

Technical Tips & Tricks for Best Clipping with Mitraclip



LOS ROBLES
HEALTH SYSTEM

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MitraClip in 2021



- Only Transcatheter treatment option of mitral regurgitation approved in US and Korea
- > 130,000 cases worldwide
- Continued improvements in technology
- Effective in selective patients of primary and secondary mitral regurgitation
- Only device to show survival benefit in the treatment of secondary mitral regurgitation
- Case selection and attention to detail during the procedure is critical for the success of the procedure

DESIGN: FOUR GENERATIONS OF MITRACLIP™



BUILT ON CLINICAL EXPERIENCE

Reaching 100K
Patients Treated

REAL-WORLD TRANSCATHETER
EXPERIENCE AND CONTINUED
INNOVATION



MITRACLIP



MITRACLIP NT
2016



MITRACLIP
NTR/XTR
2018



MITRACLIP G4*
2019



MitraClip™ G4: Expanded Clip Size to Tailor MV Repair



G4 NT
4 mm



G4 NTW
6 mm



50% wider
in the grasping
area

G4 XT
4 mm

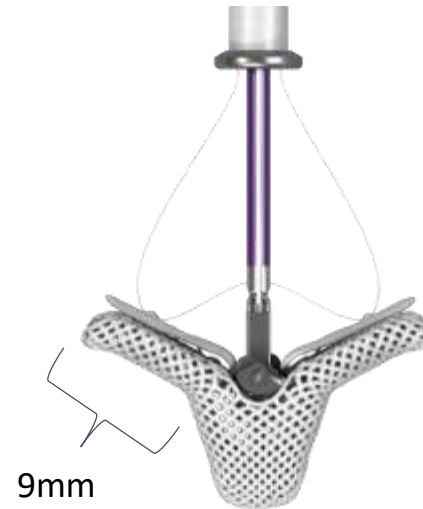


G4 XTW
6 mm



50% wider
in the grasping
area

G4 NT/NTW

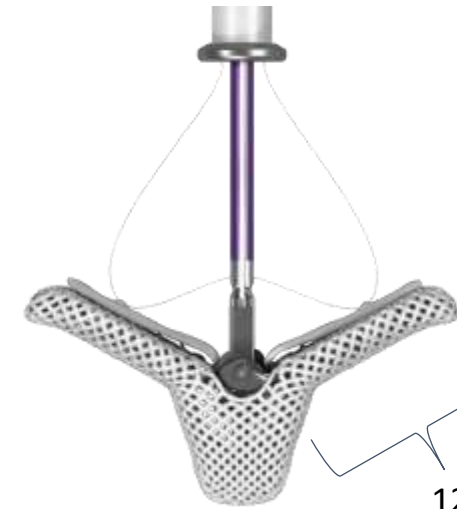


9mm



17 mm at 120 degrees

G4 XT/XTW



12mm



22 mm at 120 degrees

Top 10 pearls for success of Clip



- Case selection
- Vascular access/closure
- Choose your imaging specialist
- Proper trans septal puncture
- Real time Left atrial pressure monitoring
- Orientation of clip prior to grasping
- Holding the respirator during grasping and position of clip
- Confirming leaflet insertion
- Low threshold to use more than one clip
- Combined echo and invasive hemodynamic is helpful the final result

MitraClip therapy



CASE SELECTION

MitraClip: Case selection



- **Etiology**
- **Severity of MR**
- **Surgical risk**
- **Morphological criteria**
- **Cases to avoid,**

Case Selection

Cases to Avoid



- Mitral Valve Orifice less than 3.5 sq cm
- Rheumatic MR with commissural fusion
- Calcified leaflets
- Severe TR, which cannot be treated
- Recent endocarditis
- MR due to congenital cleft (endocardial cushion defects)

Case Selection: Etiology



- Selected cases of degenerative or functional MR
- Selected cases of recurrent MR following a surgical or transcatheter valve repair
- Exclusions
 - Rheumatic MR
 - Recent endocarditis
 - Severe calcified leaflets
 - Mitral Valve Orifice < 4 sq cm

Vascular access/closure



- No arterial access in groin
- Use Ultrasound to obtain venous access
- Single venous access : Single perclose for the vein
- Some cases: radial arterial access
- Some cases: Right internal jugular venous access for anesthesia/right heart study

