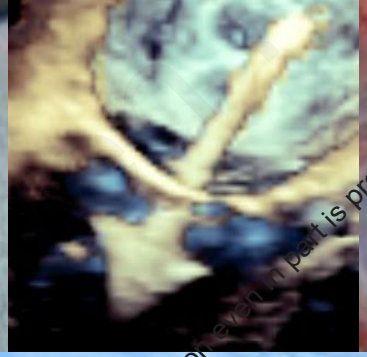
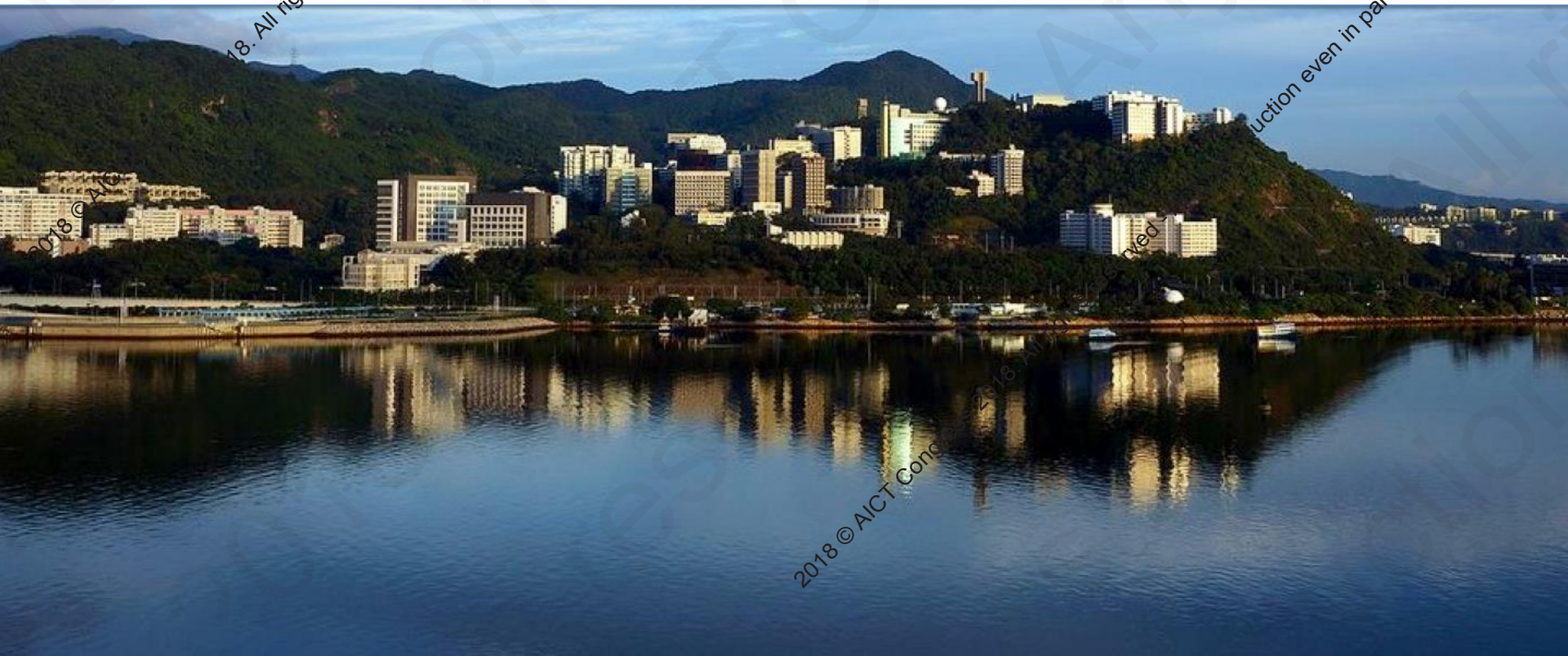
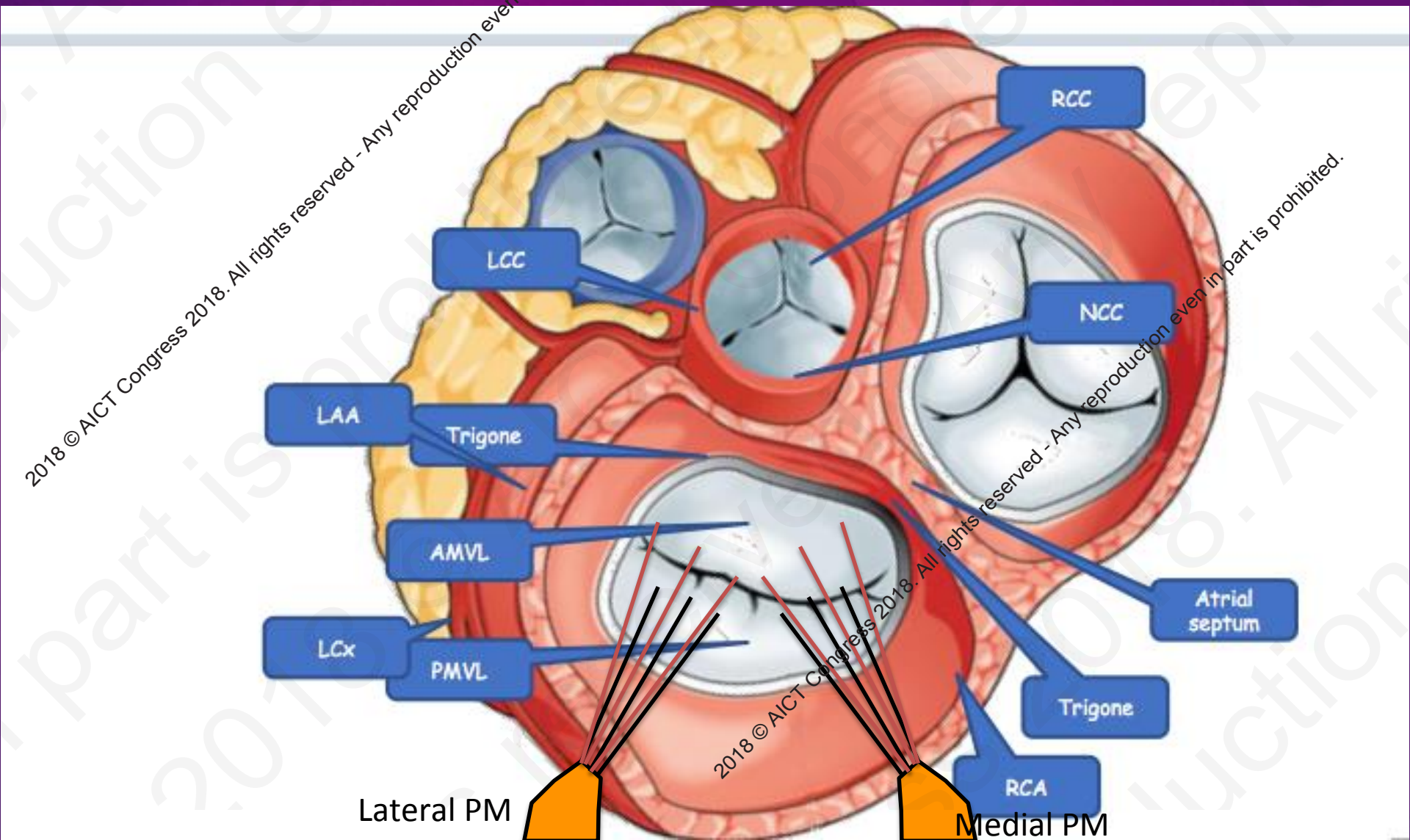




Role of Echo in MitraClip Therapy

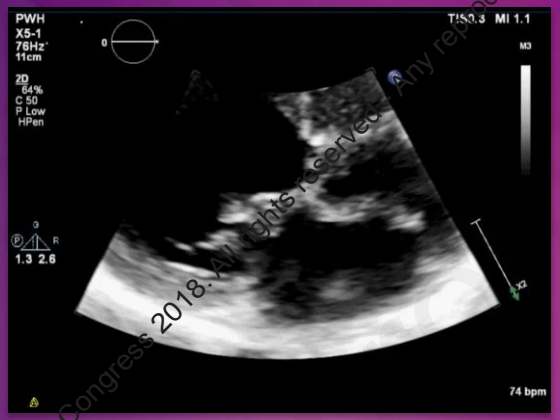
Alex Lee, MD, FACC, FESC, FRCP. Associate Professor, CUHK
Director of Echocardiography Laboratory, Prince of Wales Hospital



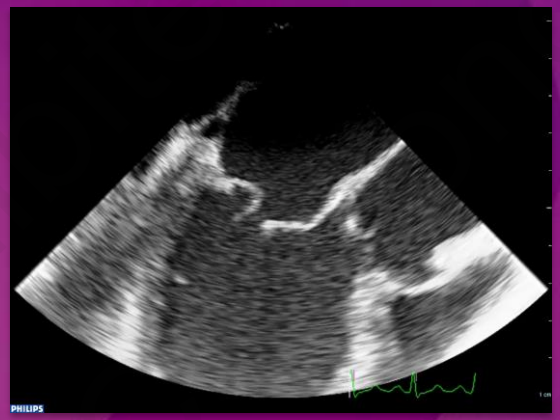
Surgical view of mitral valve



Selection of patients



TTE



TEE

3D TEE

- Multiple echo modalities
- Comprehensive and systematic assessment of MR
  - Key echocardiographic views in each echo modality
  - Optimal visualisation of MR origin and valve pathology

Case

- 86 year old female
- Acute onset dyspnea from pulmonary edema
- History of prior CABG
- CKD (Creatinine 140 umol/L)
- Physical exam
  – 3/6 holosystolic murmur
- TTE
  – MV prolapse with severe mitral regurgitation – LV EF 60%

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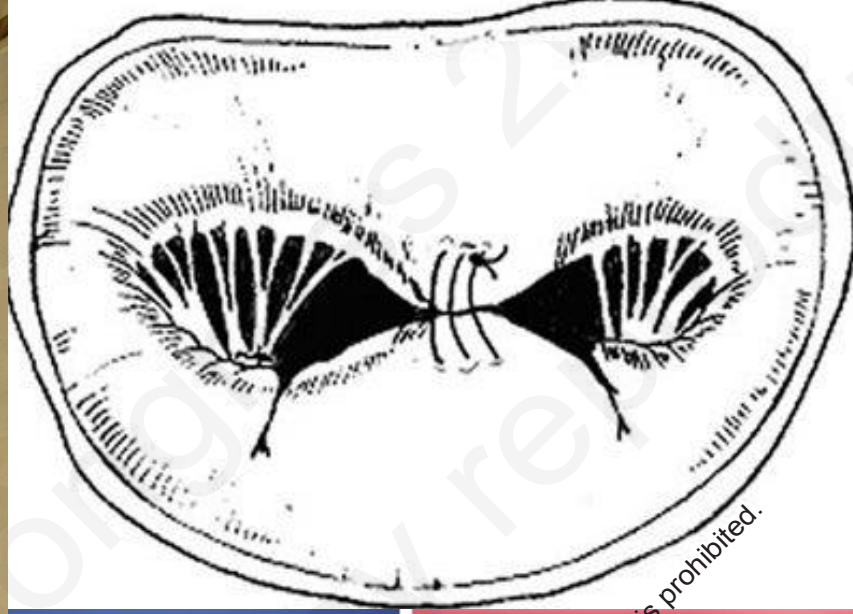
Heart team consideration

- Multidisciplinary team discussion
  - Old age
  - Prior cardiac surgery
  - High operative risk
    - STS 12% Euroscore II 11.15%
  - Patient refused open heart operation

Heart team decision – potential MitraClip candidate

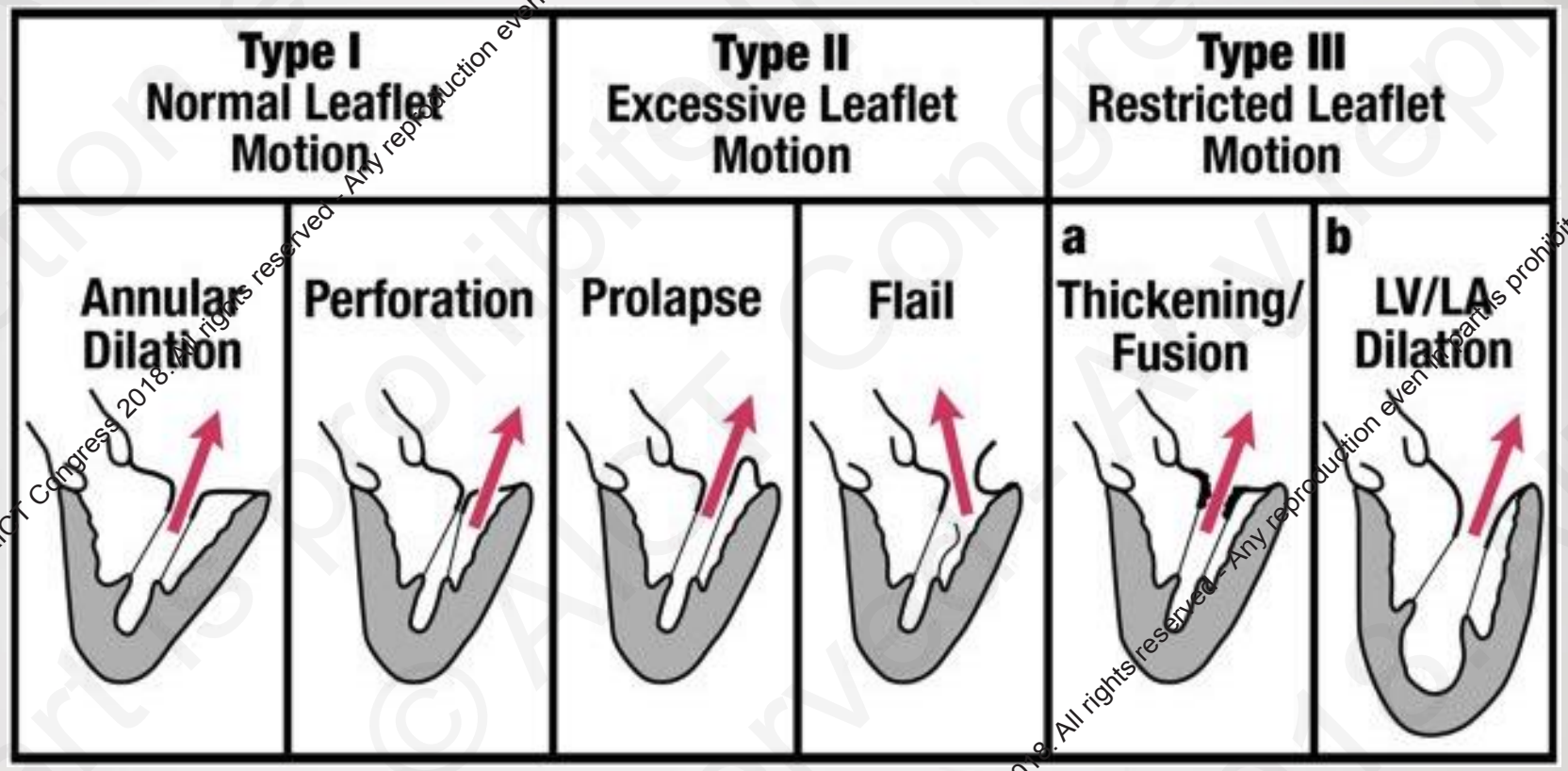
Prof Ottavio Alfieri
Padua
April 2018



MitraClip therapy
Echo checklist

- Type and mechanisms of MR
- Severity of MR
- Morphology of MV
- Location and numbers of jets
- Specific measurements
- Additional feasibility parameters

