

3D TEE in structural interventions

Dr. Julia Grapsa MD, PhD, FAHA, FESC, FACC
Consultant Cardiologist, Heart & Vascular Institute, Cleveland Clinic Main Campus
Clinical Associate Professor of Medicine, Cleveland Clinic Lerner College of Medicine
Lead ESC clinical case gallery, ESC education

1

HIP (History of presentation)

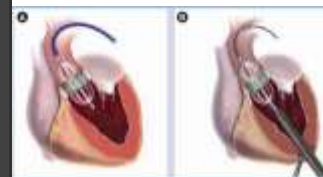
68 yrs old female patient

Hx of severe aortic stenosis : underwent transcatheter aortic valve replacement in 2012 at outside facility with a 23 mm SAPIEN XT valve

Admitted with decompensated heart failure

Medical Hx:

1. Diabetes type II
2. Hypertension
3. Hyperlipidemia
4. Obstructive sleep apnoea: on CPAP at home
5. Hx of erosive gastritis
6. Iron deficiency anaemia



Blood results

Value	Reference range	On admission	Value	Reference range	On admission
WBC	4.5 - 11.0 x10 ⁹ /L	6.0	BUN	2.8 - 8.1 mmol/L	4.5
RBC	3.80 - 5.20 x10 ¹² /L	3.94	Creatinine	35 - 88 umol/L	44
Hemoglobin	117 - 161 g/L	112 (Low)	Glucose, Random	3.9 - 7.8 mmol/L	16.2 (High)
Hematocrit	0.35 - 0.47	0.36	Sodium	136 - 145 mmol/L	132 (Low)
MCV	81.0 - 102.0 fL	91.0	Chloride	98 - 107 mmol/L	90 (Low)
MCH	27.0 - 35.0 pg	28.4	Potassium	3.6 - 4.8 mmol/L	3.5 (Low)
MCHC	310 - 360 g/L	313	Co2	22 - 29 mmol/L	31 (High)
RDW	11.6 - 14.8 %	14.4	Anion Gap	7 - 16	11
Platelet	140 - 400 x10 ⁹ /L	343	eGFR	>60 mL/min/1.73 m2	>60
MPV	9.6 - 12.0 fL	10.1	Magnesium	0.66 - 1.07 mmol/L	0.73
			NT-Pro BNP	<301 ng/L	2446 (High)
			Troponin T	<0.06 microgram/L	0.126 (High)
			INR, Citrated Plasma, (Chronometry)	0.8-1.2	1.4
			Glucose	3.9 - 7.8 mmol/L	16.1

Medical treatment on admission:

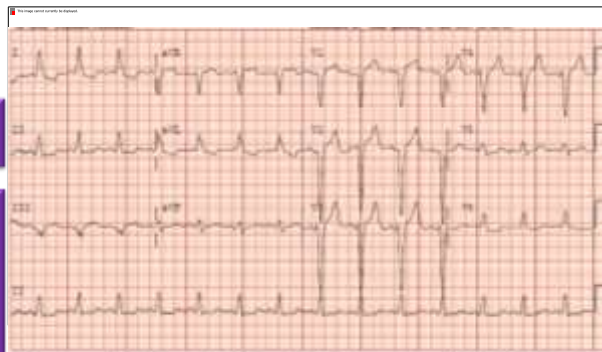
Aspirin 100 mg od
 Furosemide 40 mg bd
 Valsartan 160 mg bd
 Atorvastatin 80 mg od
 Metformin 500 mg bd

