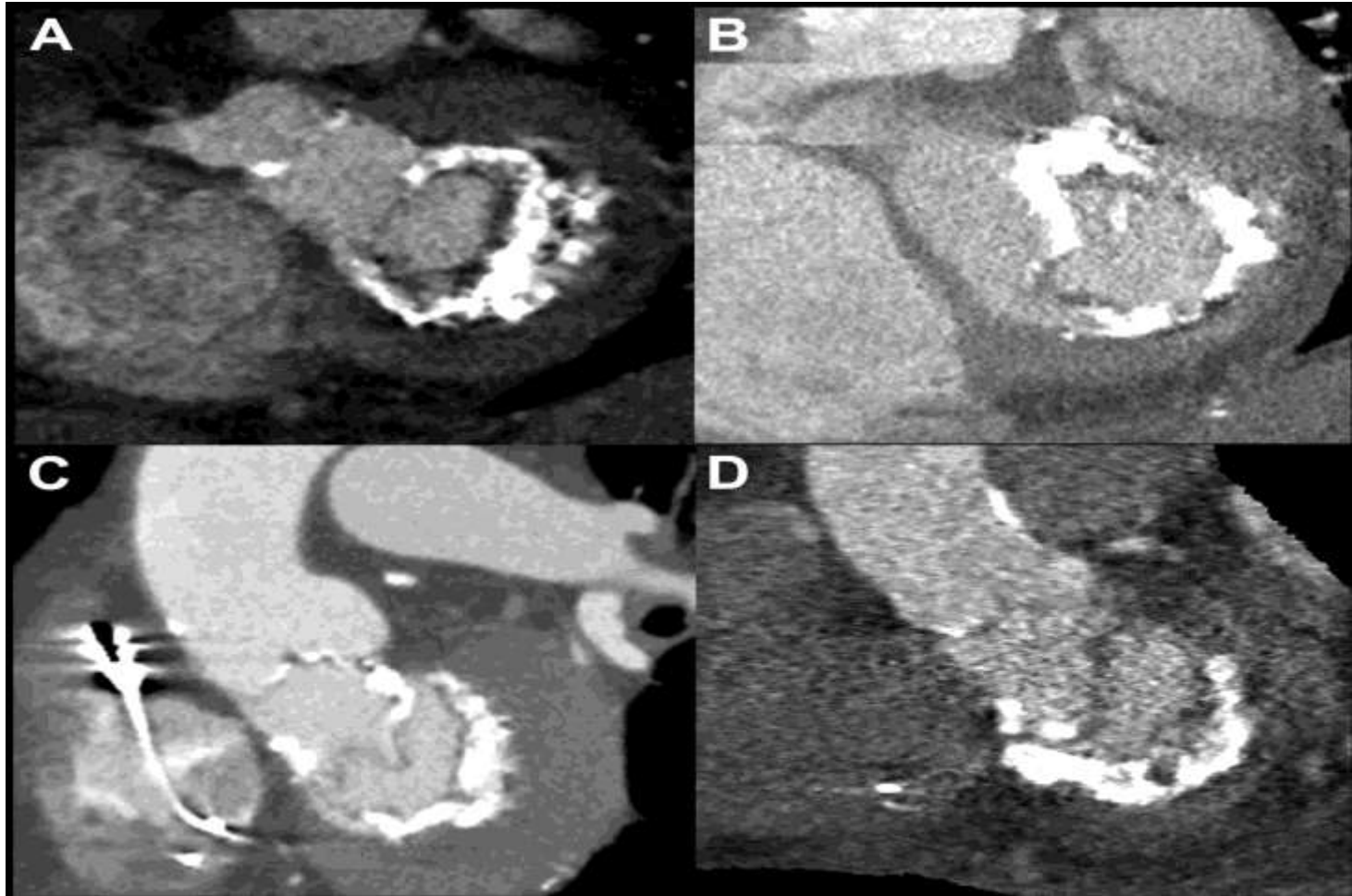
- SEVERITY OF MITRAL VALVE DISEASE .
- MECHANISM OF BIOPROSTHESIS OR RING FAILURE .
- MORPHOLOGY OF MITRAL VALVE .
- CHARACTERISTICS OF SURGICAL BIOPROSTHESIS OR RINGS.
- DETERMINE THE RISK OF COMPLICATIONS SUCH AS LVOT OBSTRUCTION, PARAVALVULAR LEAKS OR EMBOLISATION .