Type and mechanism of MR

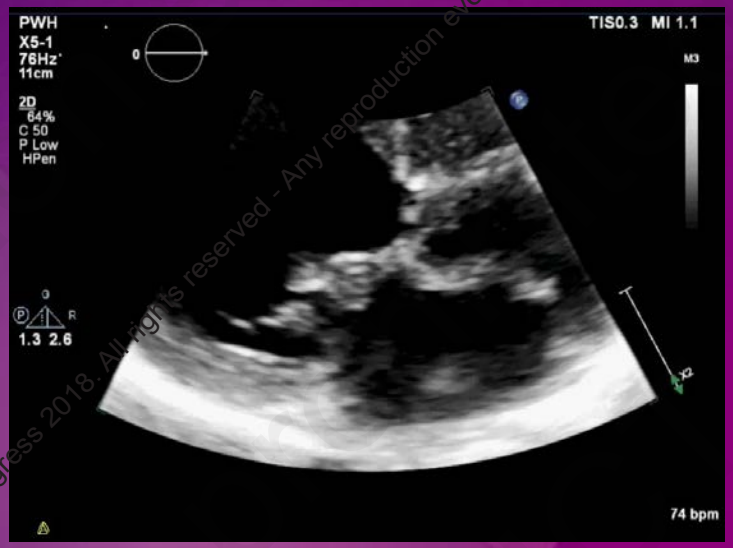


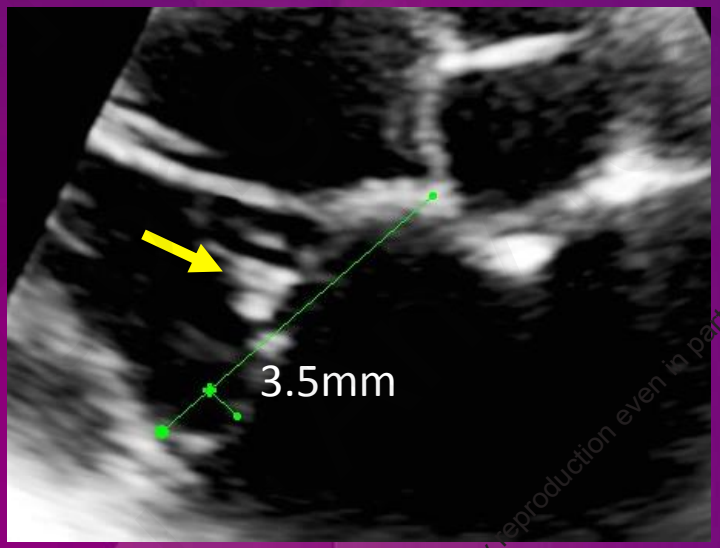
Carpentier's Classification

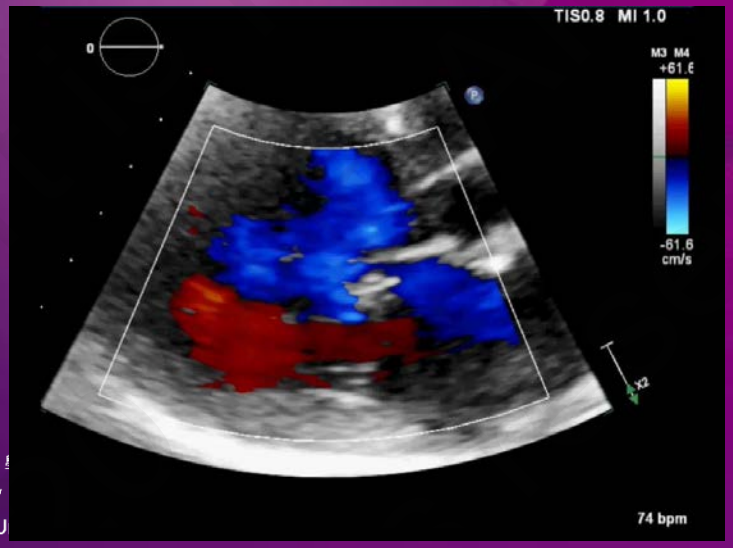
After A Carpentier

Zoghbi WA. JASE 2017;30:303-371.

