

Acute Heart Failure-Valve

ACCA Masterclass 2017

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Acute
Cardiovascular
Care Association
ACCA
A Registered Branch of the ESC



EUROPEAN
SOCIETY OF
CARDIOLOGY®

AHF and Prognosis

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- ESC HF pilot
- **12 Month Mortality 12%**
- **12 Month hospitalisation 44%**
- **No brilliant prediction model**

HF due to Aortic stenosis

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- **Braunwald**
- **50% 2 year survival**
- **Looking for reversible causes**
 - Aortic stenosis
 - CAD with hibernation/acute ischaemia
 - Alcohol



Variation from HF practice

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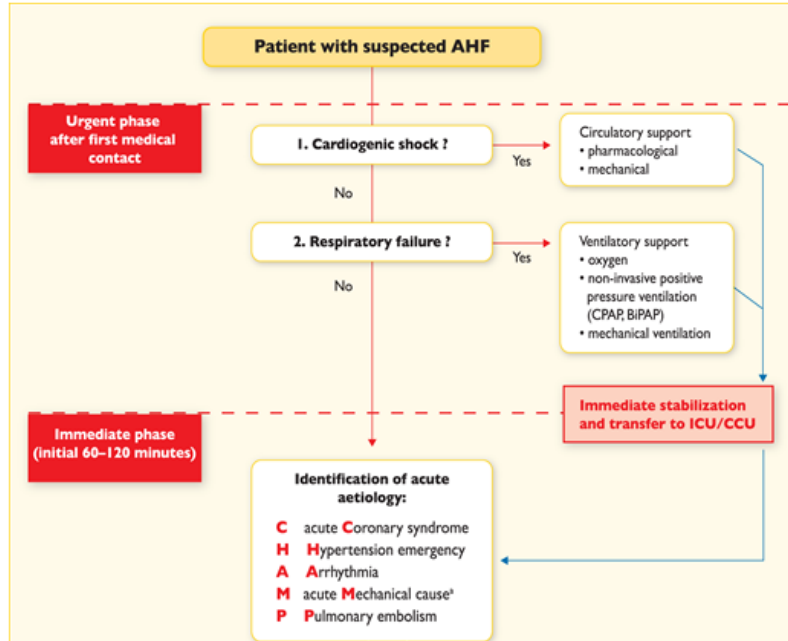
- **Care with Vasodilators**
 - Can precipitate hypotension
- **Care with assessment**
 - Low flow, low gradient AS
 - Can generate some gradient, but EF too low to generate much
 - Might improve with treatment-assess with DSE
 - Low Flow, low gradient AS with normal EF
 - Stiff heart, poor long axis function

Recommendations for treatment of valvular diseases in patients with heart failure

Recommendations	Class ^a	Level ^b	Ref ^c
In symptomatic patients with reduced LVEF and 'low-flow, low-gradient' aortic stenosis (valve area <1 cm ² , LVEF <40%, mean pressure gradient <40 mmHg), low-dose dobutamine stress echocardiography should be considered to identify those with severe aortic stenosis suitable for valve replacement.	IIa	C	
TAVI is recommended in patients with severe aortic stenosis who are not suitable for surgery as assessed by a 'heart team' and have predicted post-TAVI survival >1 year.	I	B	495, 496, 509
TAVI should be considered in high-risk patients with severe aortic stenosis who may still be suitable for surgery, but in whom TAVI is favoured by a 'heart team' based on the individual risk profile and anatomic suitability.	IIa	A	497, 498
In patients with severe aortic regurgitation, aortic valve repair or replacement is recommended in all symptomatic patients and in asymptomatic patients with resting LVEF ≤50%, who are otherwise fit for surgery.	I	C	317
Evidence-based medical therapy in patients with HFrEF is recommended in order to reduce functional mitral regurgitation.	I	C	
Combined surgery of secondary mitral regurgitation and coronary artery bypass grafting should be considered in symptomatic patients with LV systolic dysfunction (LVEF <30%), requiring coronary revascularization for angina recalcitrant to medical therapy.	IIa	C	
Isolated surgery of non-ischaemic regurgitant mitral valve in patients with severe functional mitral regurgitation and severe LV systolic dysfunction (LVEF <30%) may be considered in selected patients in order to avoid or postpone transplantation.	IIb	C	

Acute presentation

Figure 12.2



Often acute on chronic!