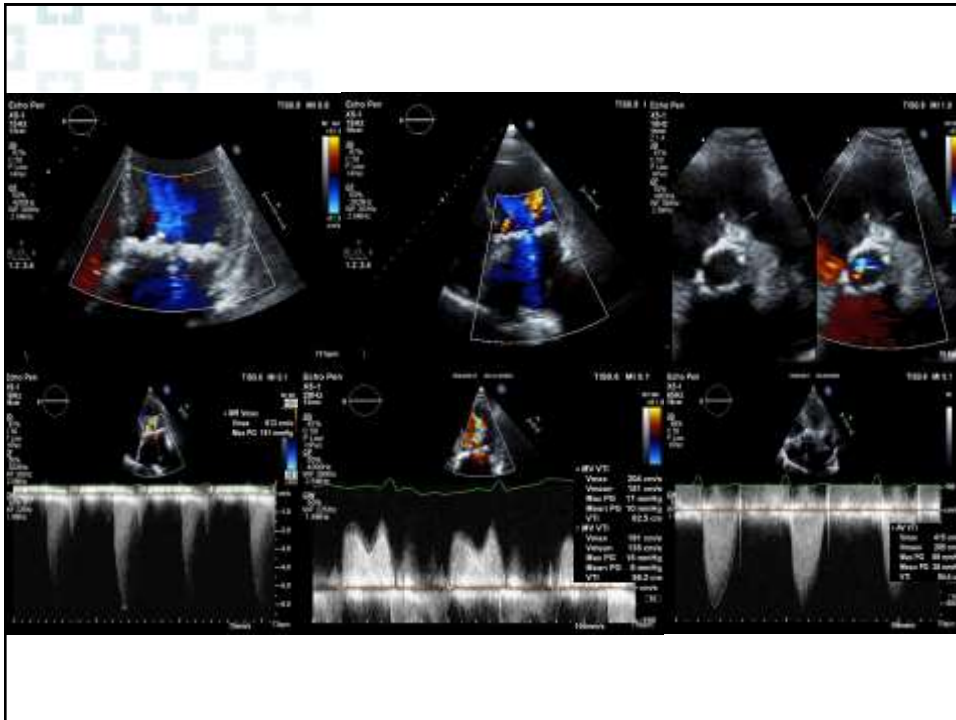
Vital signs:

BP: 136/64 mmHg, HR 82 bpm,
 RR 16/min, SpO2 96%, T 36.7 C,
 Weight : 75 kgs, Height: 147 cm, BMI: 36.3

ECG on admission:
 SR, LBBB

CXR on admission:
 Mild CHF.
 Cardiomegaly with mild
 central pulmonary
 vascular congestion





Question 1

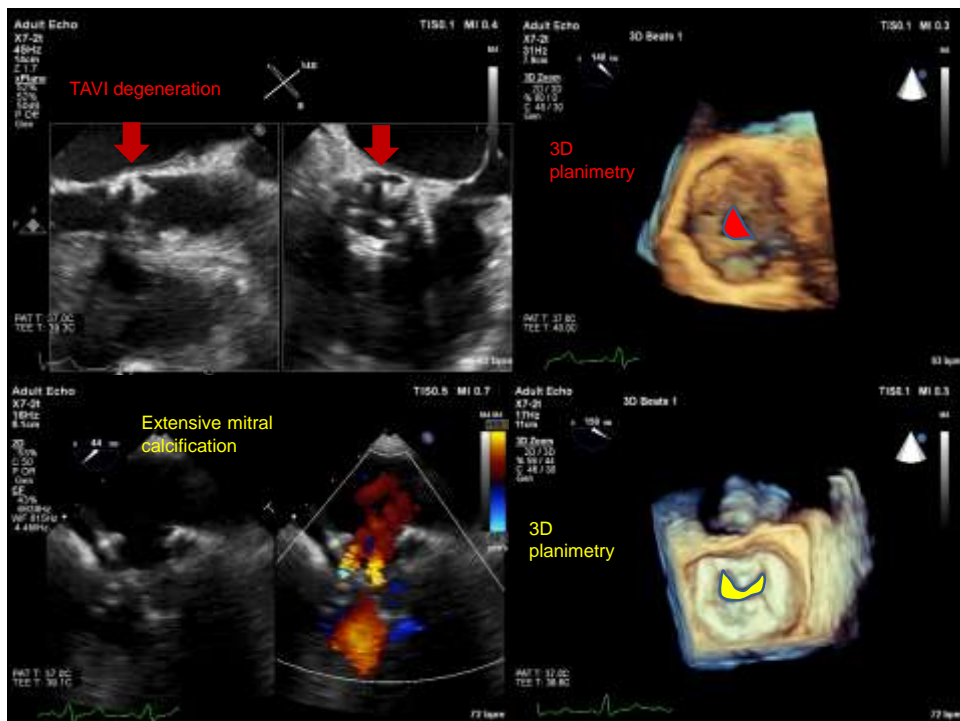
Is TTE information enough to plan further management?

- A. Yes I am happy
- B. No, I need more information
- C. I will proceed to coronary angiogram
- D. I will perform a TEE

Question 1

Is TTE information enough to plan further management?

- A. Yes I am happy
- B. No, I need more information
- C. I will proceed to coronary angiogram
- D. I will perform a TEE**



Question 5
What is the next step?