TTE

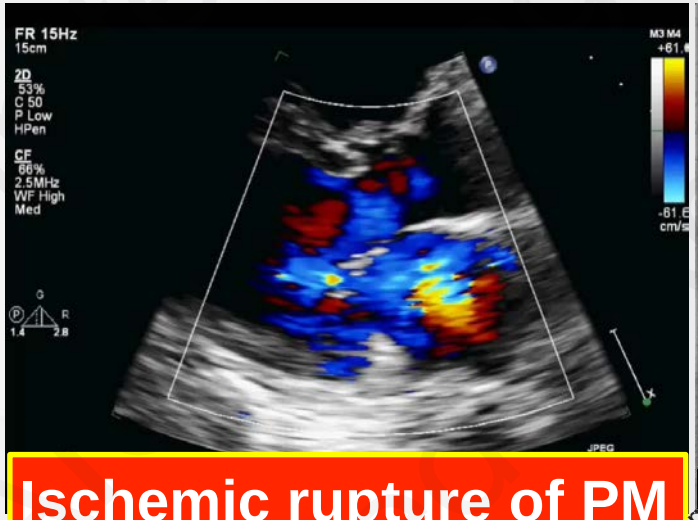




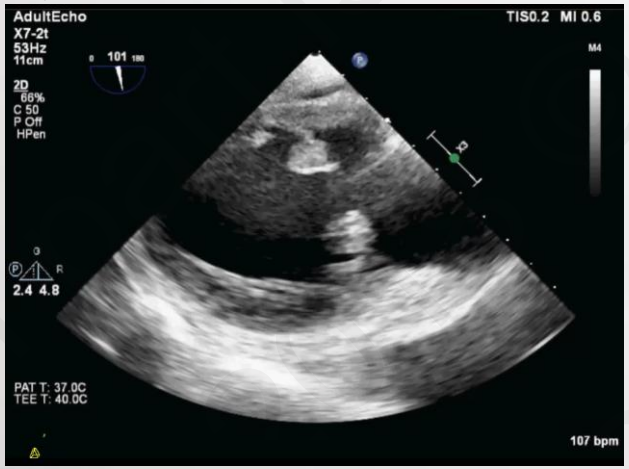


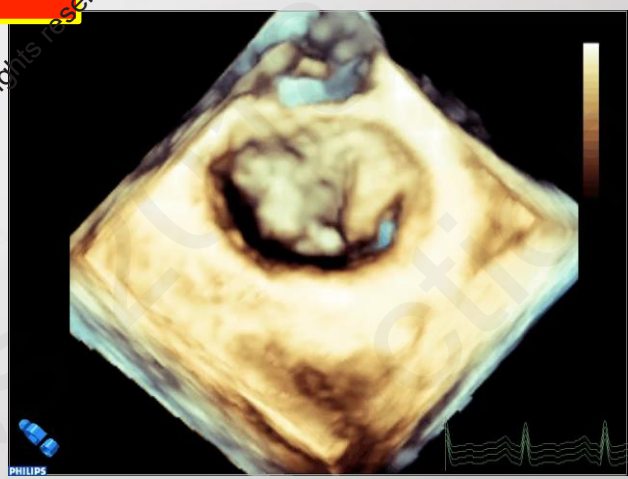
- Carpentier type II
- DMR

Etiology ≠ mechanism: Type II MR ≠ DMR

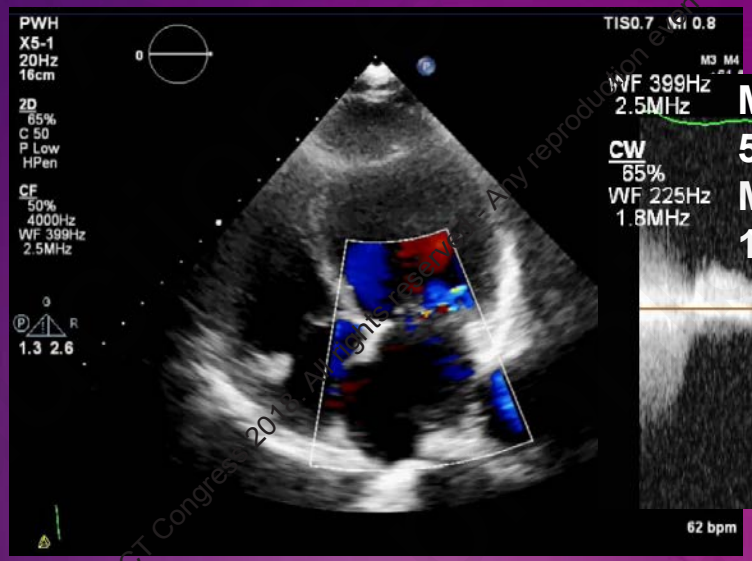


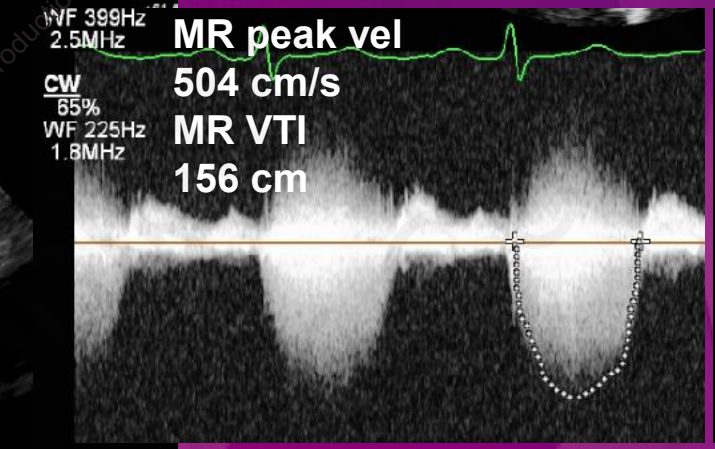
Ischemic rupture of PM

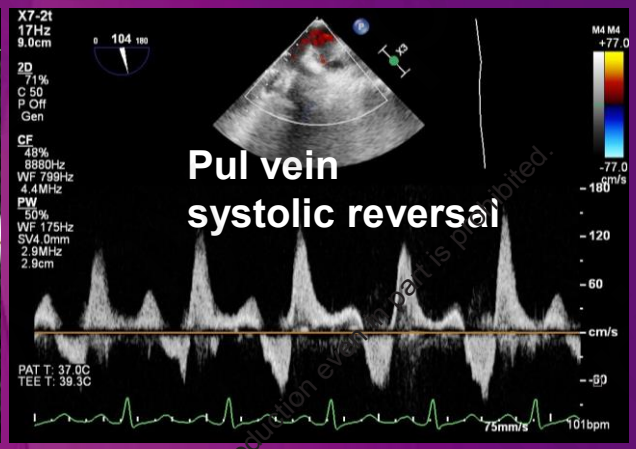


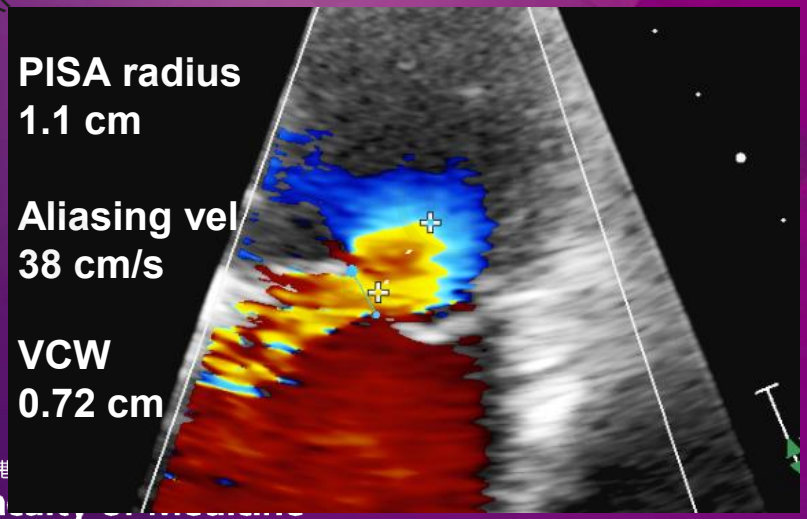


How severe is the MR?
Quantitative and qualitative assessment









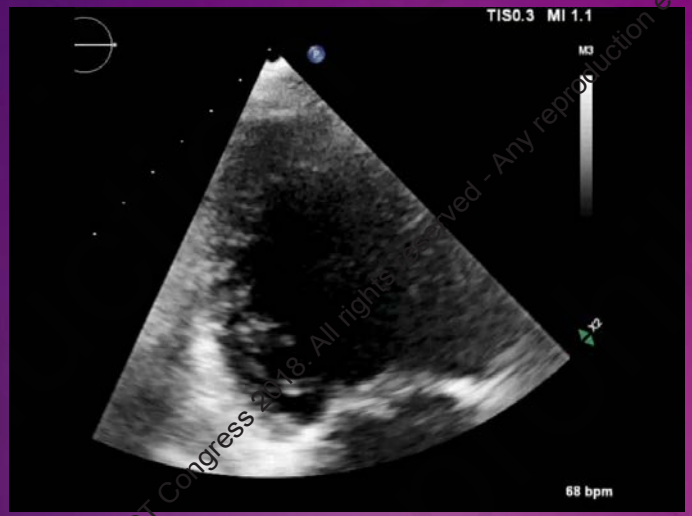
MR quantification

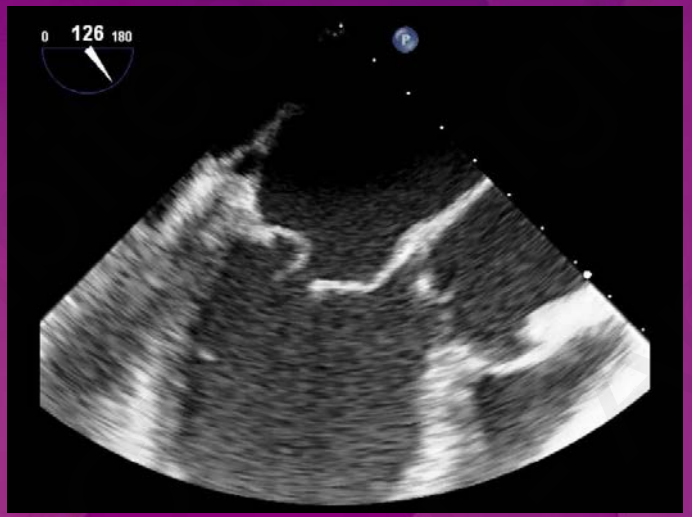
ERO: 0.57 cm²

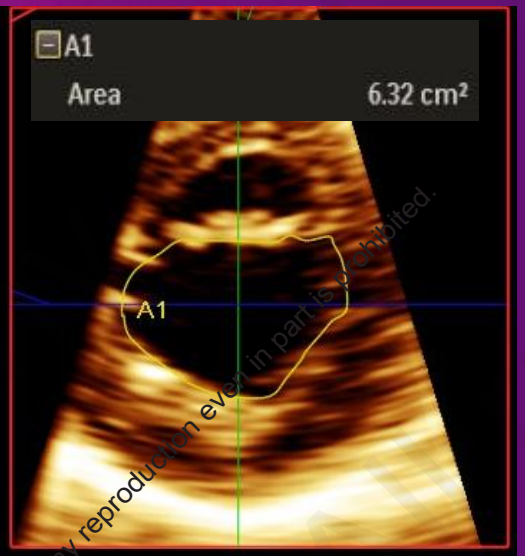
R Vol: 89 mL

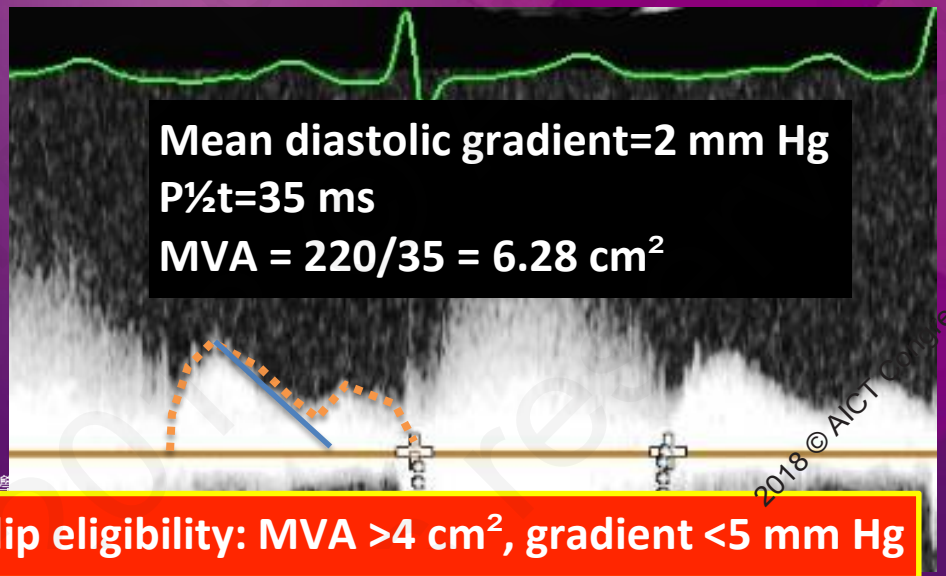
Morphology of the MV

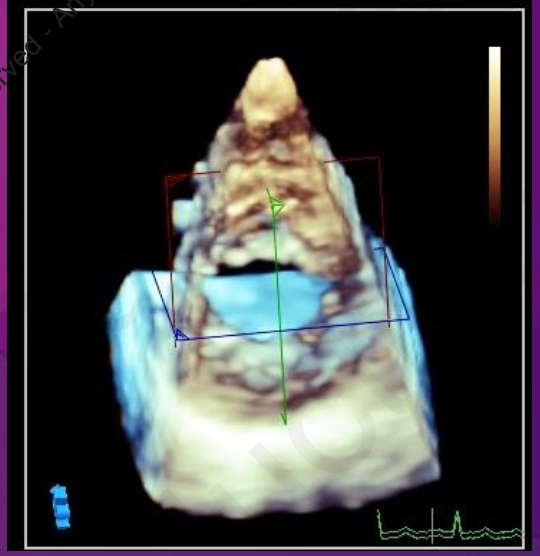
Calcification, valve area, gradient, ruptured chordae, rheumatic changes?





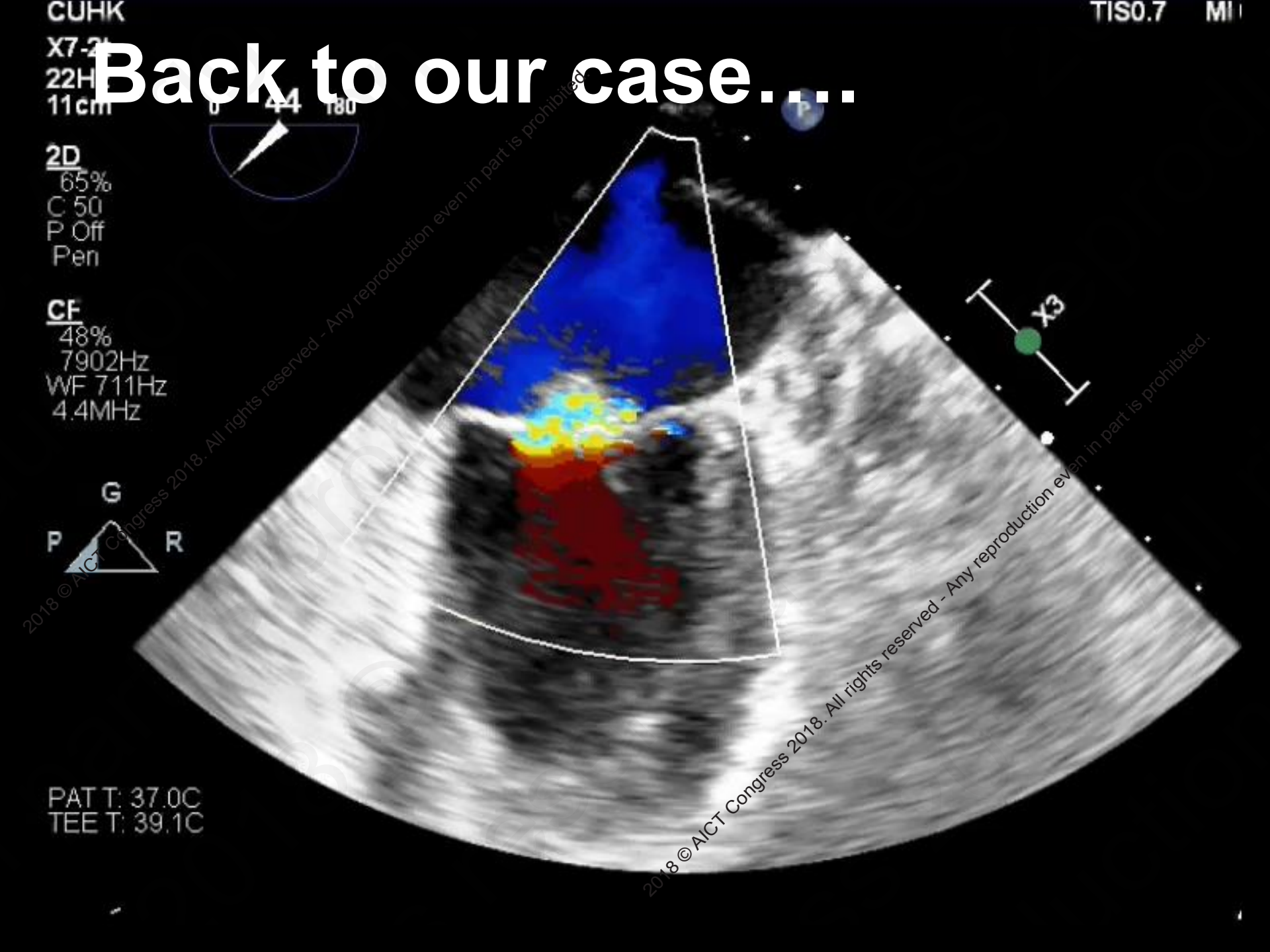


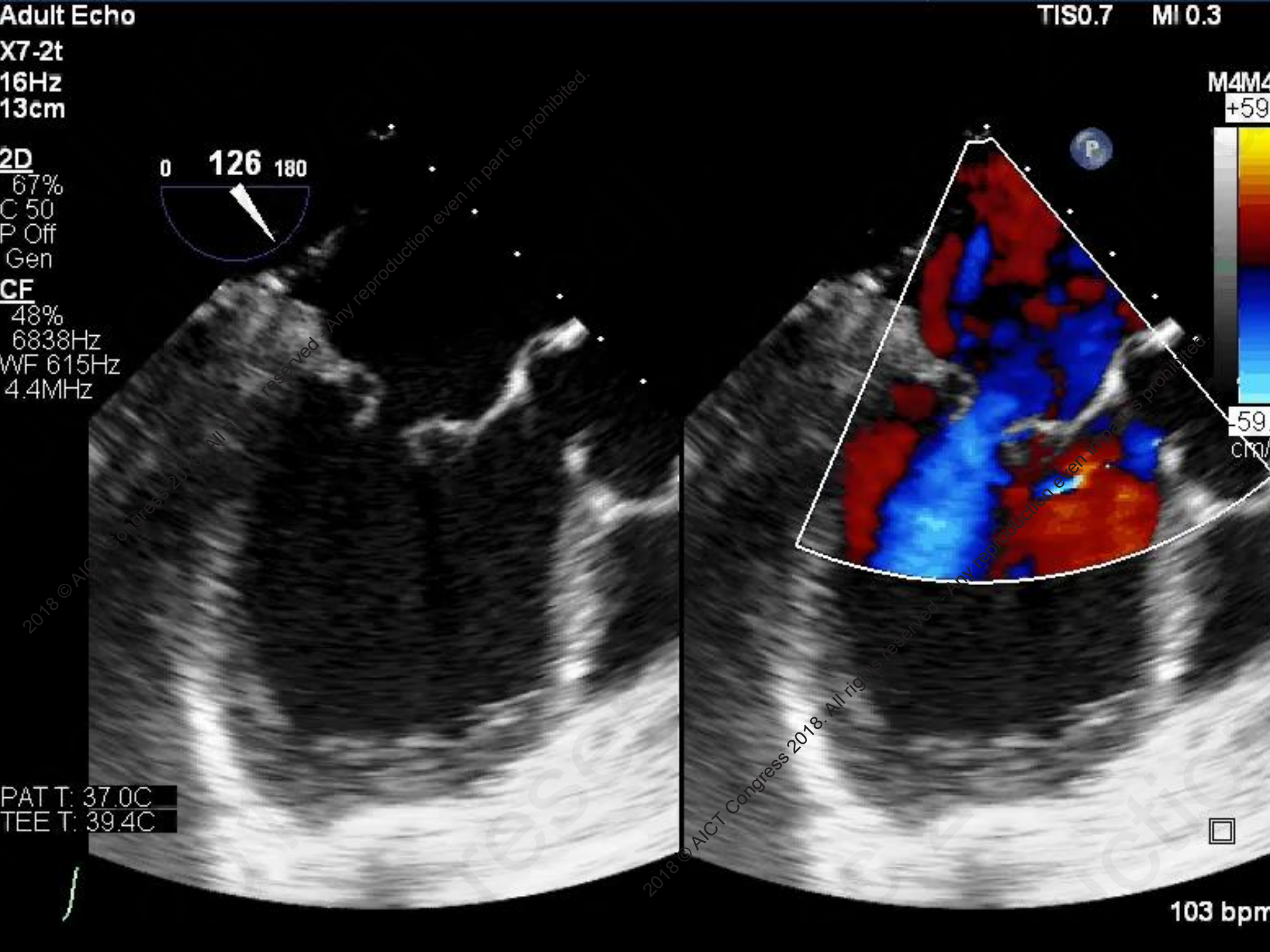




MitraClip eligibility: MVA >4 cm², gradient <5 mm Hg

Back to our case….