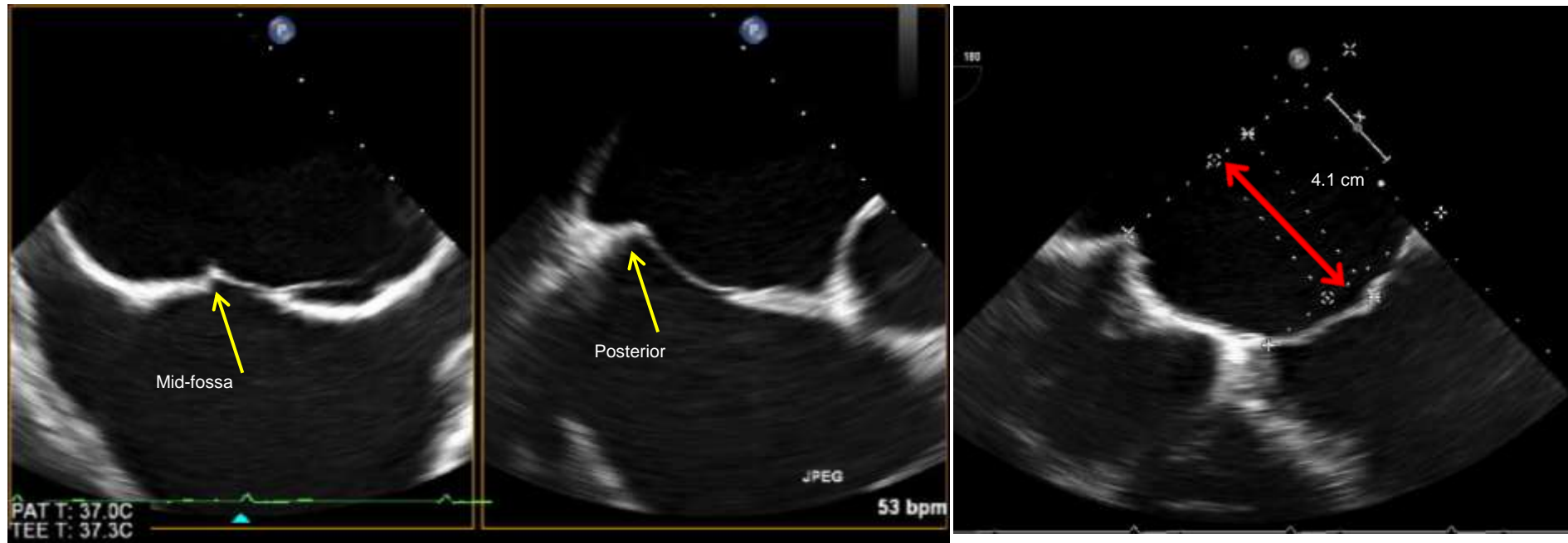
Choose your imaging specialist



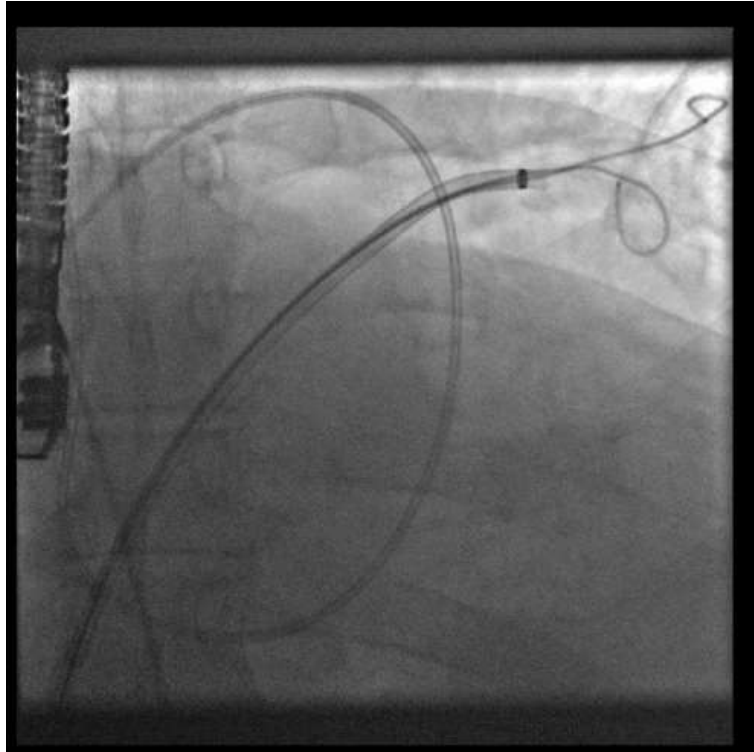
- Good Echocardiographer/cardiac anesthesiologist is as or more important than the interventionalist.



Proper Transseptal : Mid fossa and posterior (using the MitraClip NT): 4 to 4.5 cm