Initial presentation

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- **87 year old man**
- **Known AS under FU at DGH**
- **Sudden deterioration**
 - Syncopal episodes over Xmas.
 - He was in heart failure on arrival. Pulmonary odema, hard to lie flat
 - BP 90/60
- **Initial Treatment**
 - IV diuretics
 - O2
- **Investigations:**
 - Severe AS, trivial AR
 - ECG SR, Partial LBBB

PMH

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- **Severe coronary artery disease**
 - MI 1979, 1989
- **Renal impairment (creatinine 200)**
- **Prostate cancer-controlled.**



Next Move

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- **Transfer to Tertiary centre**
- **Assess Coronary status**
 - Small troponin rise
 - Known CAD

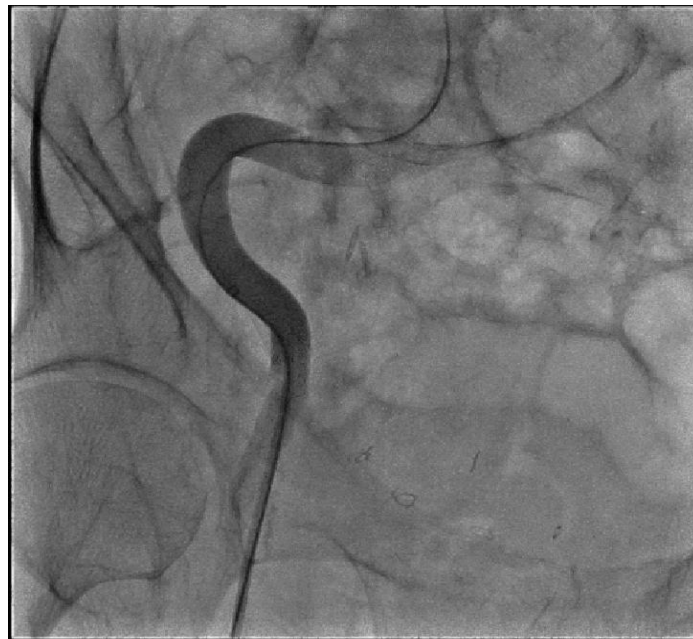
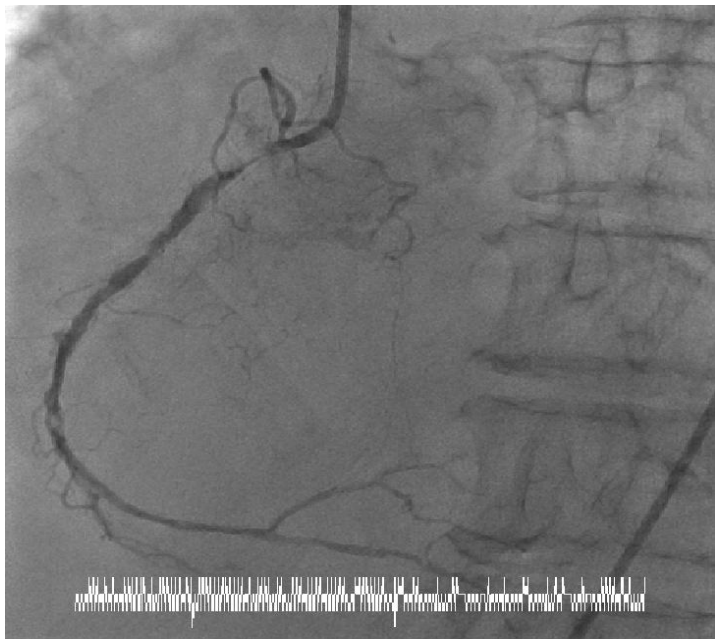
Angiogram