Adult Echo
X7-2t
16Hz
13cm
2D
67%
C 50
P Off
Gen
CF
48%
6838Hz
WF 615Hz
4.4MHz
0
126
180
TIS0.7
MI 0.3
M4M4
+59
-59
cm/
PAT T: 37.0C
TEE T: 39.4C
103 bpm
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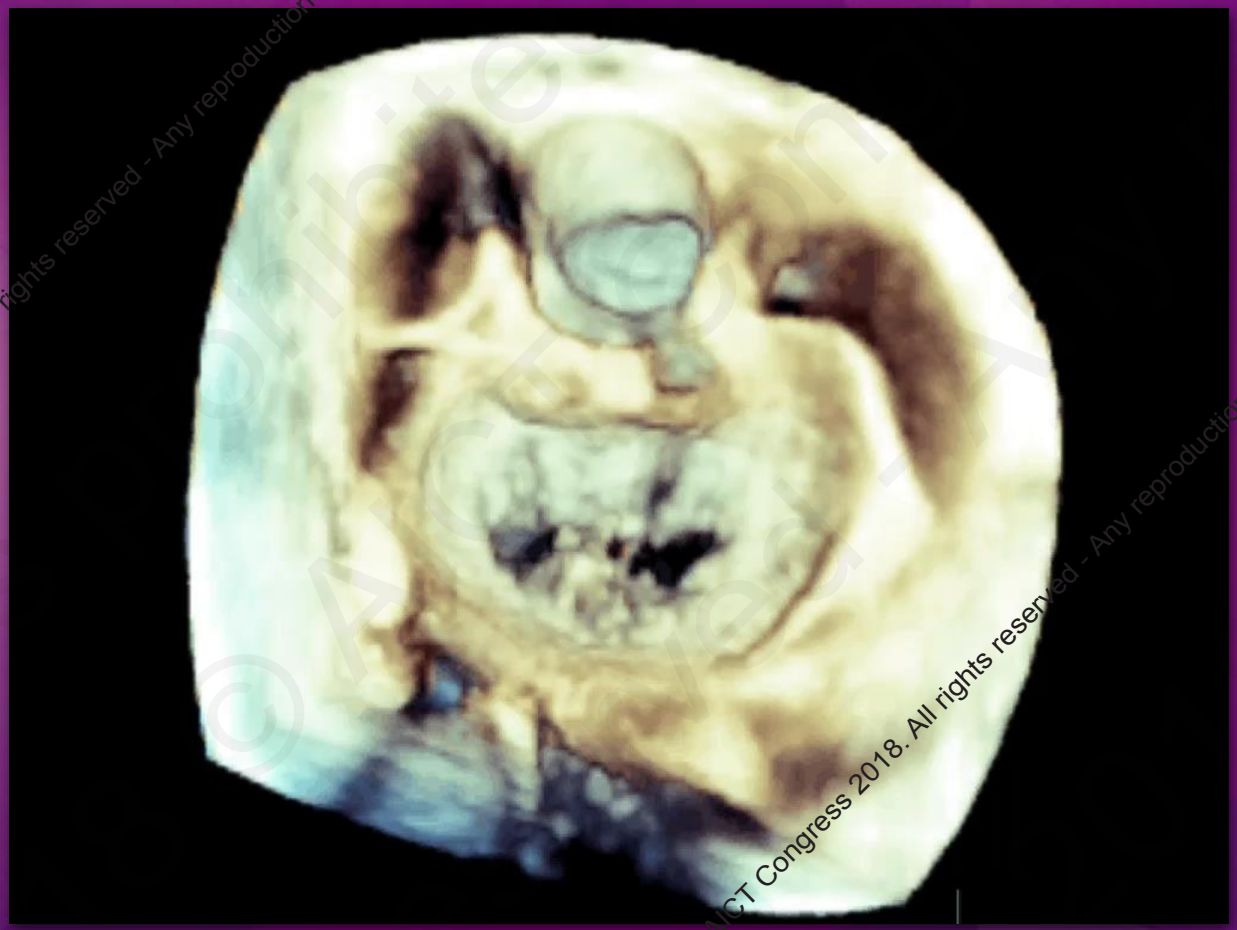
3D TEE

P2 prolapse



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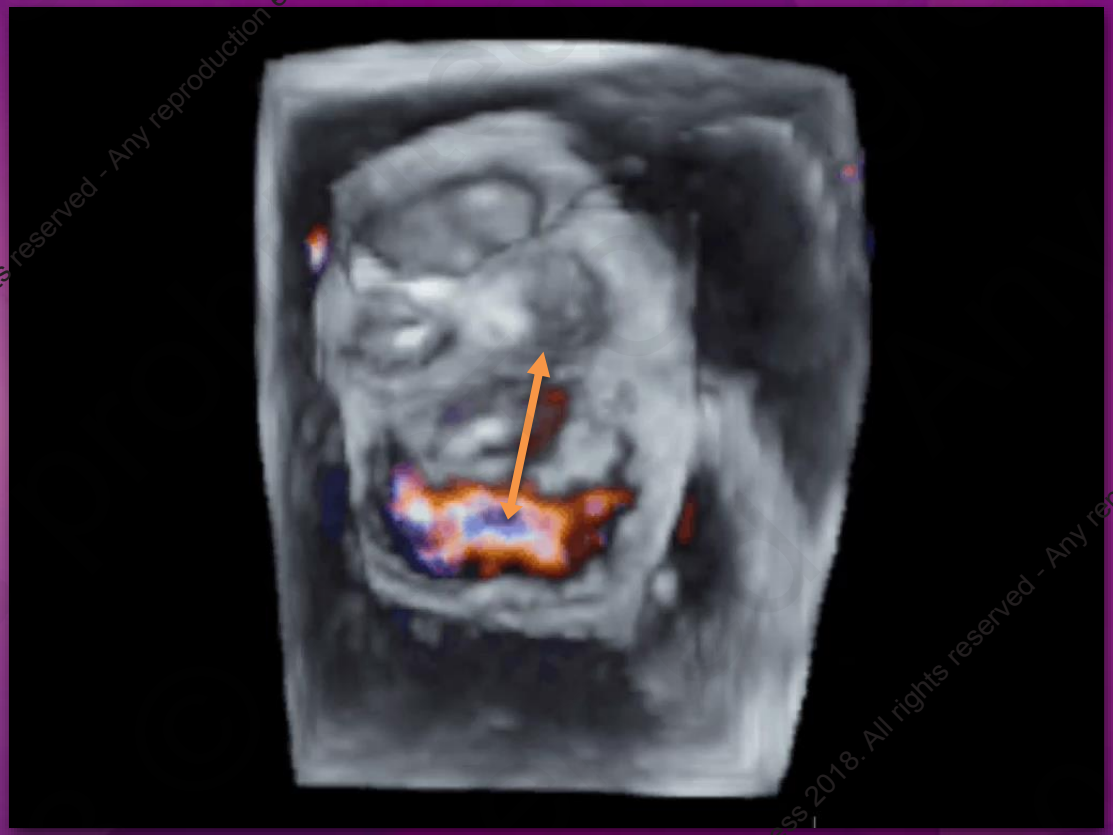
Good candidate for MitraClip
MR jet should be central



3D color
A2P2 jet

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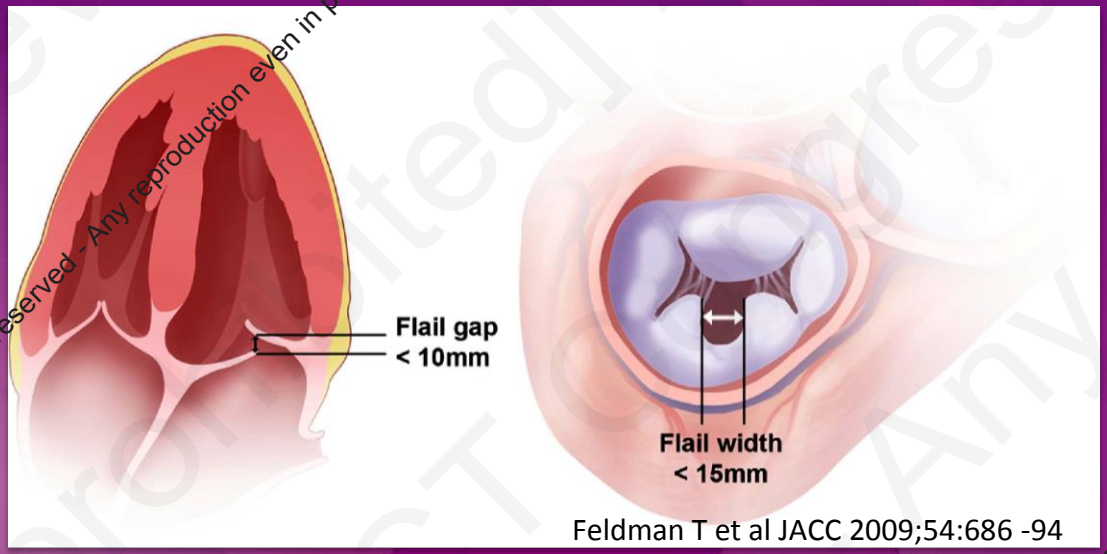
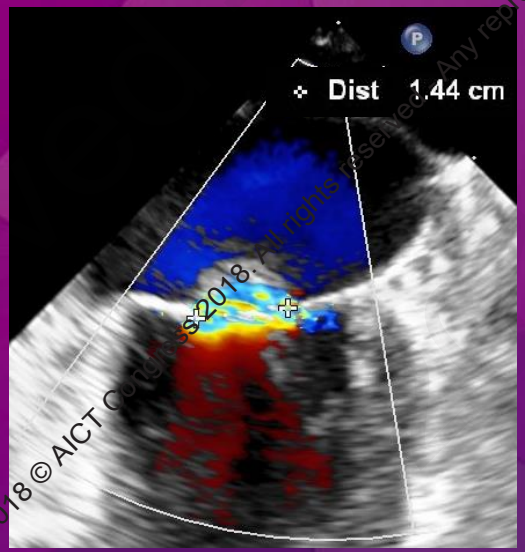
Specific measurements
Everest II Anatomical Eligibility



Feldman T et al JACC 2009;54:686 -94

Flail gap < 10 mm



Flail width < 15 mm

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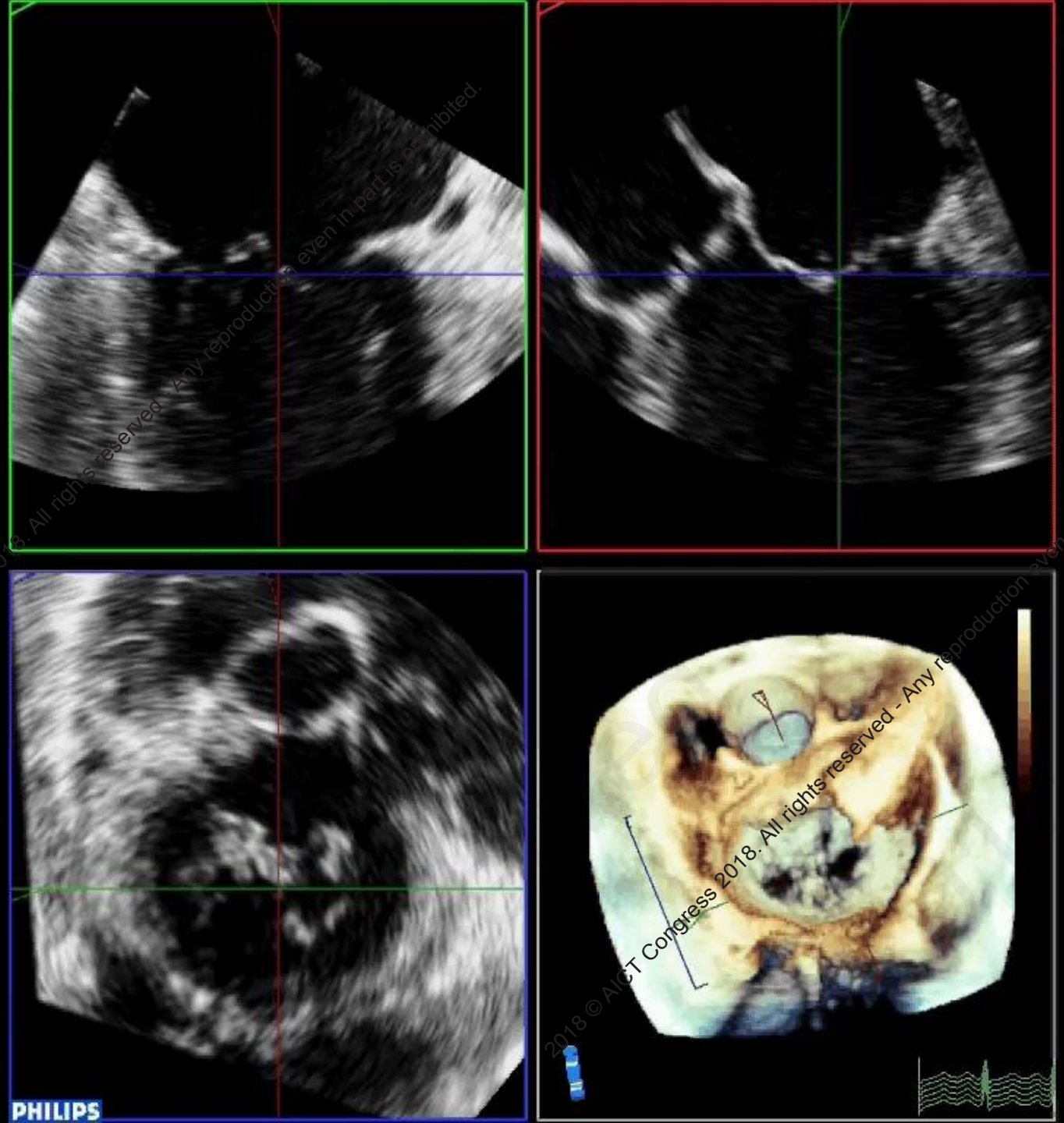
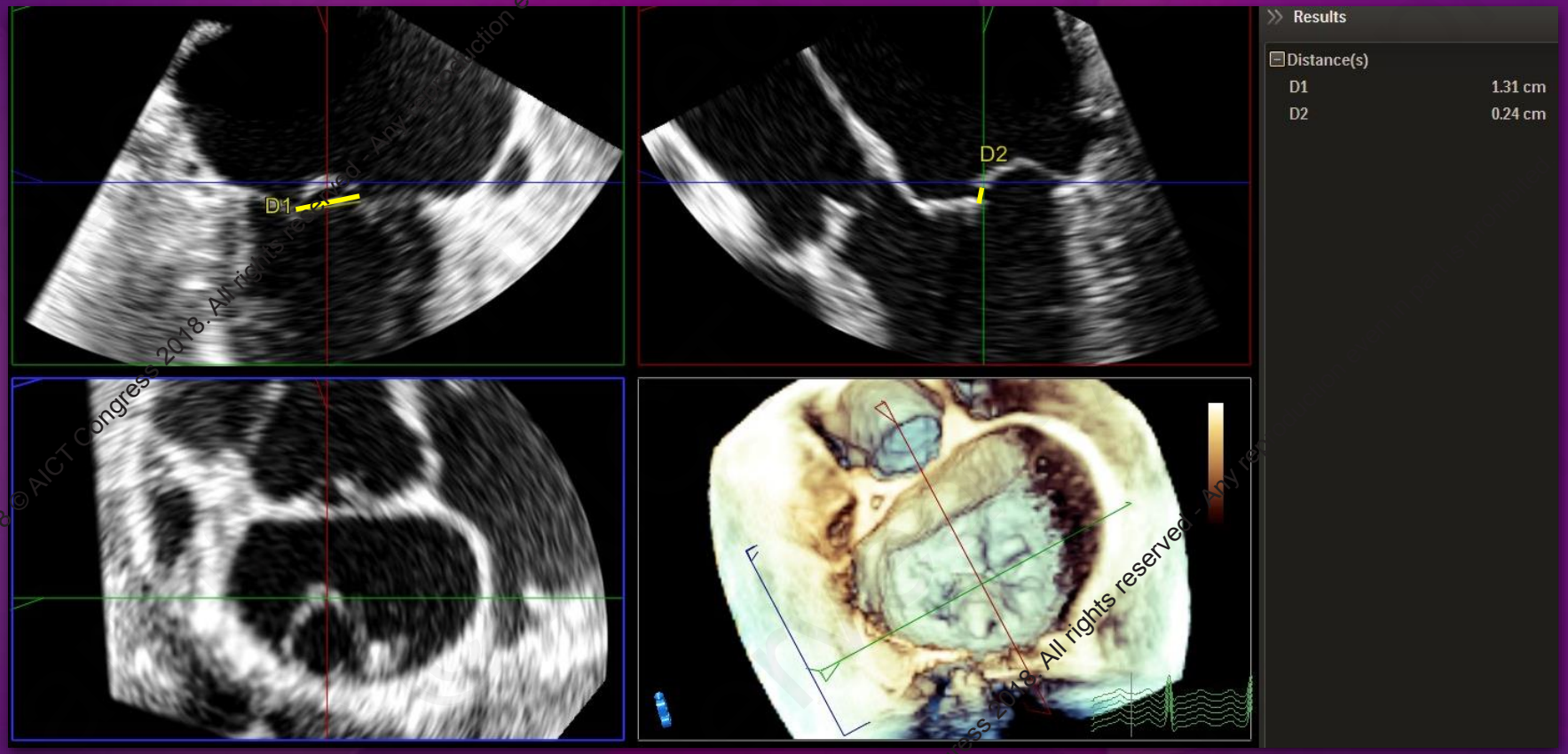