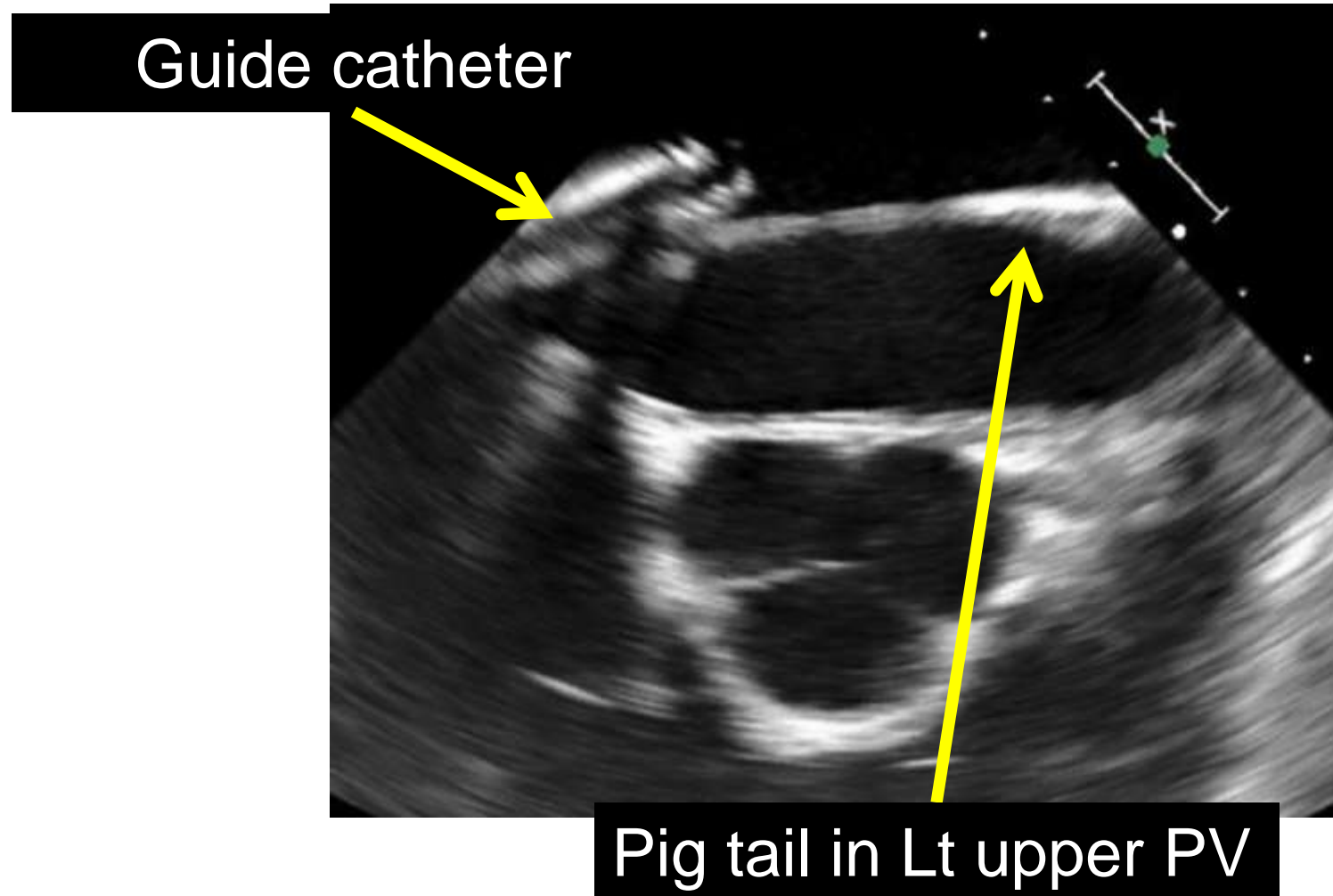


Continuous LA pressure measurement



- Through a trans-septal sheath
- 2 wires cross to Lt Upper PV
- Exchange length J curve wire
=> Pigtail
- Stiff wire
=> Guide catheter

Continuous LA pressure measurement



Orientation of the Clip



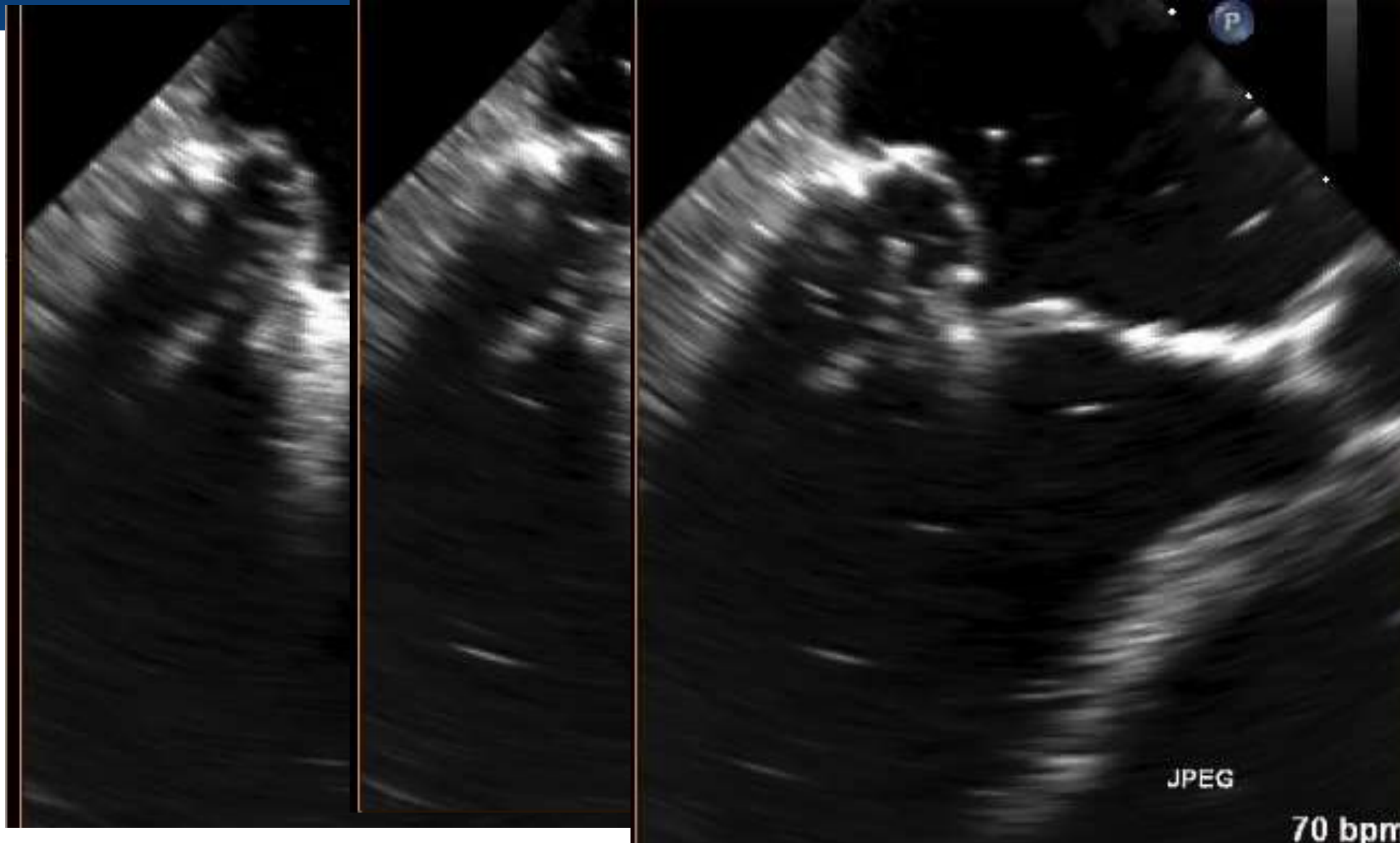
- Clip should be oriented perpendicular to line of coaptation
 - Oriented above the valve
 - Check orientation before grasping
 - Check after grasping of leaflets