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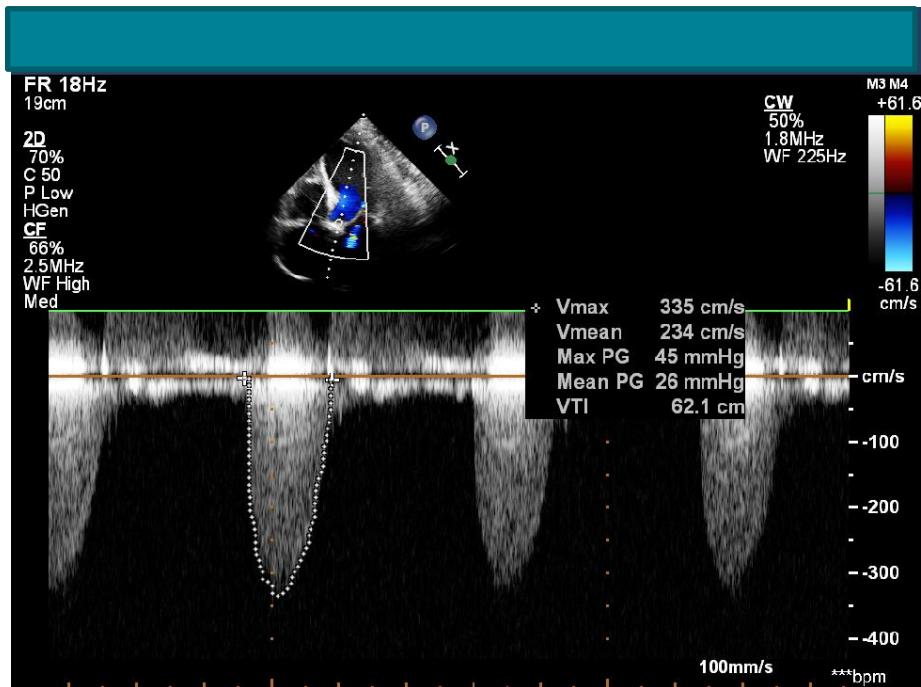
Angiogram

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Echocardiogram

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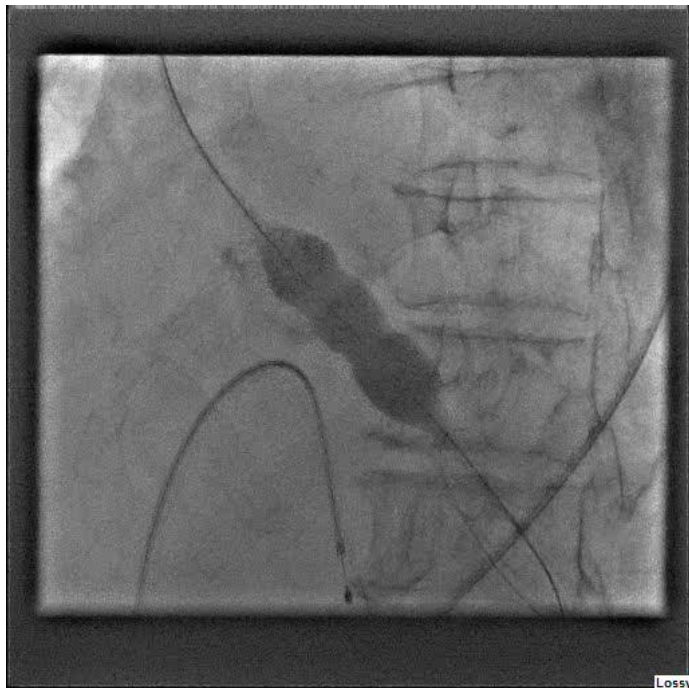
DI 5.5:1, Poor LV function



MDT

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- **Options:**
- **Medical RX**
- **AVR and grafts**
- **TAVI**
- **BAV**
- **Euroscore 25%**
- **I quoted 30% death rate from BAV**



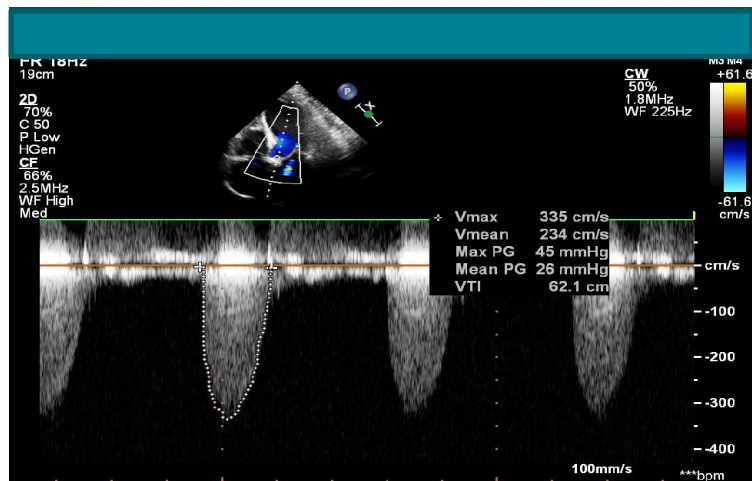
- **20mm balloon**
- **LFA also tortuous**