3D measurements of MV prolapse



MPR reconstruction

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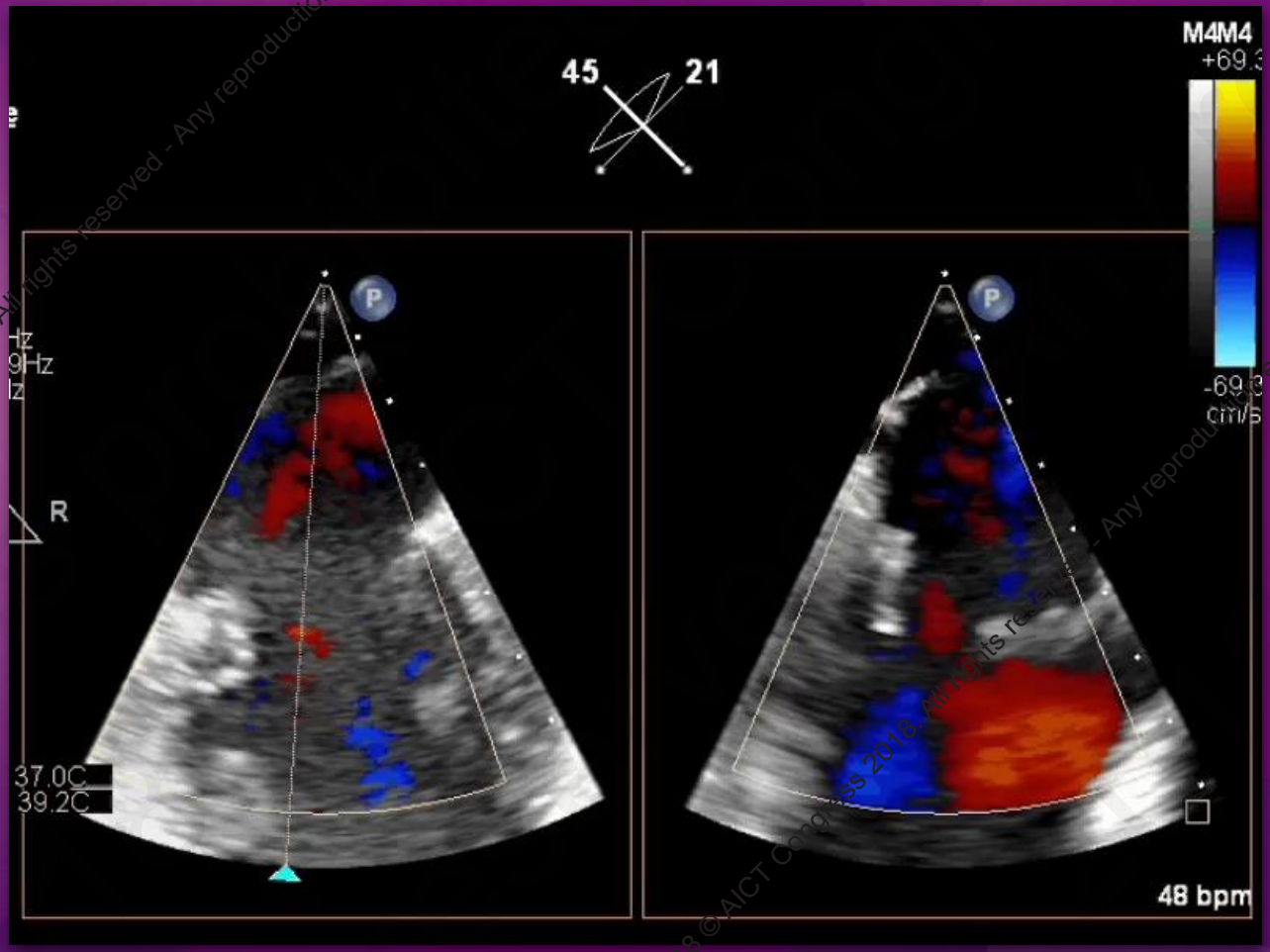
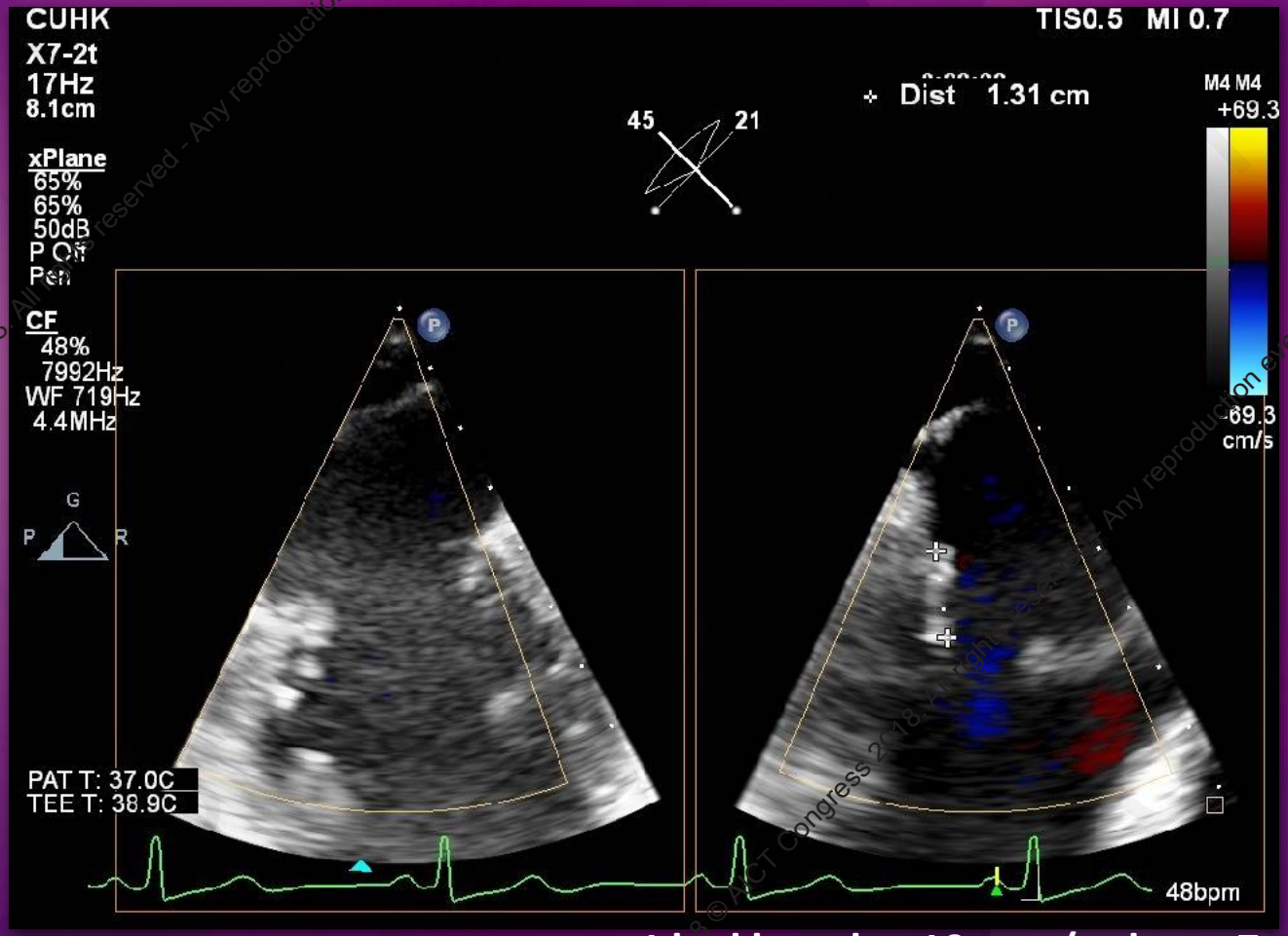
Posterior leaflet length and ?Ca++ at the potential grasp point

X-plane



Posterior leaflet length and ?Ca++ at the potential grasp point

X-plane



Ideal length > 10 mm (at leat >7 mm)
(measured at diastole)

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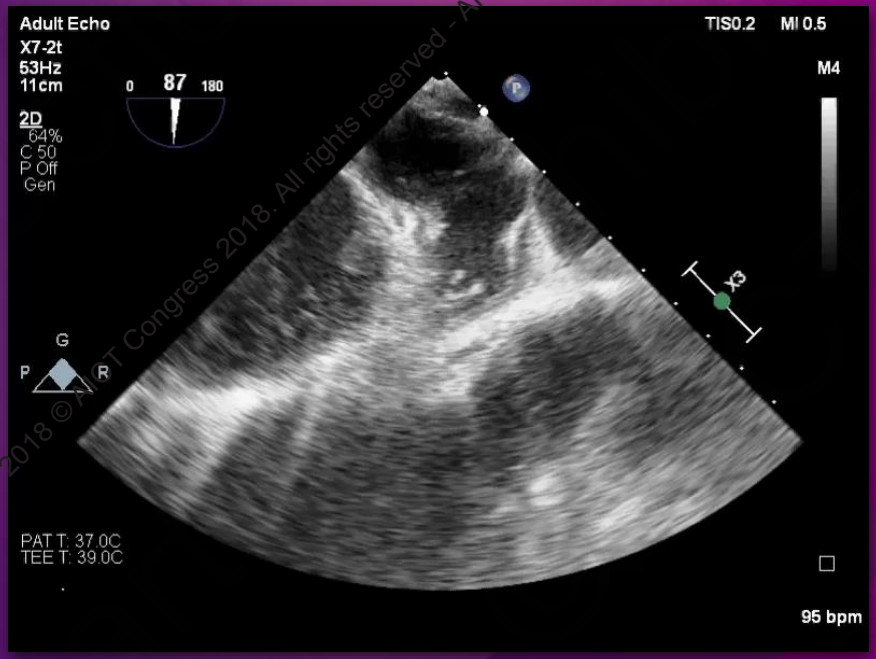
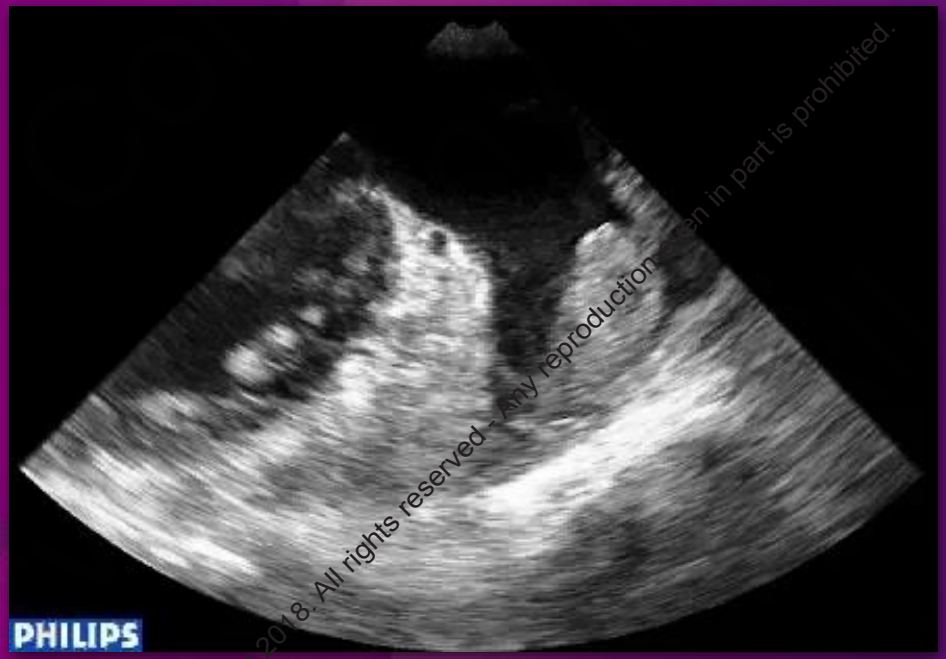
Additional feasibility parameters