# MECHANISM OF BIOPROSTHESIS OR RING FAILURE.

- ENDOCARDITIS.
- SEVERE PARAVALVULAR LEAK .
- PARTIAL DEHISCENCE OF BIOPROSTHESIS OR RING .
- THROMBOUS/PANNUS/DEGENERATION.

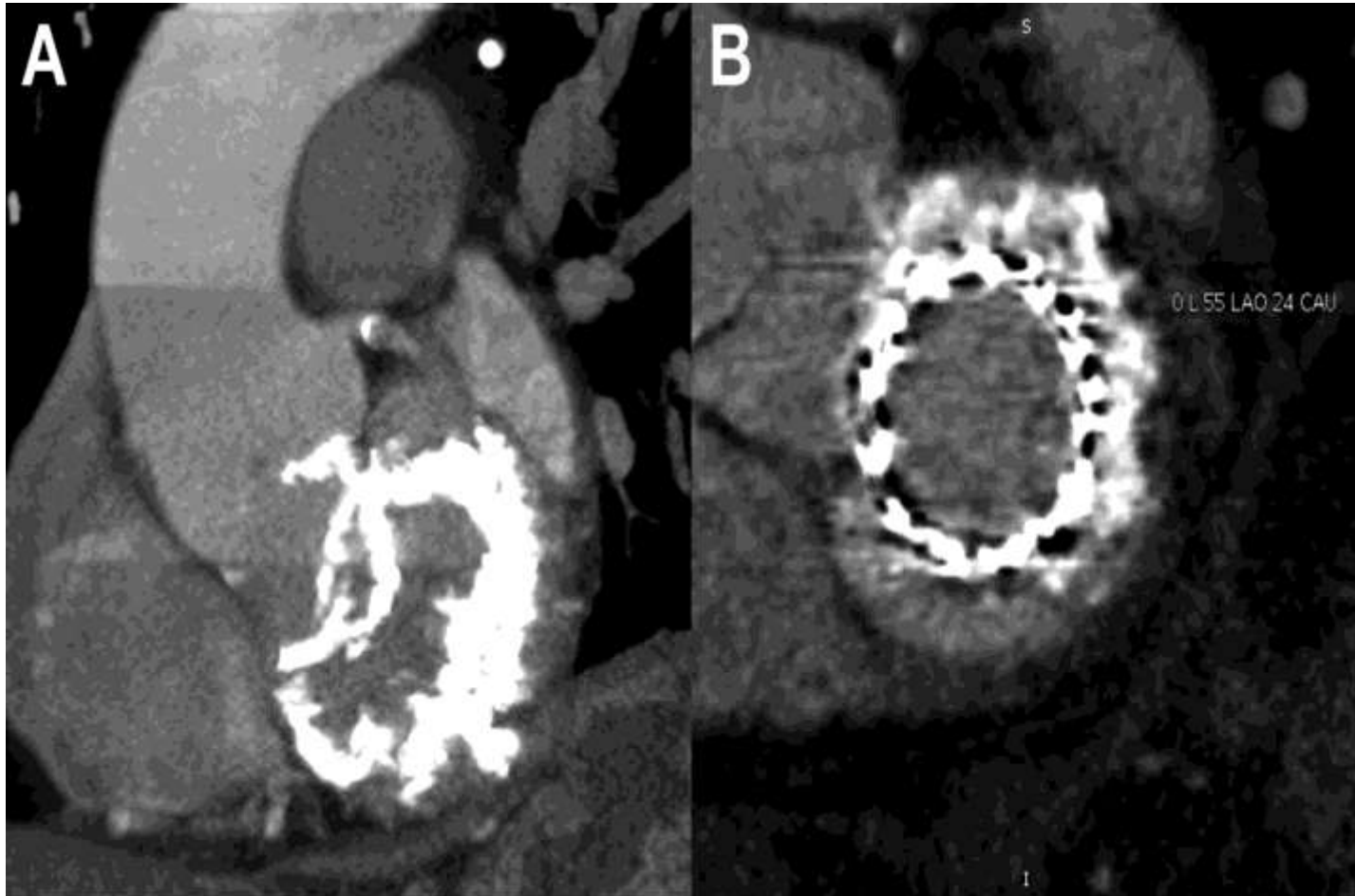
# CT IMAGES



# CHARACTERISATION OF MITRAL VALVE

- TRUE INTERNAL DIAMETER AND DIMENSIONS.
- RIGIDITY AND COMPLETENESS OF RINGS .
- RADIOOPACITY AND FLUROSCOPIC APPEARENCE .
- POSITION AND ORIENTATION.
- MITRAL ANNULUS CALCIFICATION