Lossy

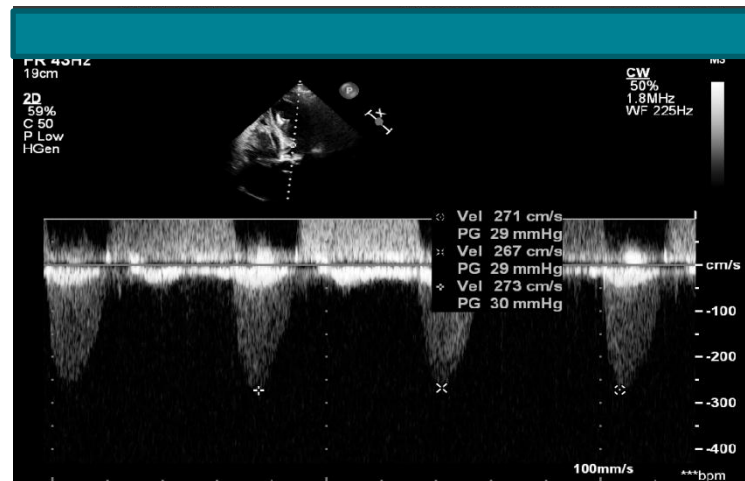
Echocardiogram

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Pre BAV DI 5.5:1



Post BAV DI 3.3:1



Follow-up

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- **Echo 1 month**
 - LV looks improved-Mod severe Impairment
 - MR is better-Mild, moderate now
 - Still severe AS.
- **Symptoms have been steady for a few weeks.**
- **His breathing is good.**
-
- **NYHA Class:II**

Now

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- **Med RX**
 - Frail
 - Stable
 - Could have BAV again
- **TAVI**
 - Does not fix CAD
- **AVR and grafts**
- **ICD**



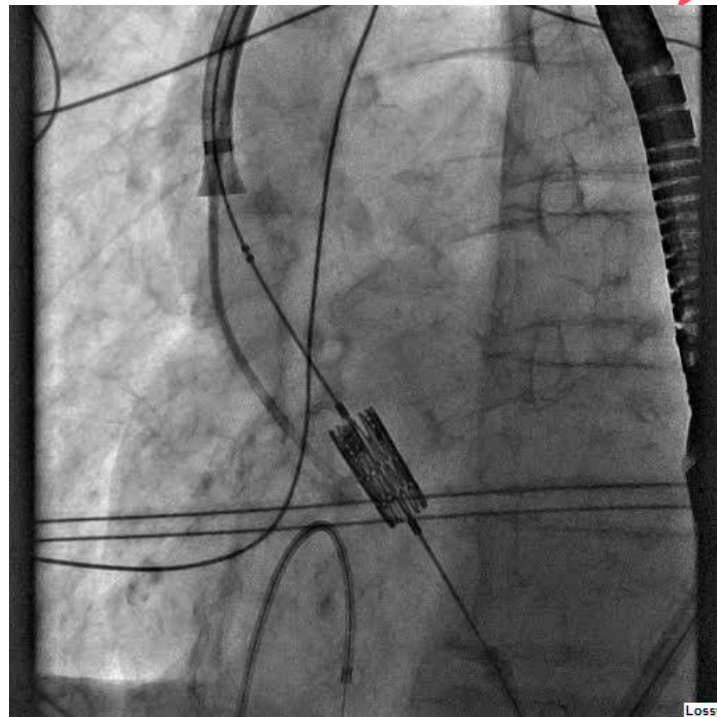
TAVI assessment

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- **Bloods:**
- haemoglobin, 11.7, creatinine 101 (creatinine 225)
- **Carotid:**
- no significant stenosis.
- **Lung function**
- FVC 4.16 (116%), FEV1 2.9 (116%).
- **Echo:**
- moderate to severe aortic stenosis, peak gradient 65, valve area 0.9, non-dilated LV with moderately impaired systolic function (improved from previous), EF 41%. Normal RV size and function. PAP 48 mmHg. Mild MR and TR.
- **Angiography:**
- See images
- **CT:**
- annular size 27 x 30.
- Minimum diameter iliac femorals 8 mm. Thrombosed saccular aneurysm arising from left common iliac artery just proximal to bifurcation and tortuosity of both iliac arteries to be discussed at Vascular MDT. Indeterminate 20 mm lesion of the right adrenal gland