LAA



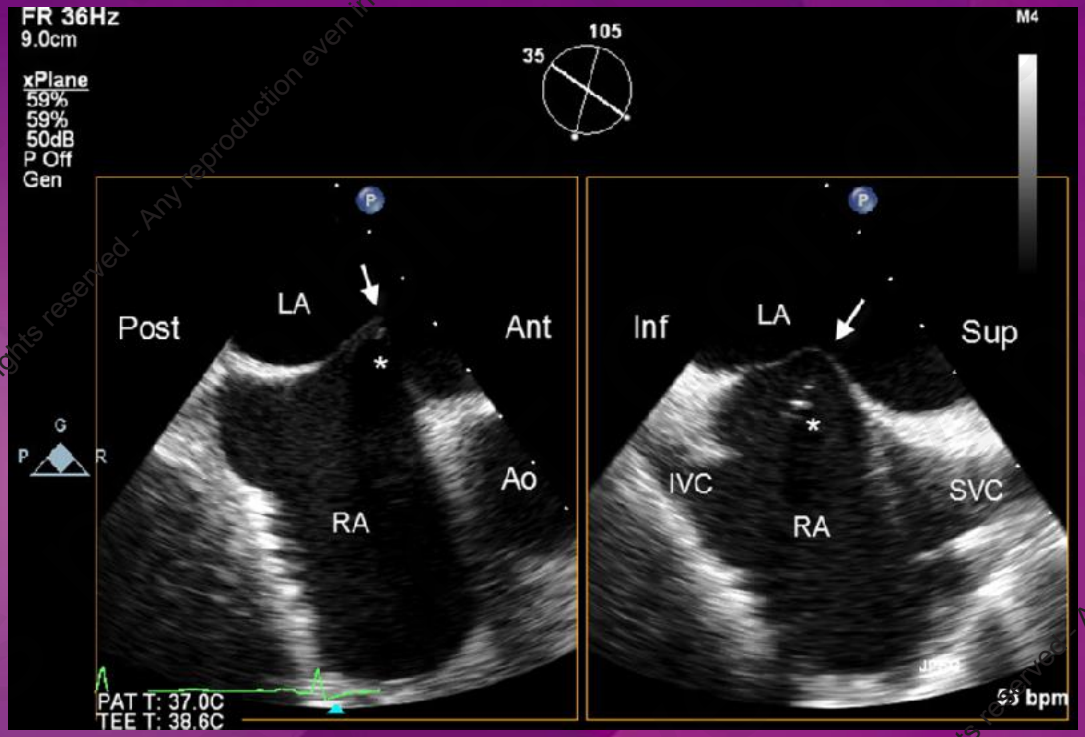
LAA

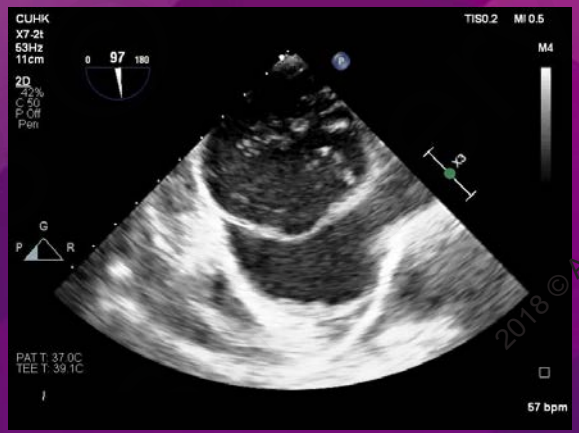


- Identify LAA clot

Additional feasibility parameters

Inter-atrial septum





- Identify PFO, ASD, aneurysm, thickening

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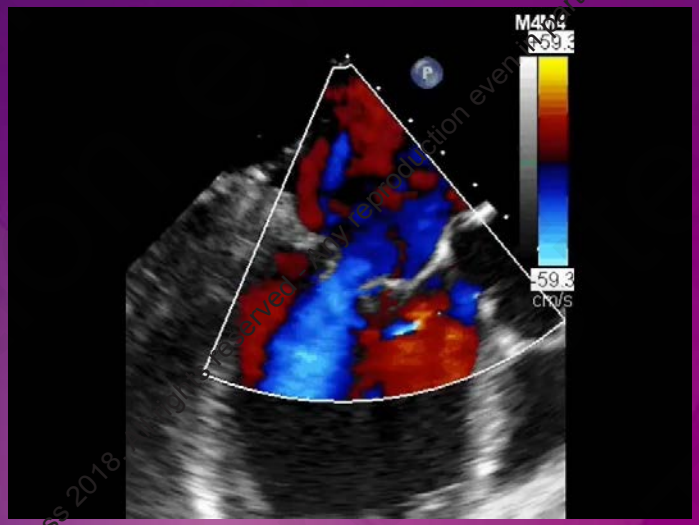
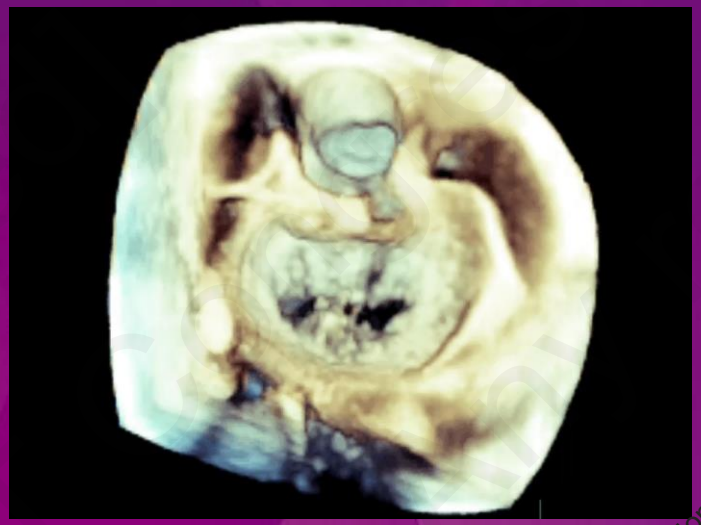
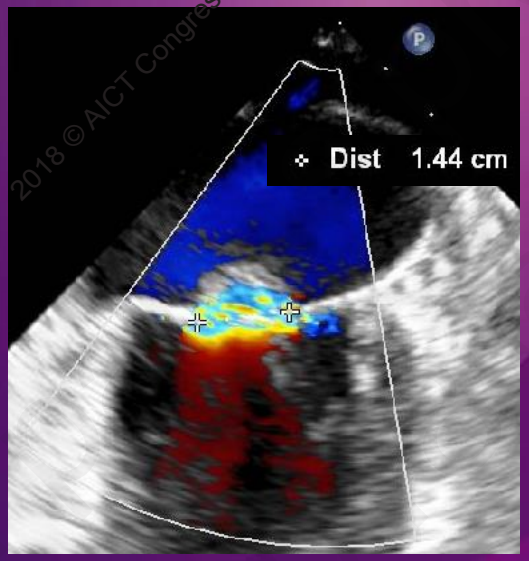
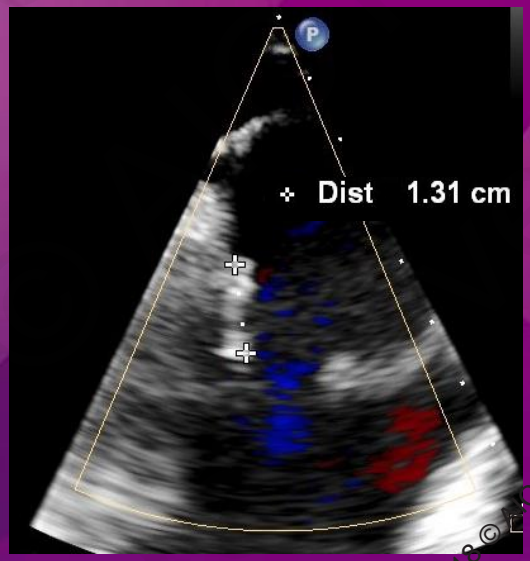
Location of MV prolapse

Our patient: Good candidate









- Type and mechanisms of MR
- Severity of MR
- Morphology of MV
- Location and numbers of jets
- Specific measurements
- Additional feasibility parameters

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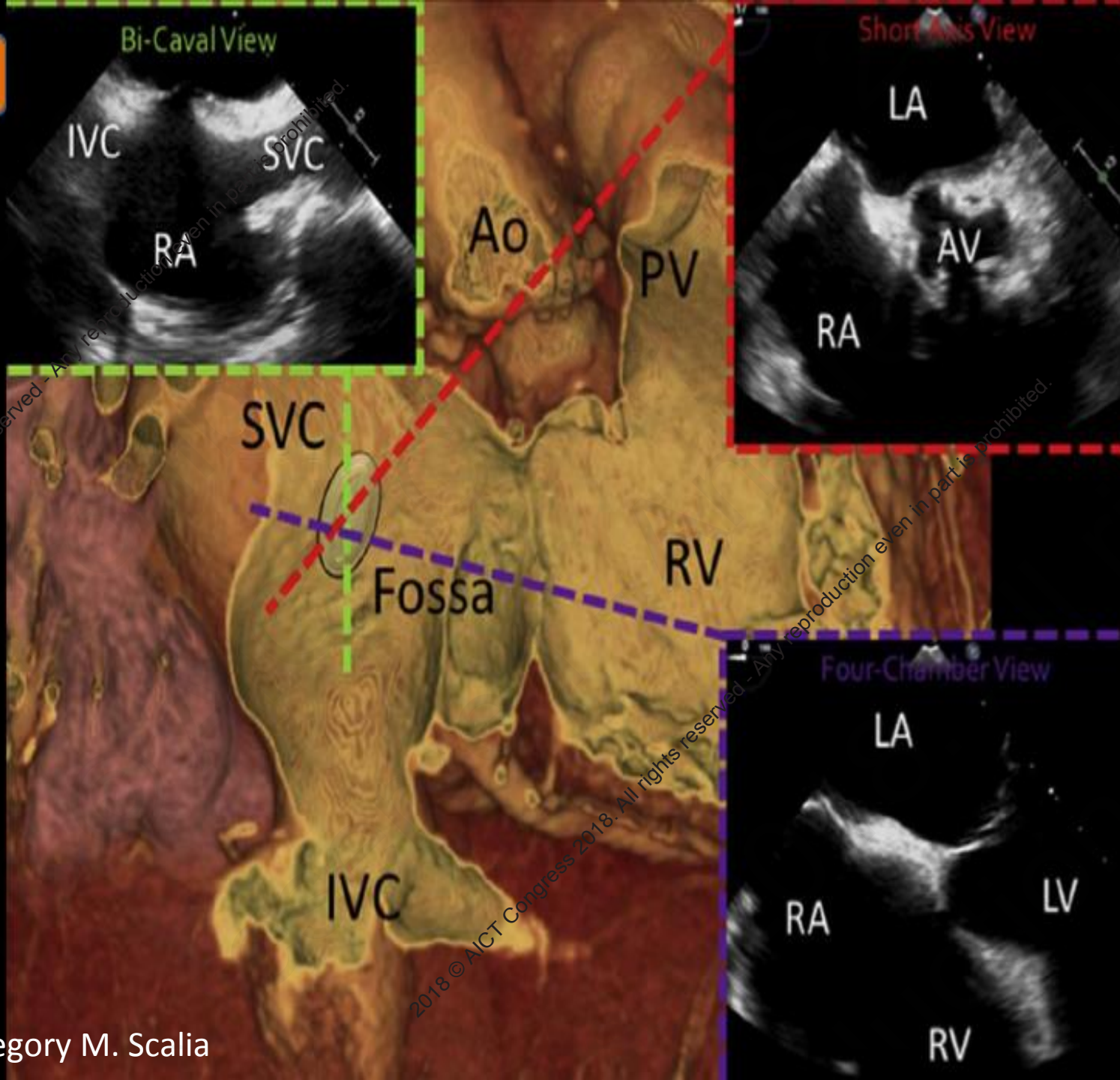
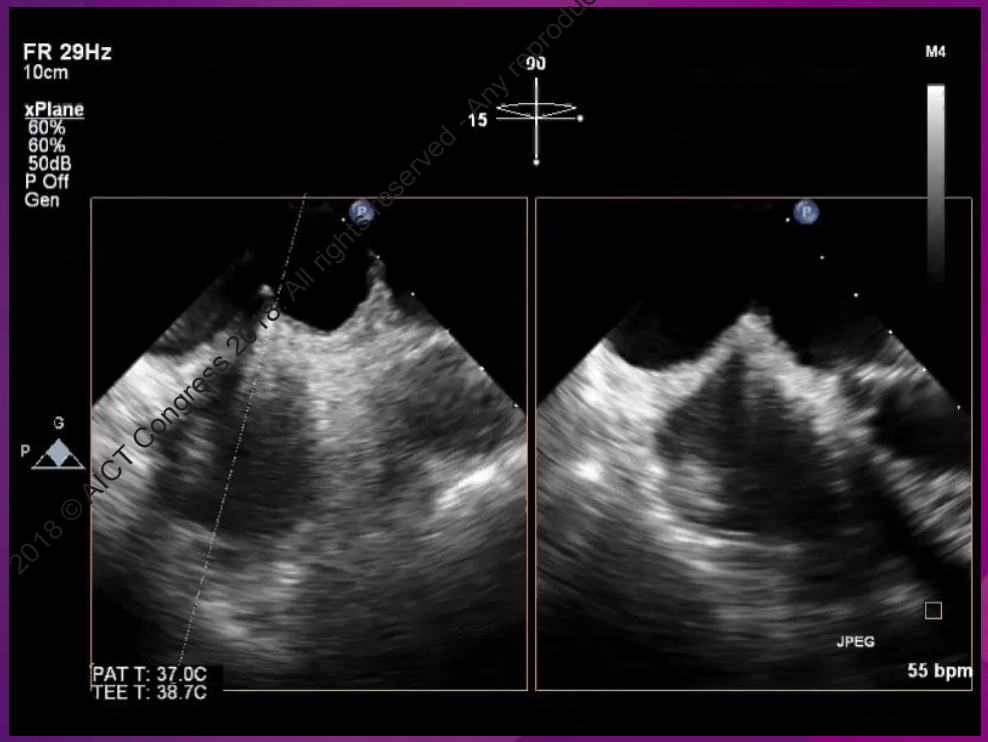
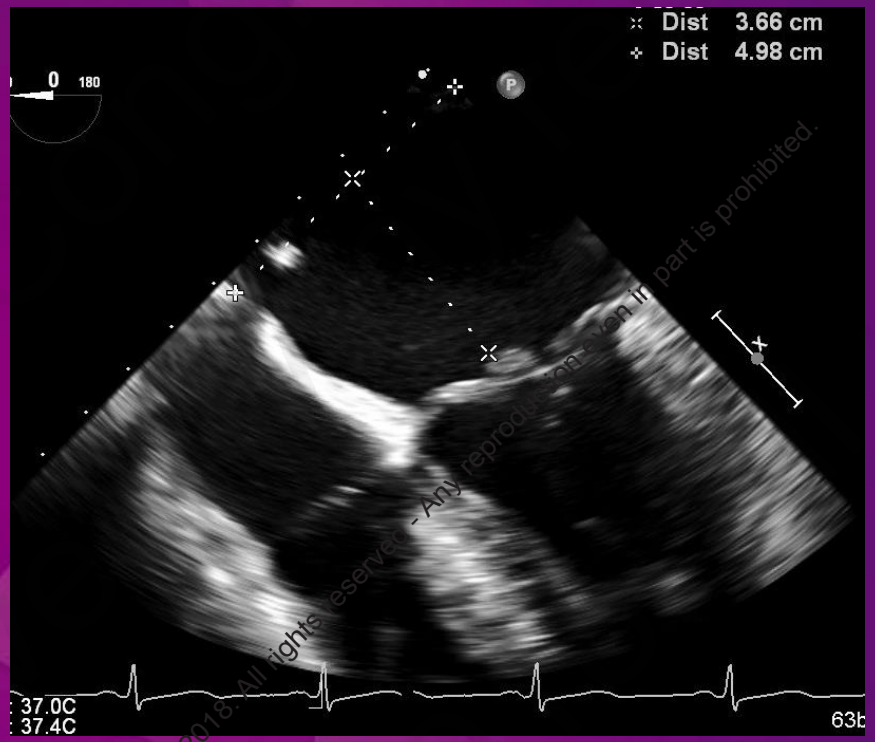
Trans-septal