# CT IMAGES AFTER TMVR



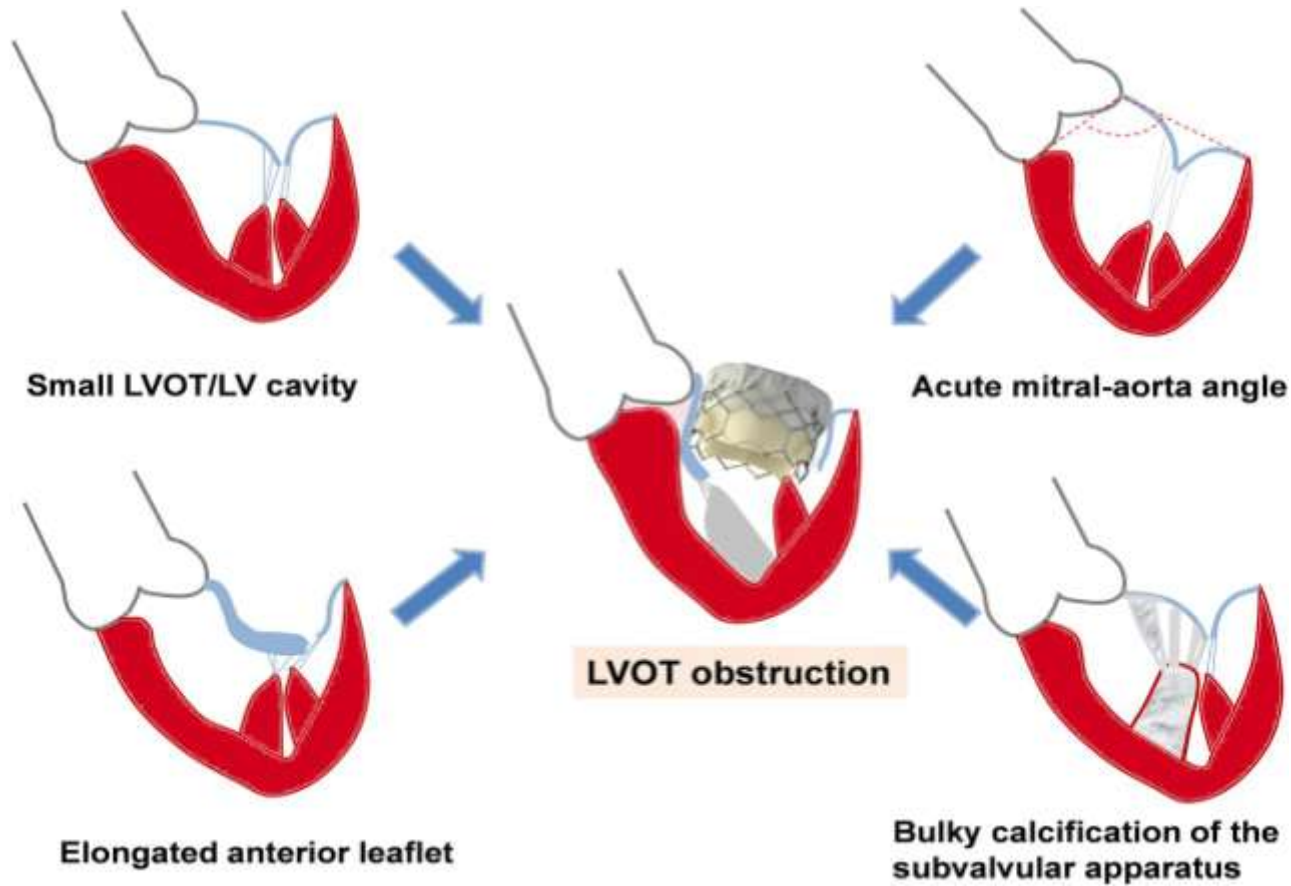
# SIZING OF THV

- TRUE INTERNAL DIAMETER.
- TEE .
- MDCT SCAN.
- CALCIFIED LEAFLETS.

# LVOT OBSTRUCTION

- ANTERIOR LEAFLETS(ELONGATED/CALCIFIED).
- ANTERIOR SUBVALVULAR APPARATUS.
- SMALL LVOT.
- SMALL LV CAVITY.
- ACUTE MITRAL-AORTA ANGLE.

# TYPES OF LVOT OBSTRUCTION



# PATIENT PREPERATION

- GENERAL ANAESTHESIA,
- BOTH GROINS PREPARED.
- LEFT ARTERIAL SHEATH FOR BP MONITORING.
- LEFT VENOUS FOR TEMPORARY PACING.
- RIGHT VENOUS FOR TS ACCESS.



# TRANSSEPTAL CATHETERISATION

- TEE IS MANDATORY,
- RESISTANT SEPTUM,
- DIALATATION OF SEPTUM,
- REDO TS PUNCTURE,

# MITRAL VALVE CROSSING

- INOUE WIRE,
- MULTIPURPOSE / PIGTAIL CATHETER,
- J SHAPED WIRE IN LV,
- EDWARDS E SHEATH IN IVC ,

# THV PREPARATION

- SAPIEN XT AND SAPIEN 3 THV .
- SAPIEN3 – LOWER PROFILE , ENHANCED FLEXIBILITY , COAXIBILITY ,TRACKABILITY, RADIAL FORCE, AND LOW RISK OF PARAVALVULAR LEAK .

# SEPTAL DILATION

- 12- 16MM PERIPPPHERAL BALLOONS ,
- ATLAS, IMPACT,MUSTANG BALLOONS.
- CORRECT POSITION IS CONFIRMED WITH TEE/FLUROSCOPY.
- ENTRAPMENT AND BLOCKAGE OF THE PROSTHESIS.