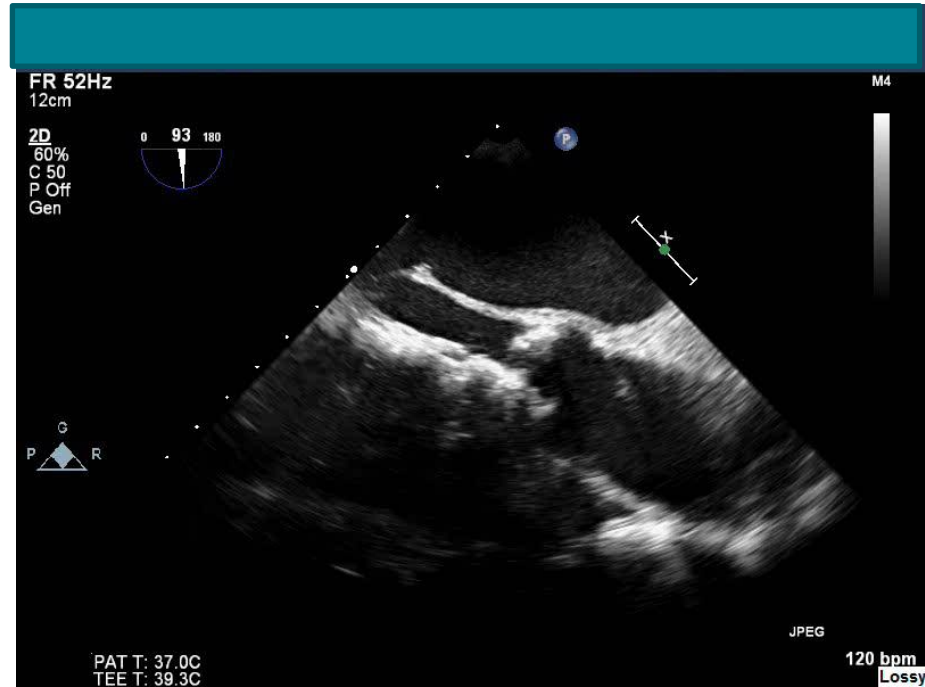
TAVI

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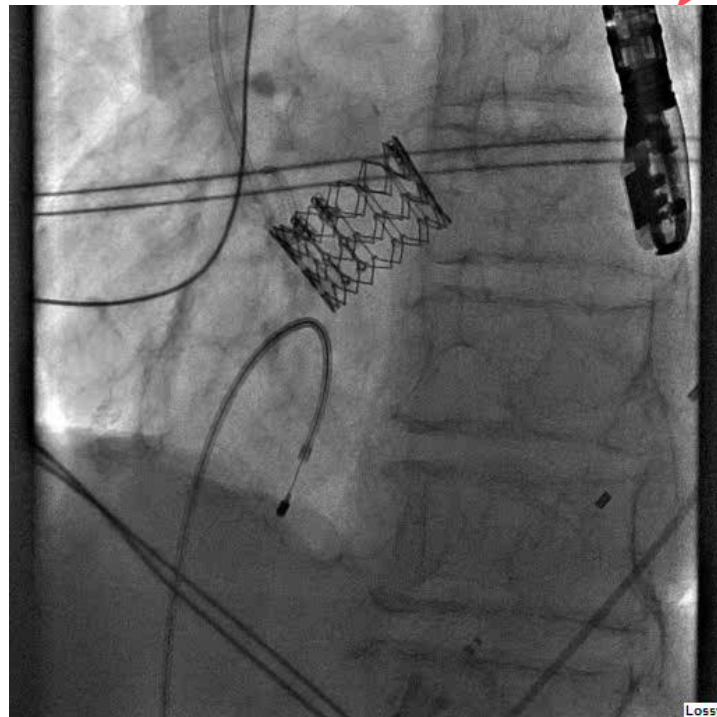
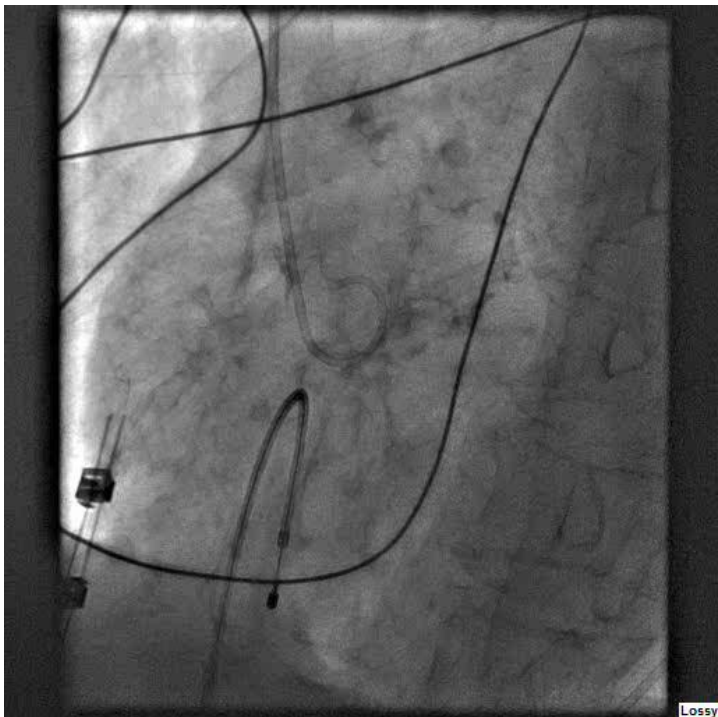
Valve deployment