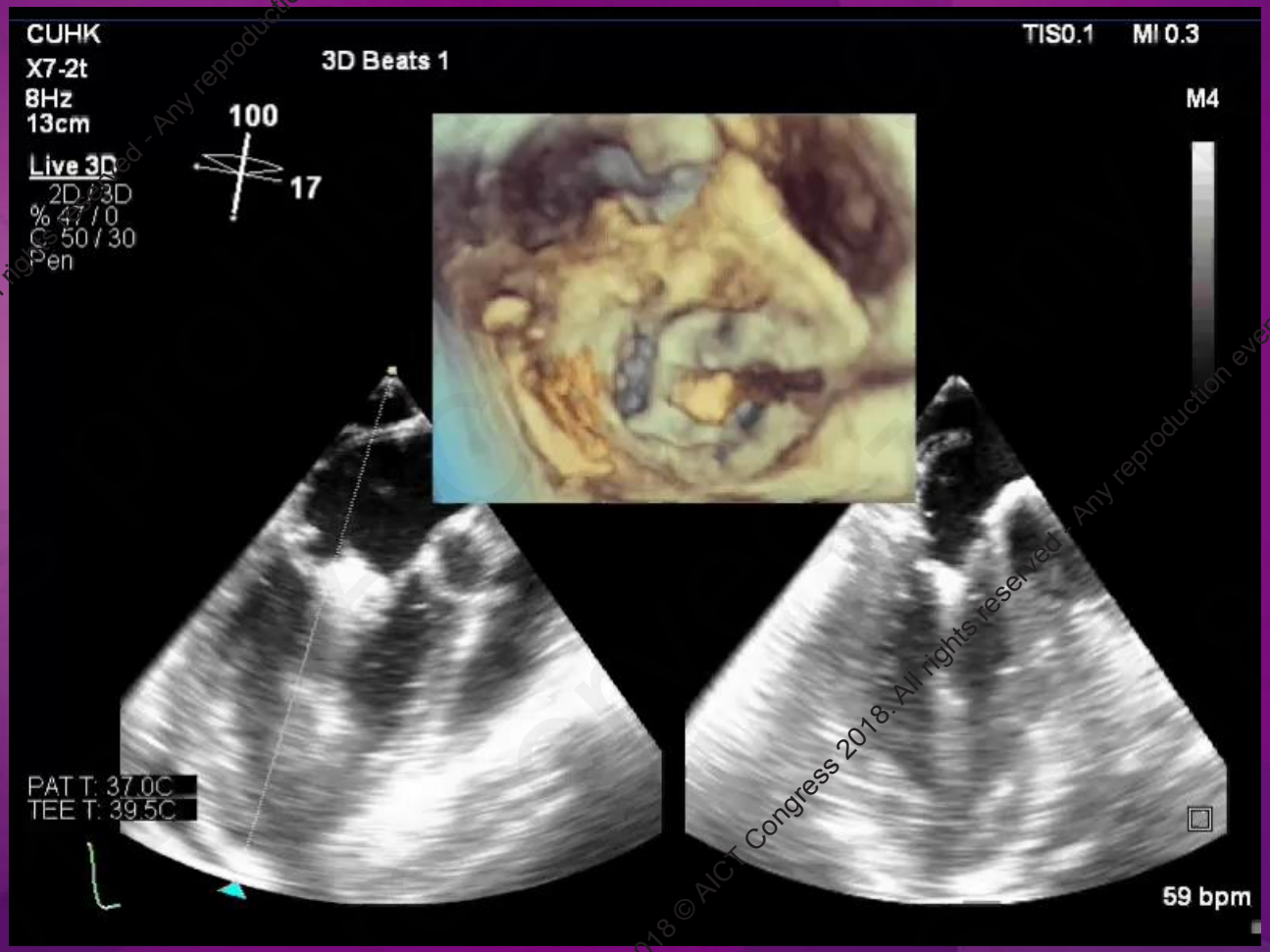
Courtesy of Prof. Gregory M. Scalia

Transeptal puncture under TEE guidance





MitraClip procedure



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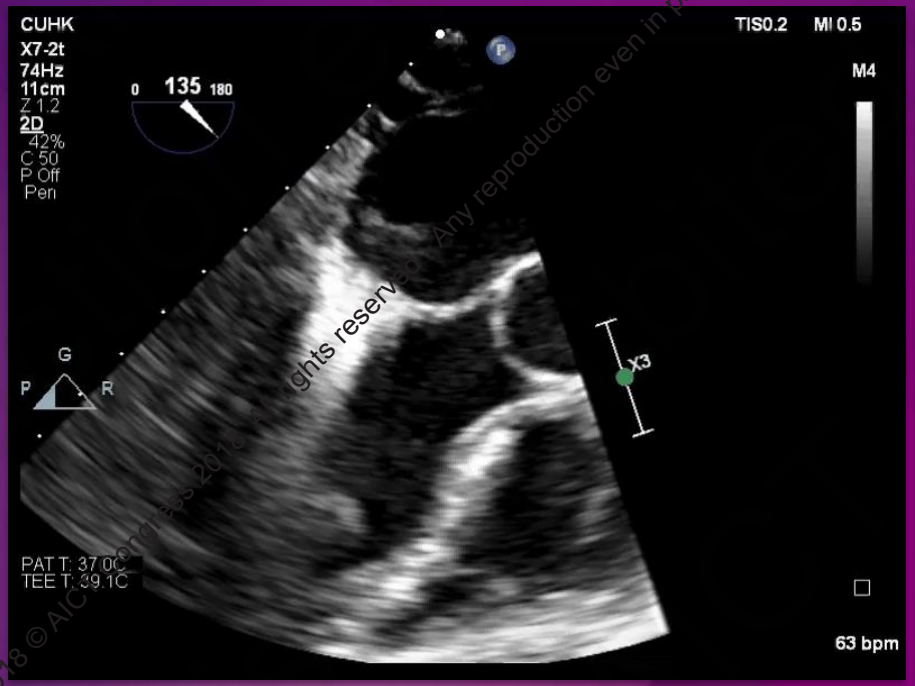
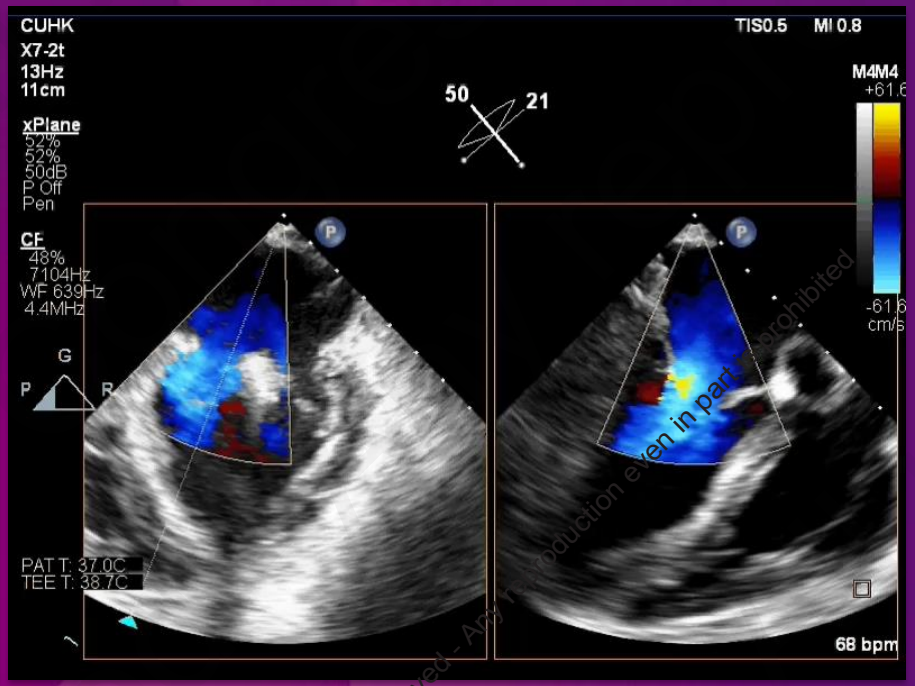
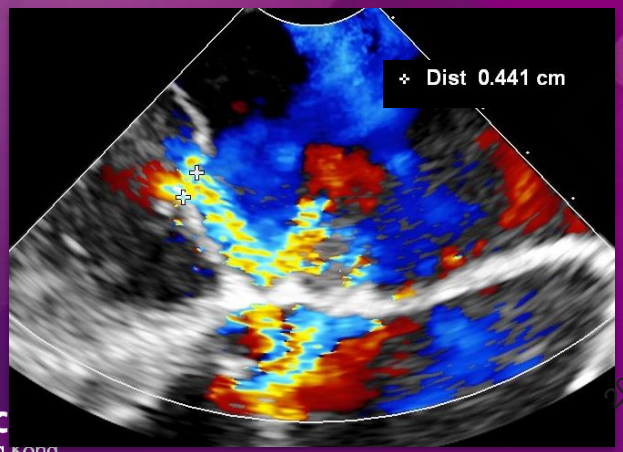
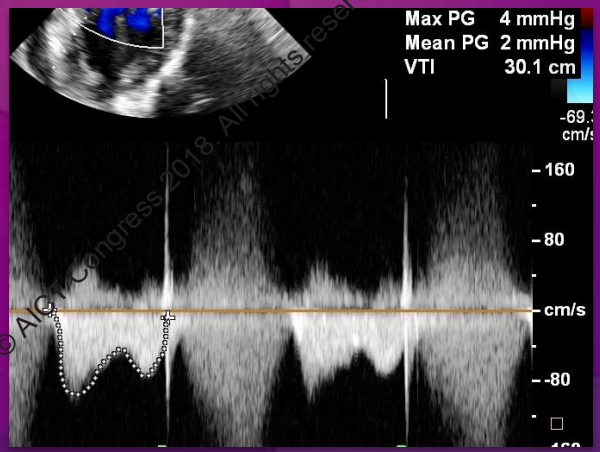
First clip - residual MR









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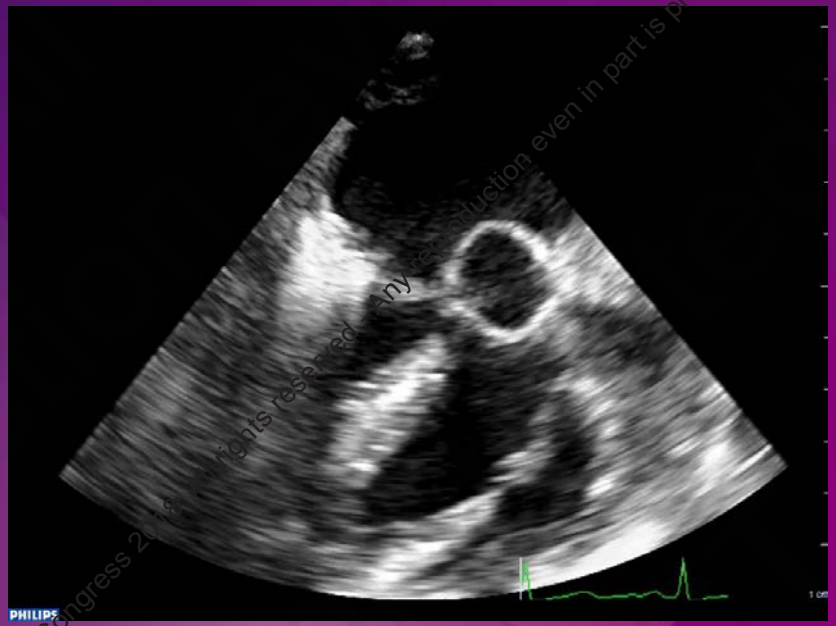
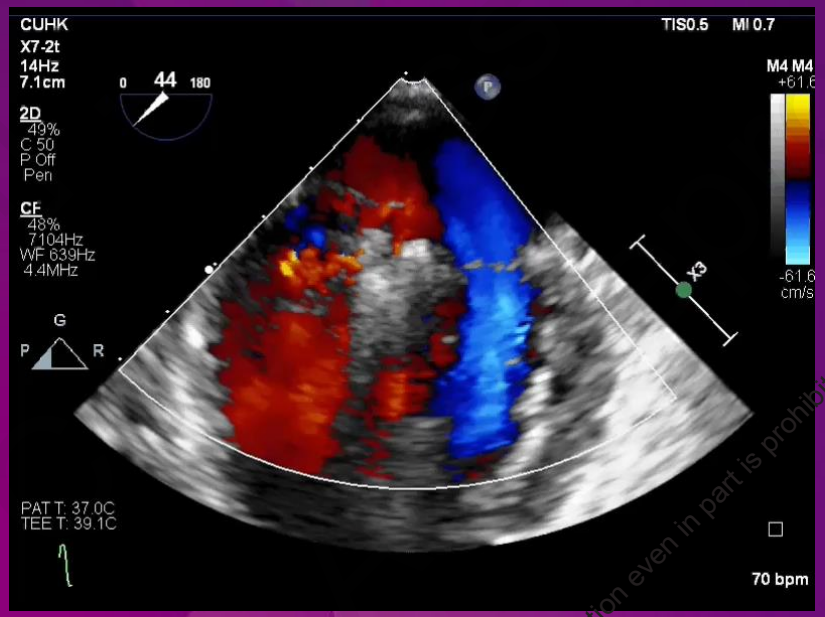
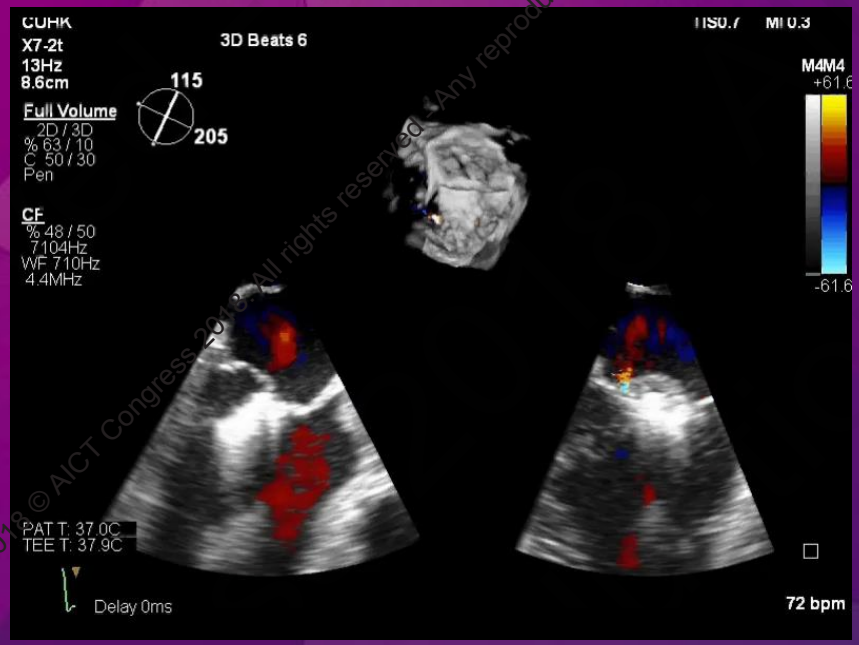
2nd Clip - final result