Holding ventilator /reduce tidal volume during final positioning and grasping leaflet

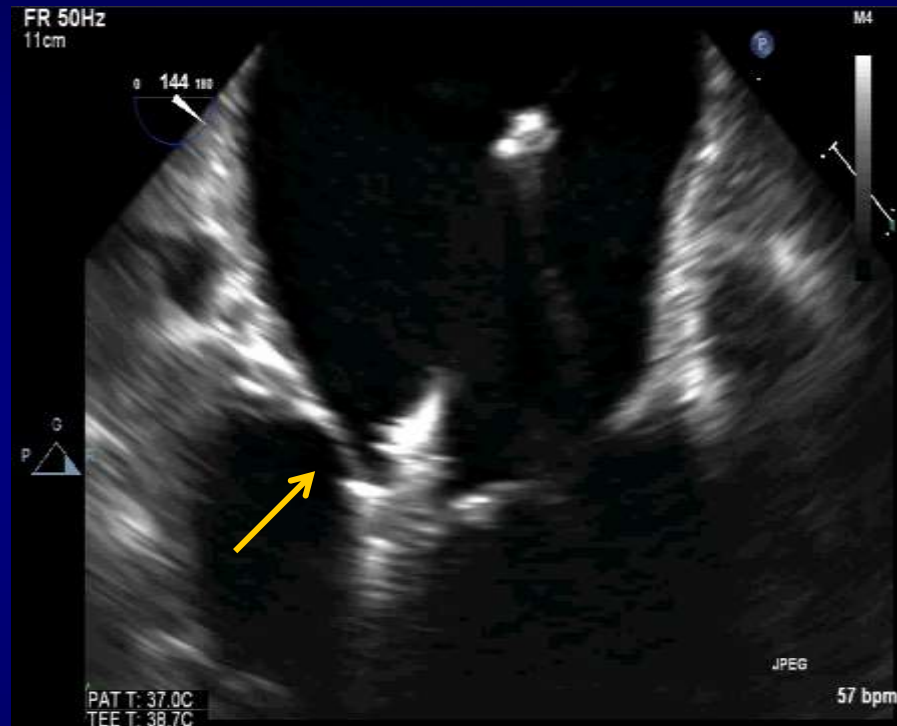


- Very helpful in accurate position of clip
- Helpful for imaging specialist
- Grasping of leaflets in accurate location
- Use of multiplanar reconstruction imaging (MPR)
- It is safe to hold ventilator for upto 10 minutes on 100% FiO₂