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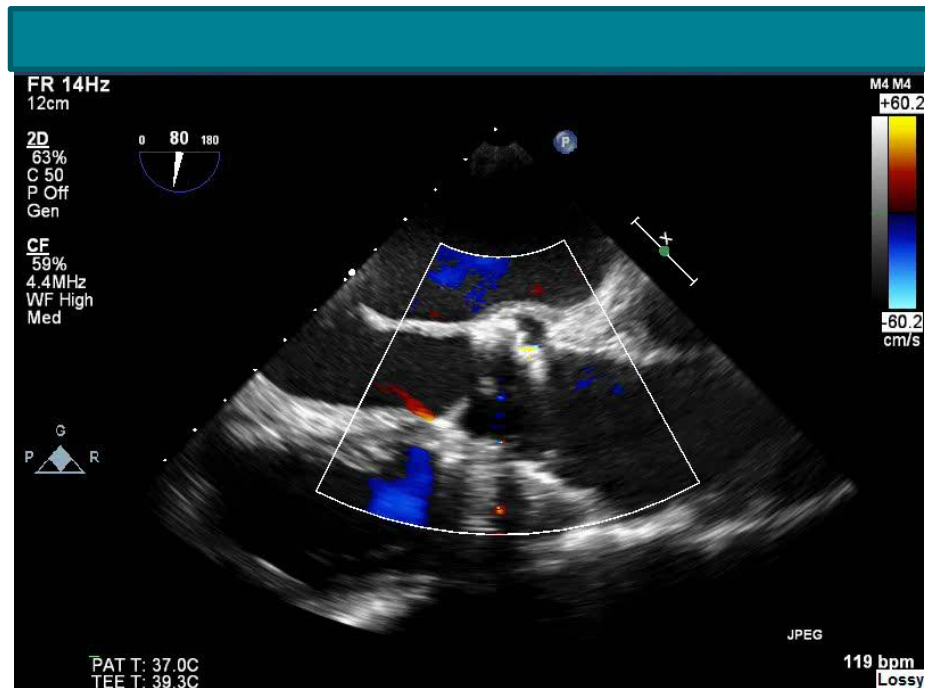
TAVI

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The New Valve

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TAVI done

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- **29mm Sapien valve**
- **TPW left in o/n**
- **Great success**



Next day

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- **TPW removed**
- **Tamponade needing emergency pericardiocentesis**
- **Home day 5**

Follow-up

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- **Medication:**
- **1. Aspirin 75mg od**
- **2. Ranitidine 150mg bd**
- **3. Bisoprolol 2.5mg od**
- **4. Bumetanide 1mg od**
- **5. Atorvastatin 40mg od**
- **6. Perindopril 2mg od not tolerated**
- **7. Ramipril 1.25mg od**
- **8. Spironolactone 12.5 mg od**

Follow-up

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- **HF admission 2 years later- age 89**
 - Poor LV, well functioning valve
 - Mild angina
 - Nitrate added
 - Not for ICD

- **Died 3 years later -age 90**



Summary

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- **Certain death within a few months with no RX**
- **3 year survival with BAV and then TAVI**
- **Consider aortic valve intervention in Acute and Chronic HF**
- **Beware the stiff heart**