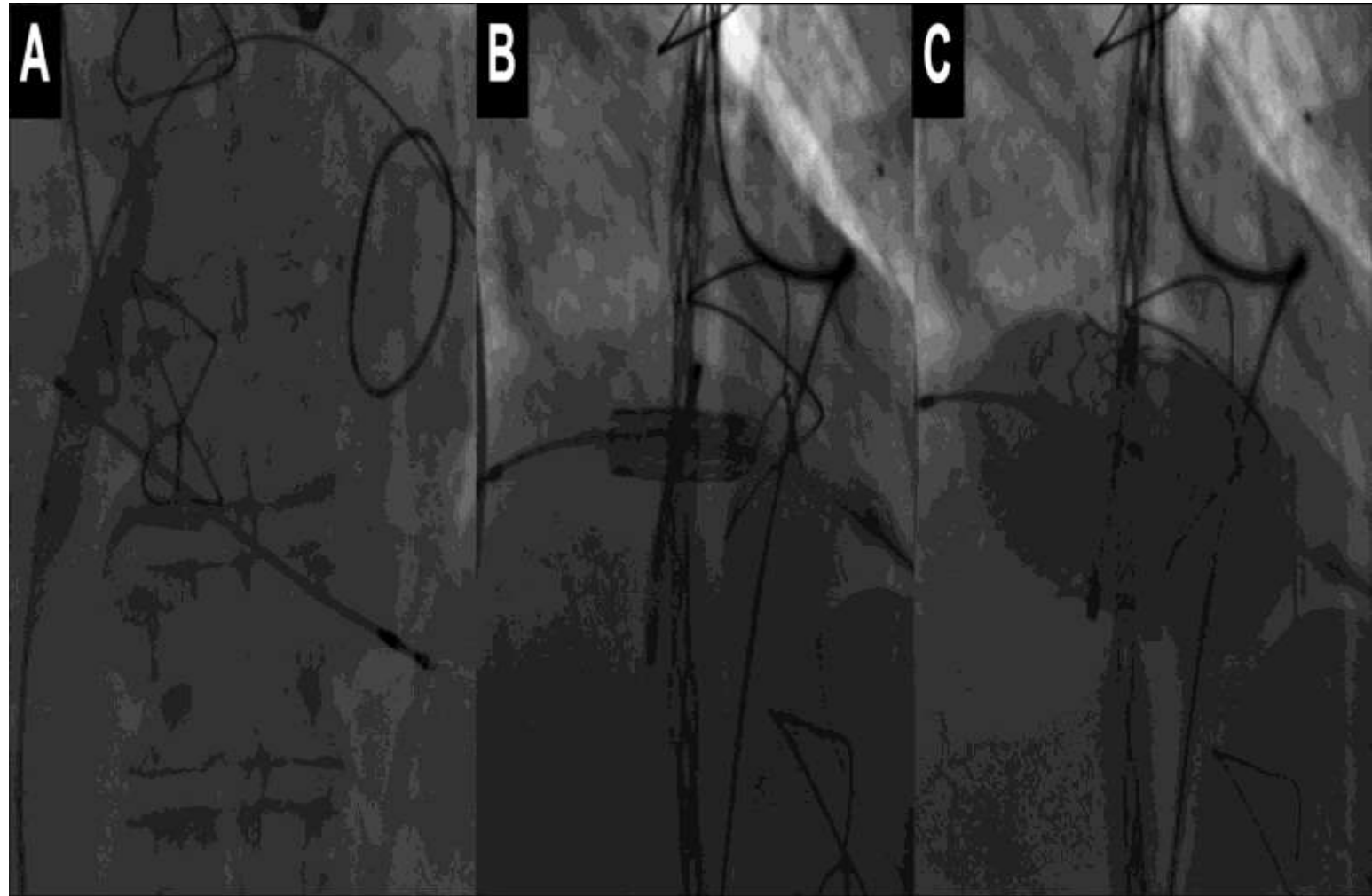
# ADVANCING THE DELIVERY SYSTEM AND CROSSING THE SEPTUM

- CROSSING SEPTUM IS CHALLENGING .
- FLUROSCOPY/TEE ARE USED .
- REPEAT SEPTUM DILATATION.
- DIFFERENT ORIENTATION .

# POSITIONING AND DEPLOYMENT OF THV

- CROSSING OF MITRAL ORIFICE OF THV MAY BLOCK DUE TO BIOPROSTHETIC RING , MAC OR SEVERE STENOSIS.
- GENTLE MANIPULATIONS.
- 20-30% OF THV IN LEFT ATRIUM AND 70-80% THV IN LEFT VENTRICLE.
- MORE DIFFICULT IN SURGICAL RINGS.