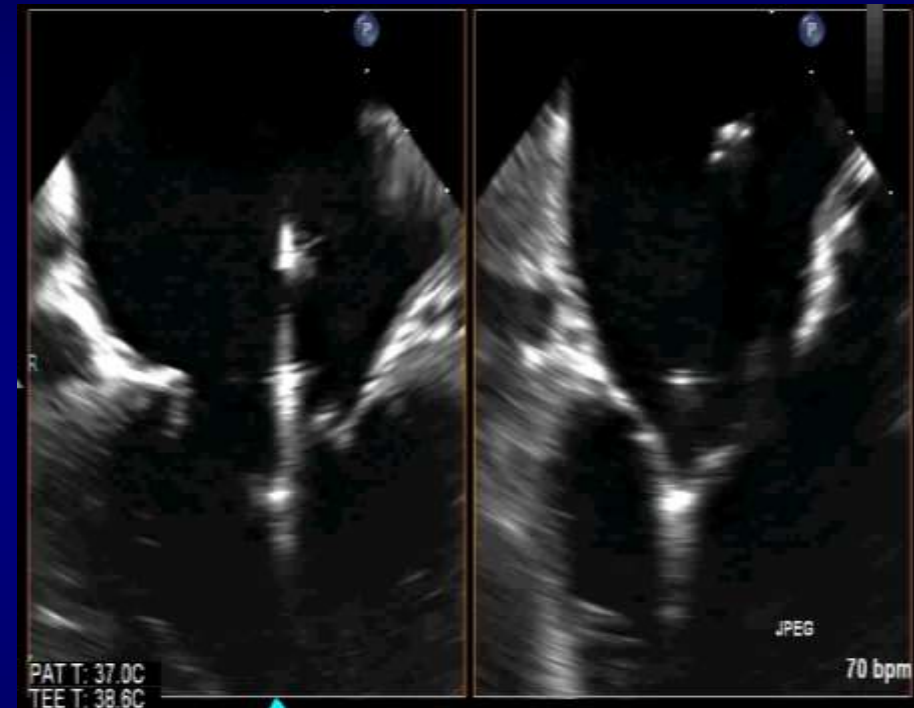
Check Leaflet insertion : MitraClip NT



Checking leaflet insertion



Excessive leaflet motion

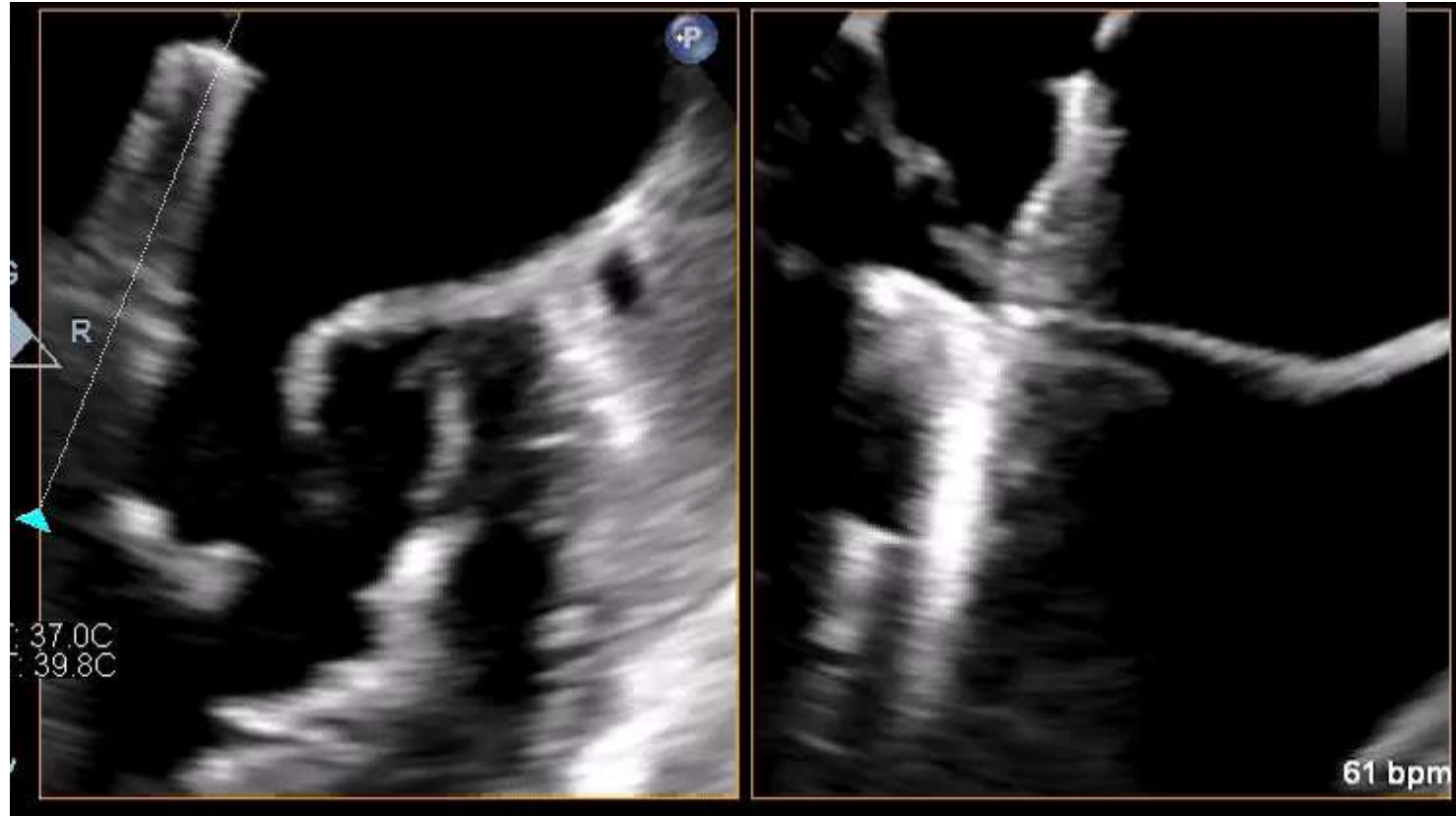


Good insertion less leaflet motion