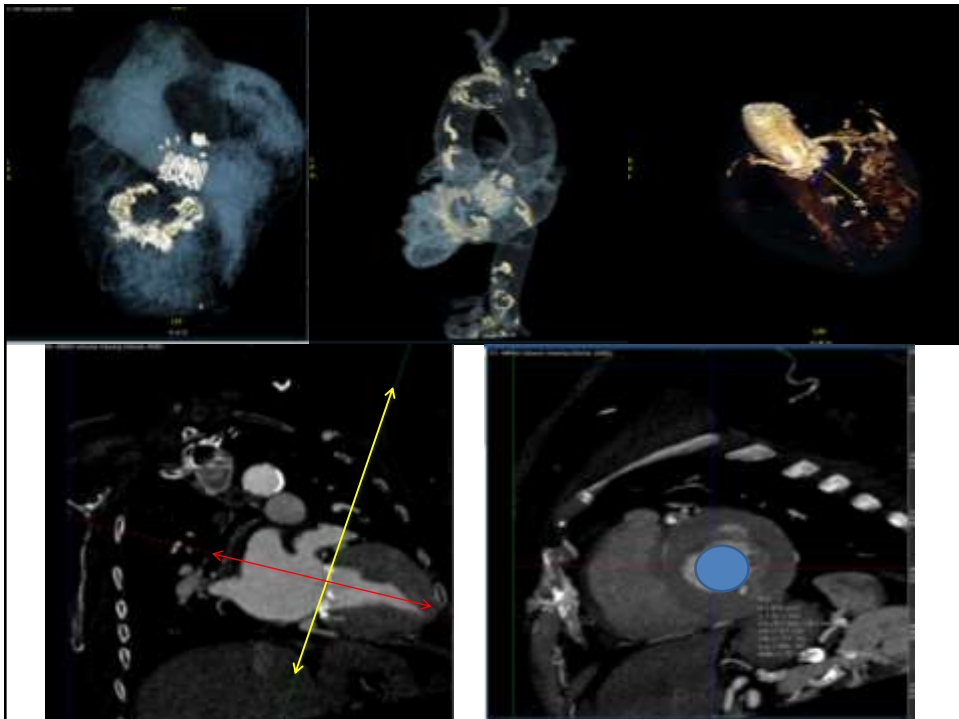
To recap:

Patient admitted with decompensated heart failure

TAVI in 2012 at outside facility with a 23 mm SAPIEN XT valve

Very severe native mitral valve stenosis

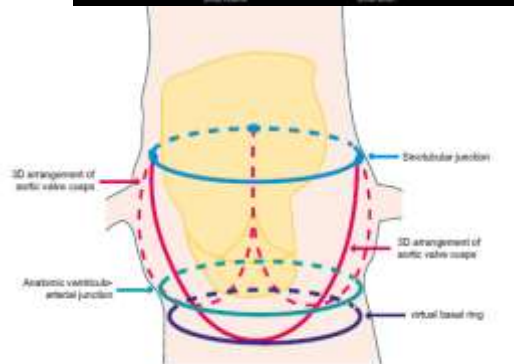
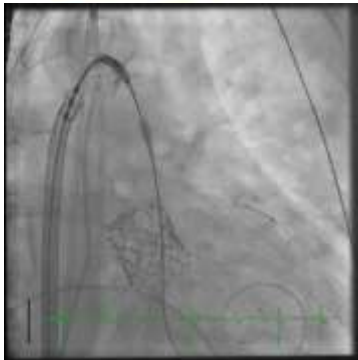
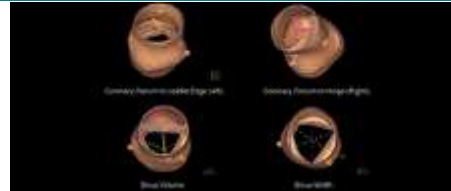
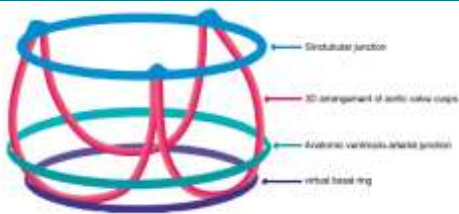
Moderate-severe degenerative TAVI