# STEPS OF TMVR



# POST DEPLOYMENT ASSESSMENT

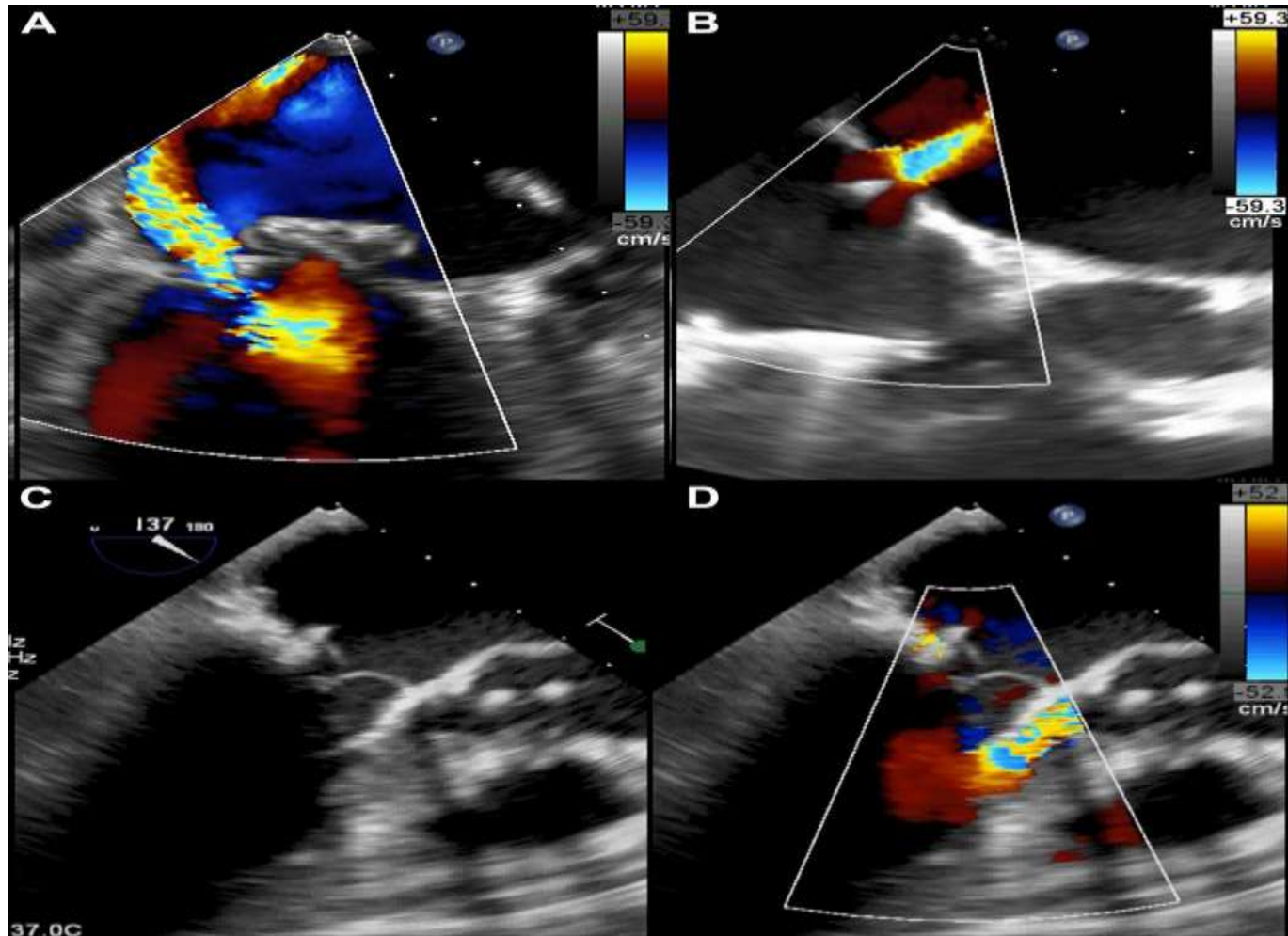
- FINAL POSITION.
- SEVERITY.
- CENTRAL OR PARAVALVULAR LEAK.
- TRANSMITRAL GRADIENT.
- MOTION OF LEAFLETS.



# POTENTIAL COMPLICATIONS

- IMPROPER POSITION.
- PARAVALVULAR LEAK.
- CENTRAL MR .
- HIGH TRANSMITRAL GRADIENT .
- ABNORMAL POSITION OF LEAFLETS.
- RT TO LT INTRAATRIAL SHUNT.
- LVOT OBSTRUCTION.
- TAMPONADE.
- SEVERE HYPOTENSION.

# COMPLICATIONS



# FOLLOW UP CARE

- LATE VALVE DISPLACEMENT.
- THROMBOSIS.
- MIGRATION.
- DYSFUNCTION.
- STRUCTURAL DETERIORATION.

# CONCLUSION

- TS MVR IS TECHNICALLY DEMANDING.
- ACCURATE SCREENING PROCESS.
- OPTIMAL PLANNING.
- STEP BY STEP APPROACH.
- CLOSE FOLLOW UP.
- RESULTS IN HIGH SUCCESS RATE .
- REDUCED RISK OF COMPLICATIONS.

**THANK YOU**