Controlled Gripper actuation to optimize posterior leaflet insertion



Controlled gripper actuation: grasping of posterior leaflet only



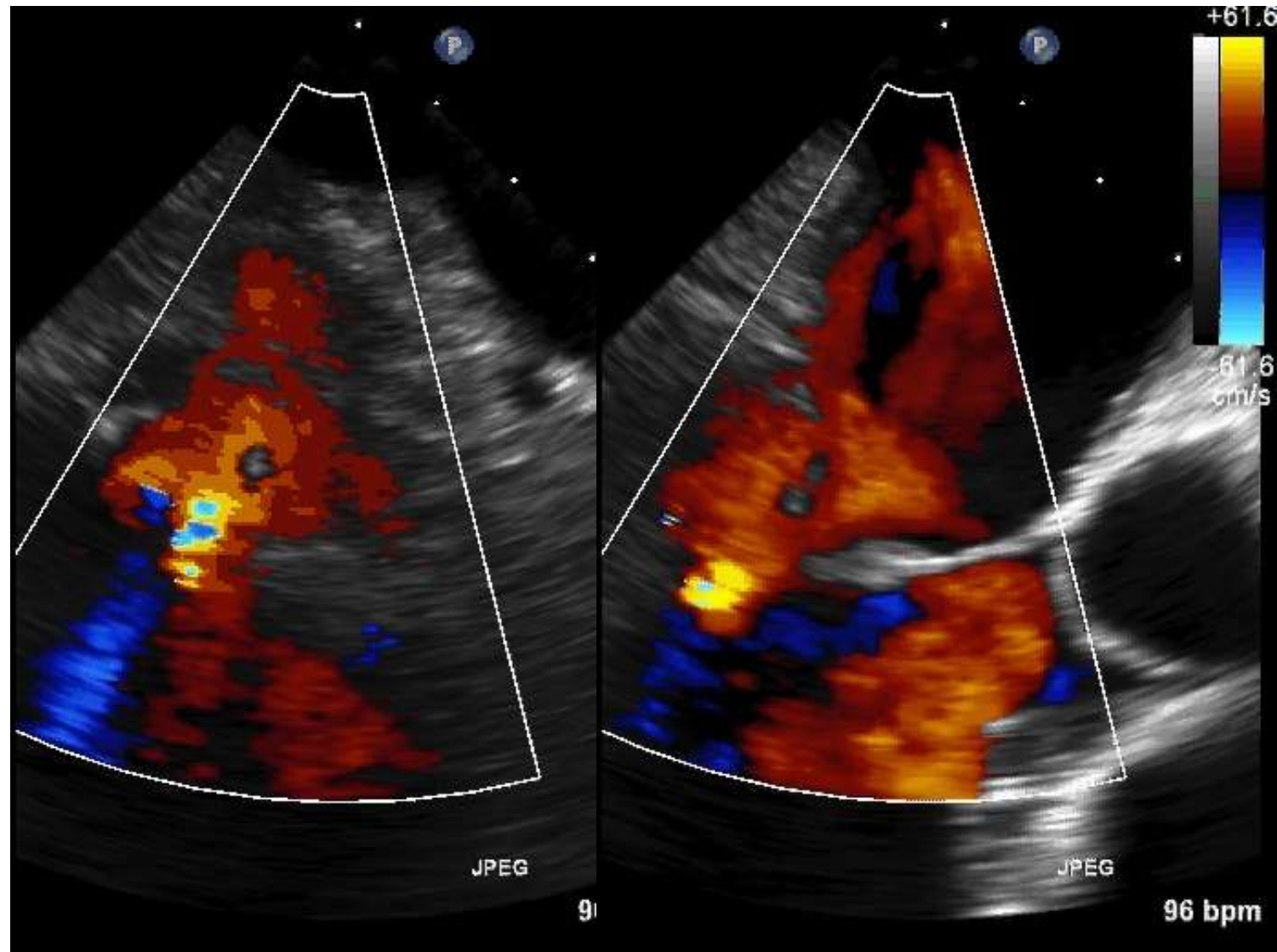
Controlled gripper actuation: grasping of posterior leaflet only