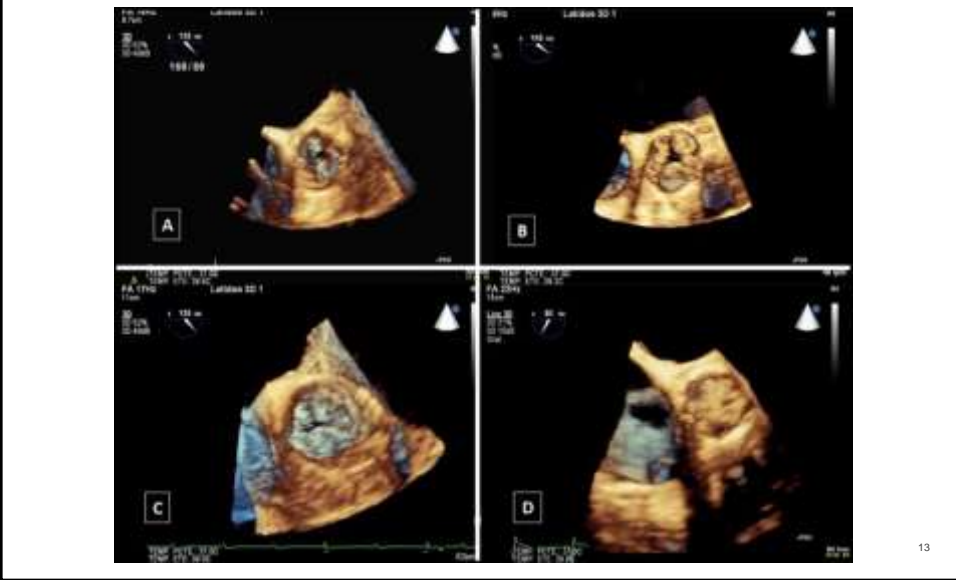
The value of 3D TEE in structural interventions

11

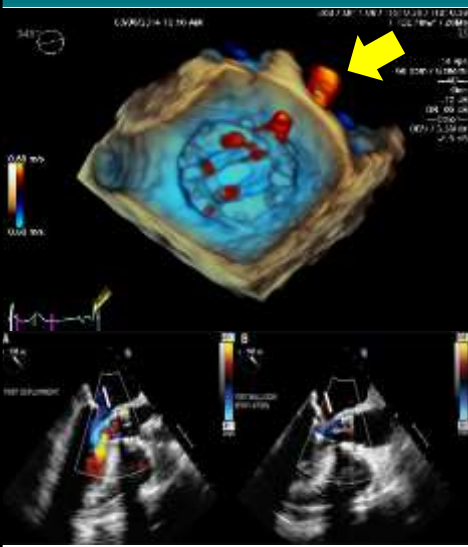
Transfemoral or transapical aortic valve replacement (TAVI)



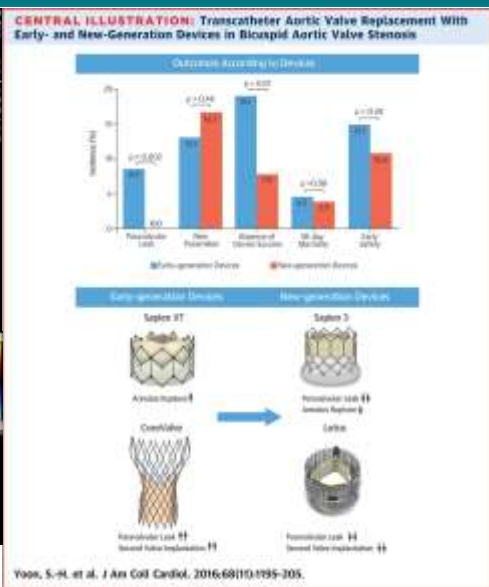
3D TEE image of aortic valve showing two favorable cases for direct TAVI implantation (A, B) and two unfavorable examples (C, D) with large calcification, sigmoid leaflets immobility with significant thickness and restricted or eccentric valve orifice (C, D)



Important: assessment of PVL post TAVI



Lerakis S et al. Circulation. 2013;127:397-407



Origin and Mechanism of Paravalvular Aortic Regurgitation

Jan-Malte Sinning et al. JACC Volume 62, Issue 1, July 2013

Malposition PVR jets may occur across the stent frame, when the prosthesis is implanted in too low or too high a position relative to the native annulus. In the low implant ("too ventricular"), the prosthesis is deployed at a depth that exceeds the height of its tissue skirt; the PVR jet passes above the skirt ("supra-skirt" PVR), from within the aortic portion of the stent frame into the paravalvular space and the LVOT.

PFO/ASD closure

16

Thank you



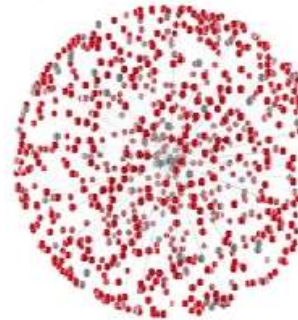
EACVI's Heart Imagers
of Tomorrow

Submit your clinical case for ESC congress 2018 in Munich

- If you are under 35 years old
- Deadline for case proposal: 1st March 2018
- Qualify for Best Case Award
- www.escardio.org

ESC Congress Munich 2018

25-29 August



Where the world of
cardiology comes together.