Morphological suitability criteria for MitraClip therapy

Expansion of EVEREST criteria

Optimal	Challenging	Unsuitable
Central A2/P2	Peripheral A1/P1 or A3/P3	Cleft or perforation
No calcification	Calcification present but not in grasping zone	Calcification in grasping zone
MVA ≥ 4 cm^2	MVA > 3cm^2	MVA < 3cm^2 or MG > 5mmHg
Posterior leaflet > 10 mm	Posterior leaflet 7-10 mm	Posterior leaflet < 7 mm
Tenting height < 11 mm Coaptation reserve > 2 mm	Tenting height ≥ 11 mm	
Carpentier II or I	Carpentier IIIB	Carpentier IIIA
Flail gap < 10 mm flail width < 15 mm	Flail width > 15 mm (with sufficient valve area to tolerate multiple clips)	Multiple segments, Barlows

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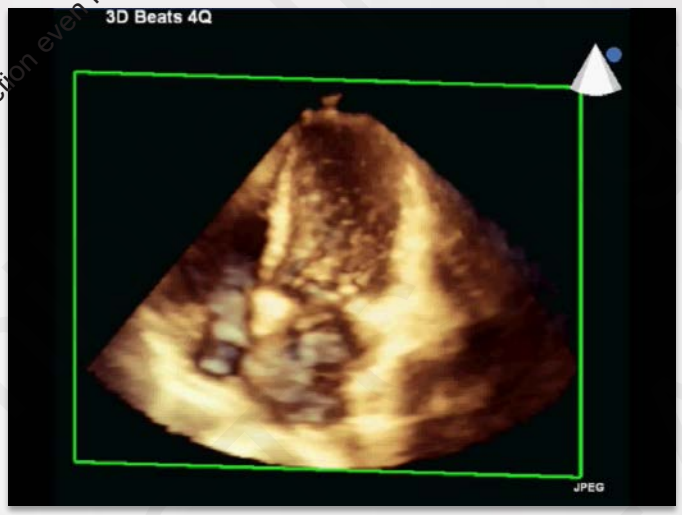
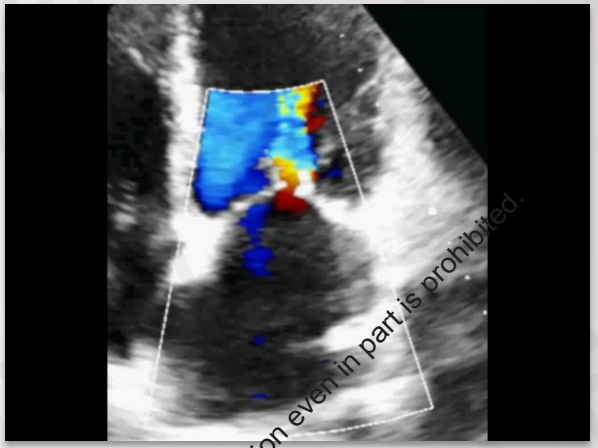
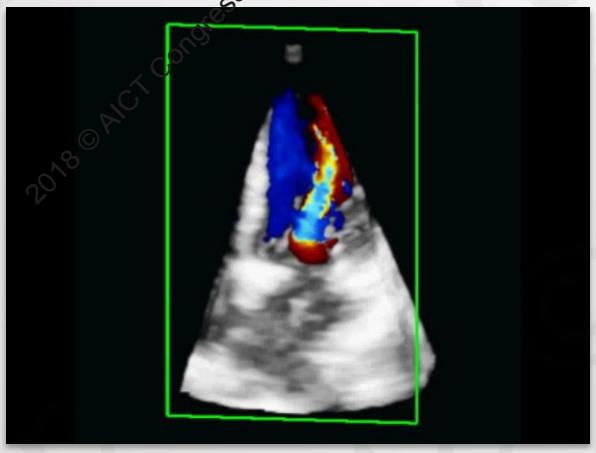
Boekstegers P et al. Clin Res Cardiol 2014;103:85-96.

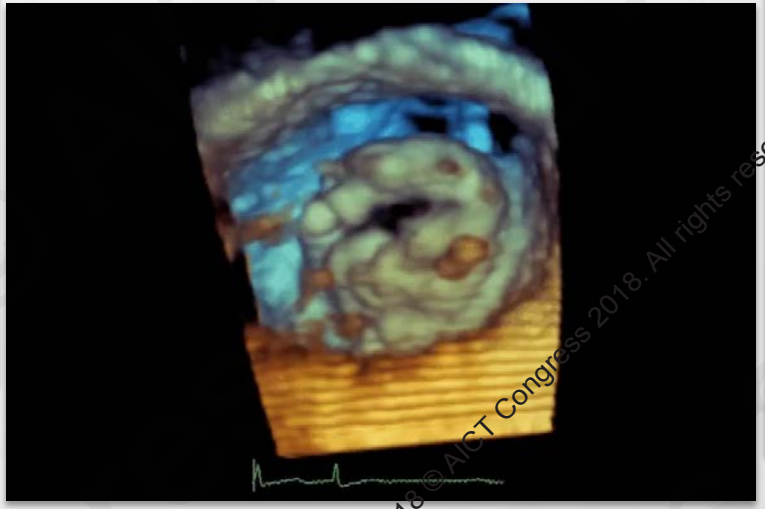
Not good candidate to MitraClip

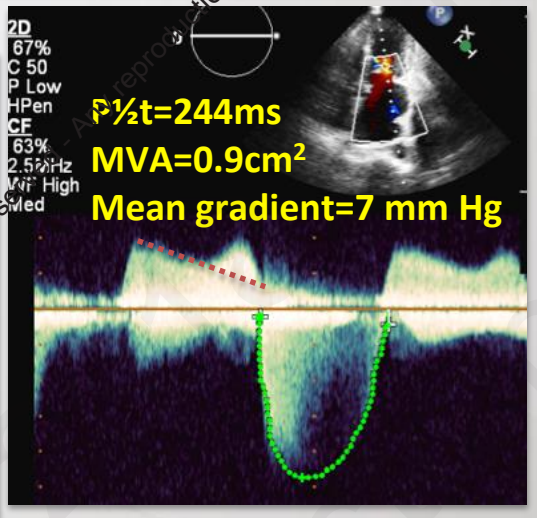
Rheumatic/Calcified MV





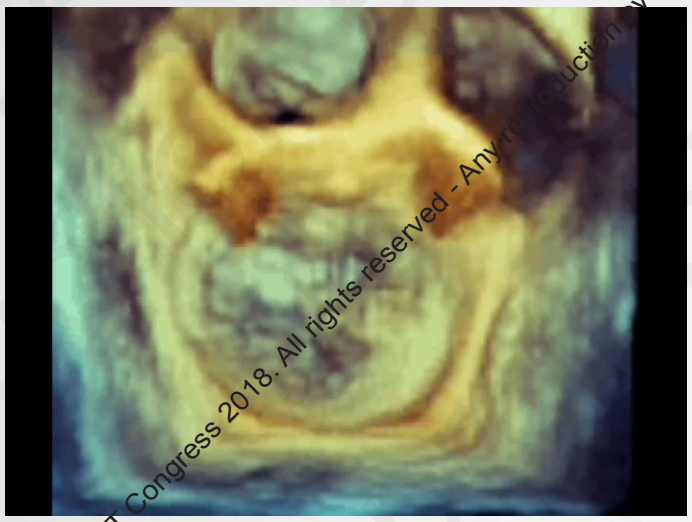


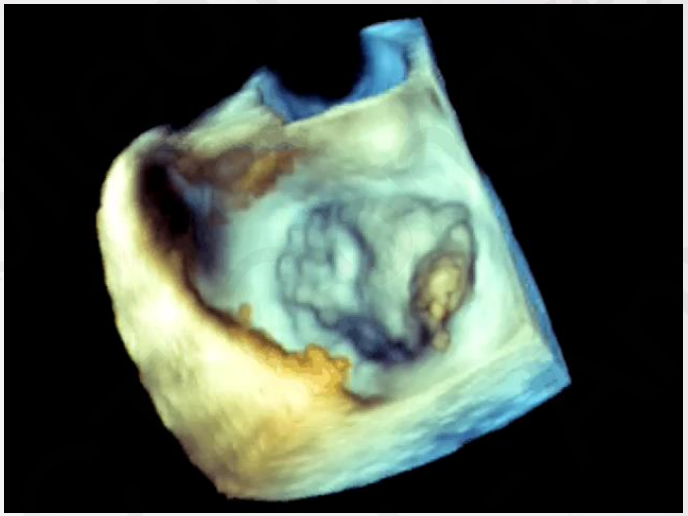




Not good candidate to MitraClip

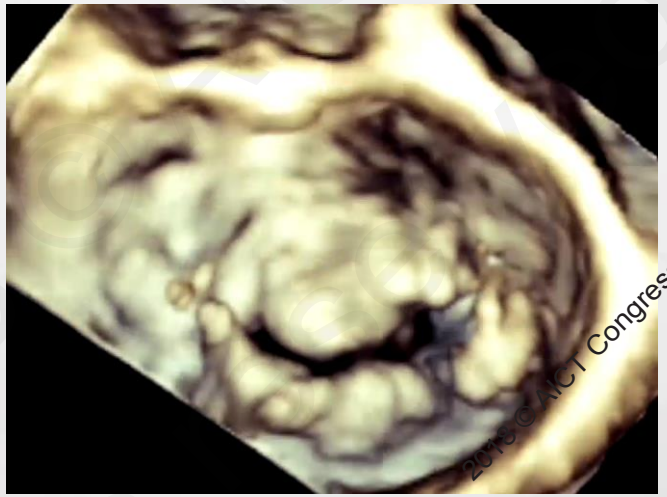
Location of prolapse





Commissural prolapse

Barlow's disease
Cleft



香港中文大學醫學院
Faculty of Medicine
The Chinese University of Hong Kong

Take home messages

- Can be performed with a high procedural success rate (>90%)
- Consistent improvement in NYHA class, 6MWT, QOL
- 3D TEE essential for patient selection and guiding clip implantation
- **ECHO IS KING!**

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Echo guidance for screening and interventions in Structural Heart diseases

Dates: 3 - 4 November 2018
Venue: Prince of Wales Hospital, 30-32 Ngan Shing St, Sha Tin, Hong Kong
Faculty:

Prof. Alex PW Lee
Prince of Wales Hospital,
Hong Kong

Prof. Gregory Scalia
The Prince Charles Hospital,
Brisbane Australia

Dr. Shih-Hsien Sung
Taipei Veterans General Hospital
Taiwan

Dr. Ching-Wei Lee
Taipei Veterans General Hospital
Taiwan

Invited speaker:

- TBC (Case presenter from country)

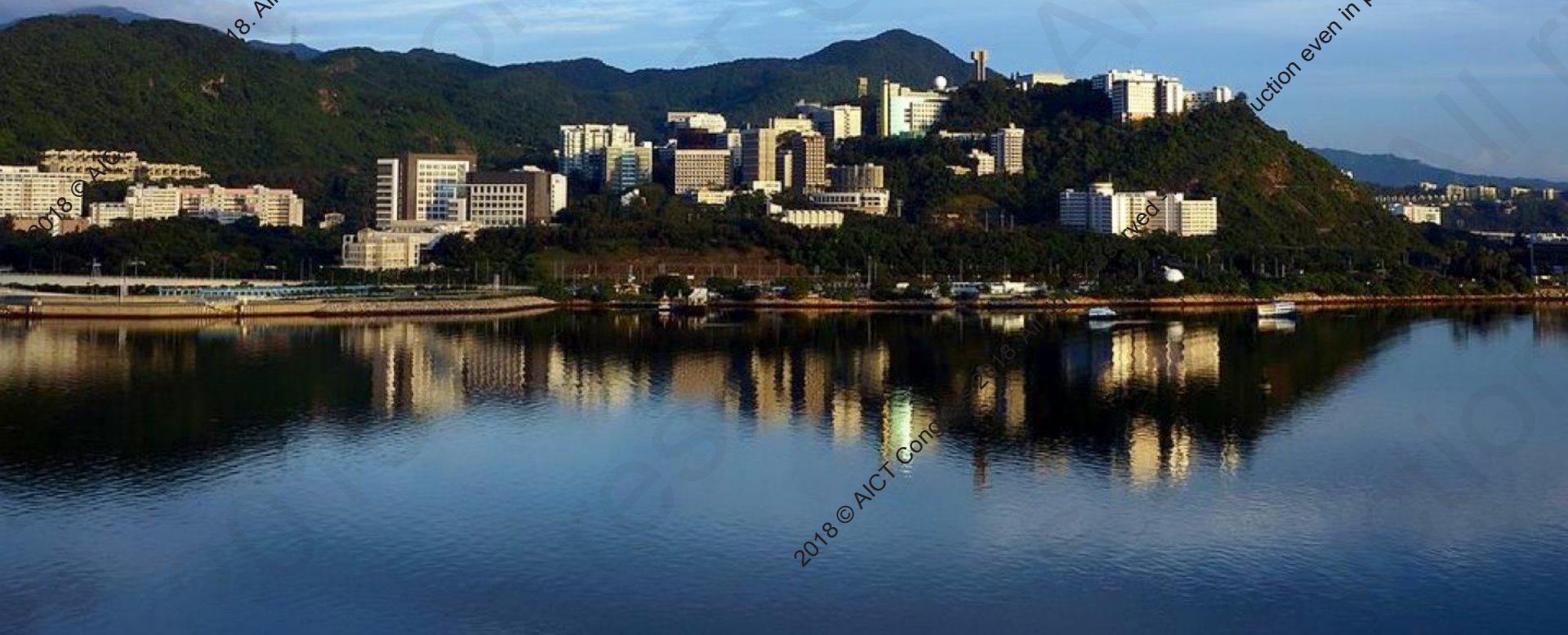
Live transmission MitraClip procedure
QLAB workshop
Hands-on TEE simulator training
Lectures by international experts

Objectives:

Training of echo screening, procedural guidance and post procedural assessment in **structural heart interventions.**

Thank You

alexpwlee@cuhk.edu.hk



14th

AiCT

ASIAN INTERVENTIONAL CARDIOVASCULAR THERAPEUTICS

THE OFFICIAL CONGRESS OF APSIC

7 - 9th September 2018

Hong Kong

Convention and Exhibition Centre (HKCEC)

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