Wide tissue bridge with just one clip
Mean gradient = 2 mm Hg

Baseline TEE

Bicom-LVOT color



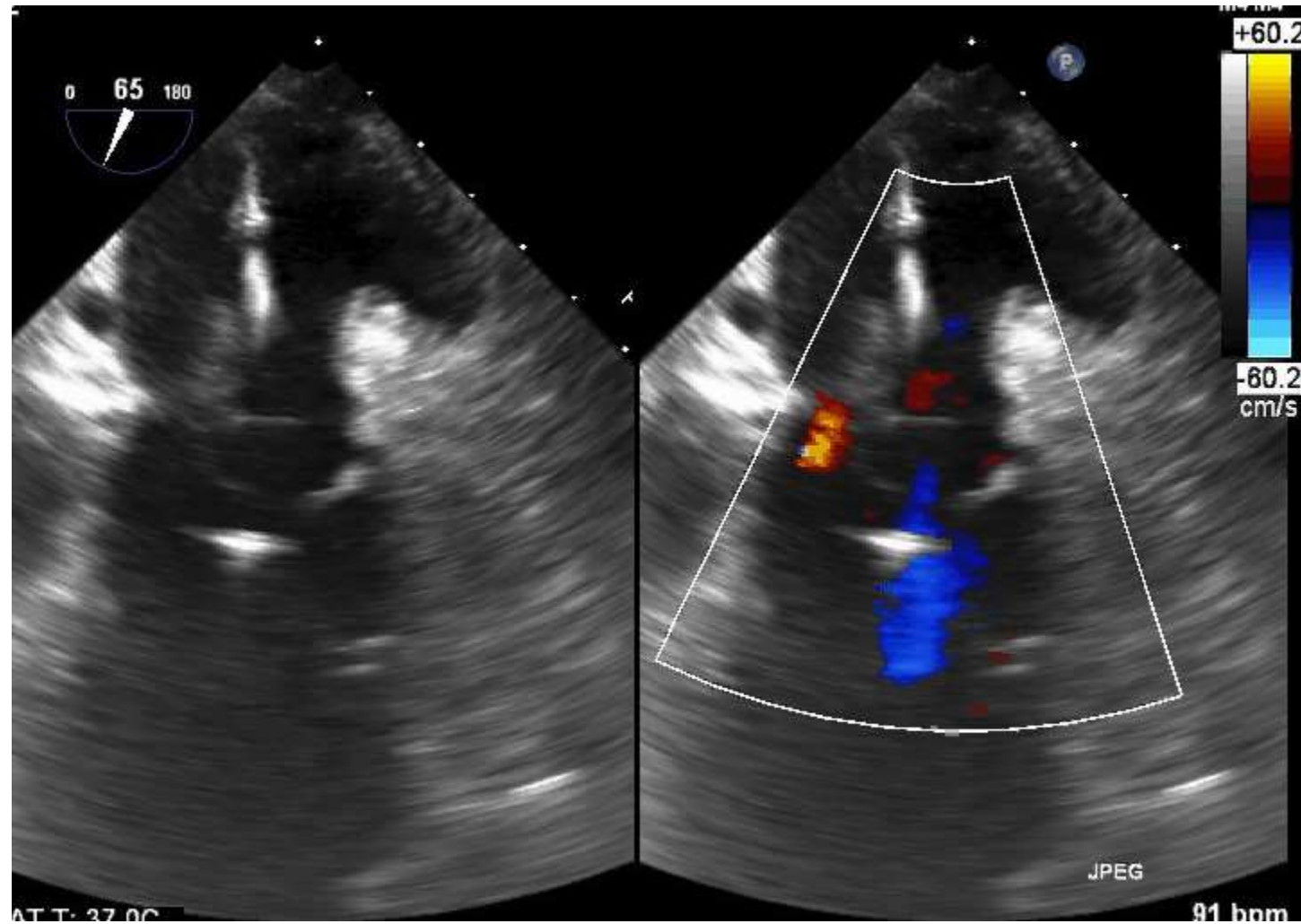
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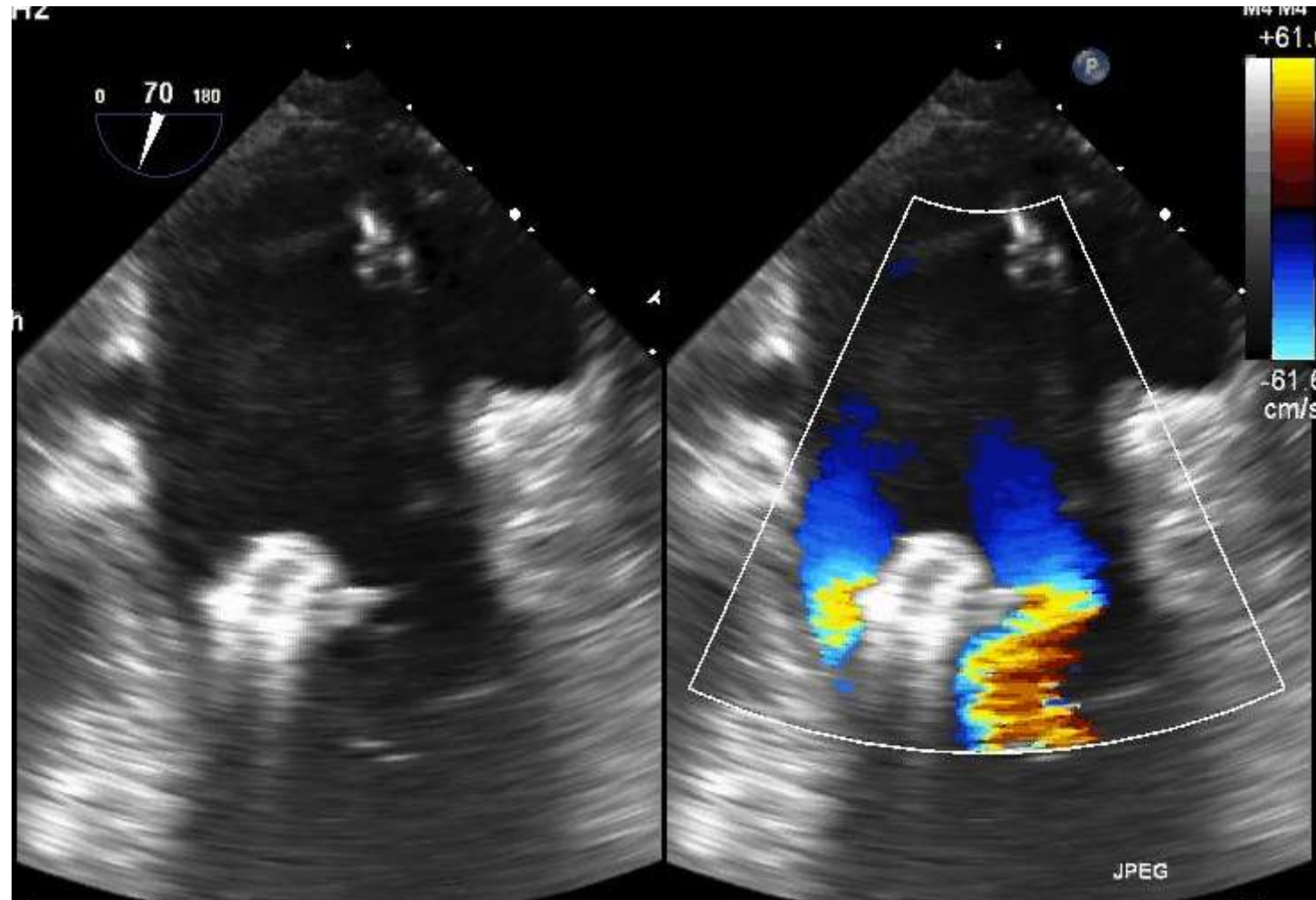
After 1st clip TEE

Bicommissural view with and without color

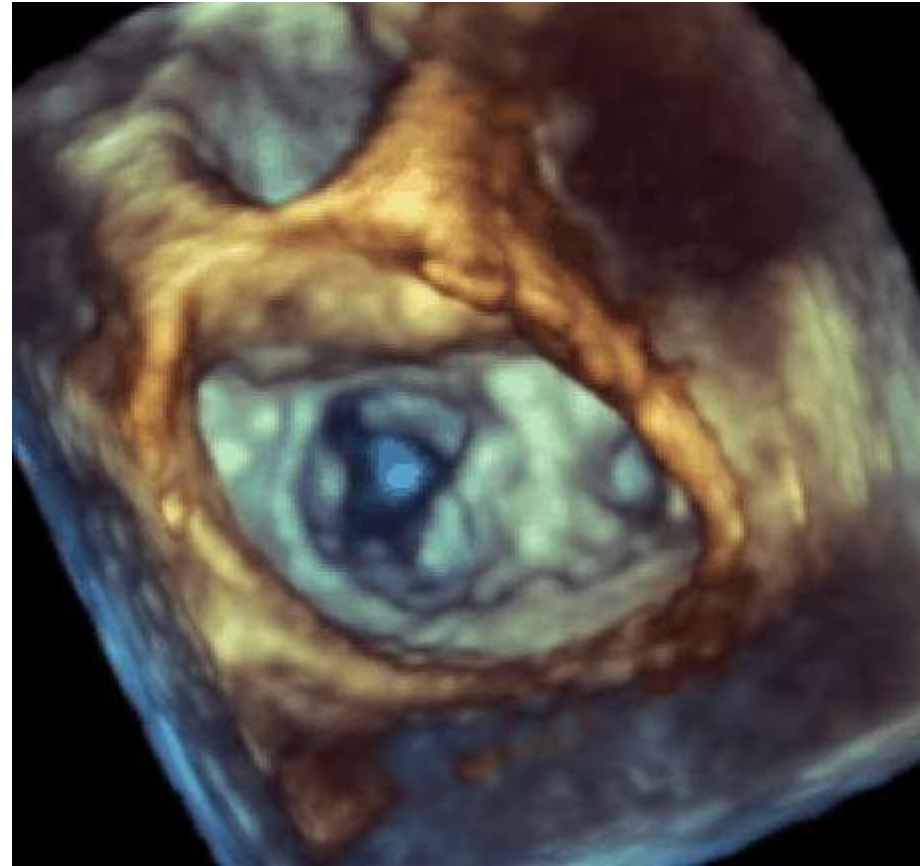


After 2nd clip TEE

Bicommissural view with and without color



After 2nd clip TEE
3D enface view



Combined echo and hemodynamics



- Echo
 - Color flow
 - Pulmonary vein flow
 - Mitral valve gradient
- Invasive hemodynamics
 - Reduction of V wave or LA mean pressure
 - Improvement of cardiac output
 - Increase in systemic pressures

Summary



- Case selection is important
- Attention to detail at each step is essential
- Low threshold to place multiple clips
- Use of echo and invasive hemodynamics in assessment of results