TTVR with EVOQUE in Carcinoid Heart Disease Tricuspid Regurgitation

Manaf Assafin, Matteo Sturla, Andrea Scotti, Pier Pasquale Leone, Juan Torrado, Jesus Montesino, Jelissa Inoa, Andrea Mignatti, Tadahisa Sugiura, Tiffany Guglielmi, James Doolittle, Edwin Ho, Azeem Latib

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Disclosure of Relevant Financial Relationships

- Edwards Lifesciences, consultant

Faculty disclosure information can be found on the app.

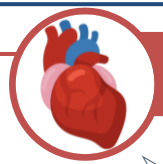
Case Presentation

Male, 77 y/o

- HTN, HLD, CKD III, metastatic carcinoid tumor

H 1.77 m

W 73 Kg BMI 23



Cardiac History

- No relevant cardiac history

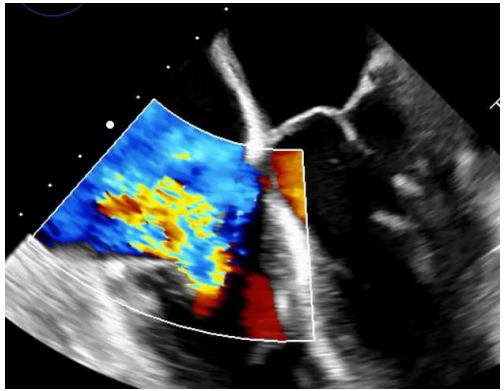
Medications:
Cardesartan, Chlorthalidone, Rosuvastatin
Lantreotide

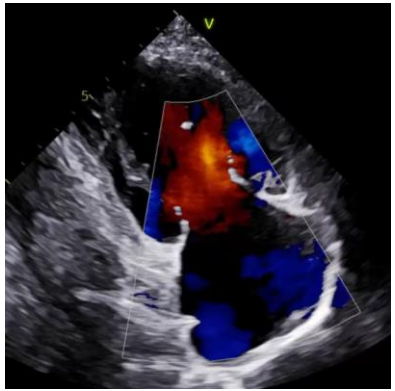
History of Presenting Illness

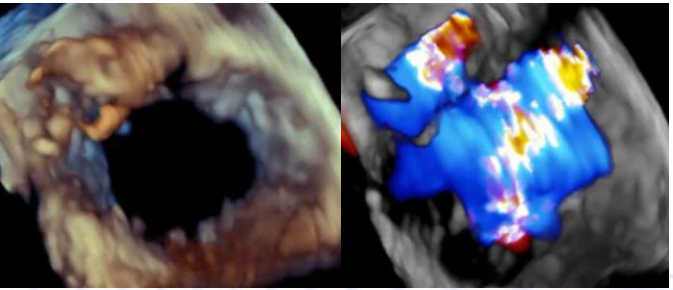
- Generalized asthenia, DOE
- Screening TTE for surgical clearance showed severe TR

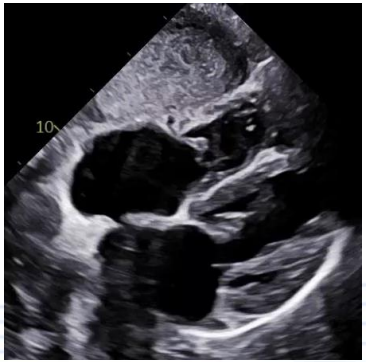
NYHA III

Baseline Echocardiogram



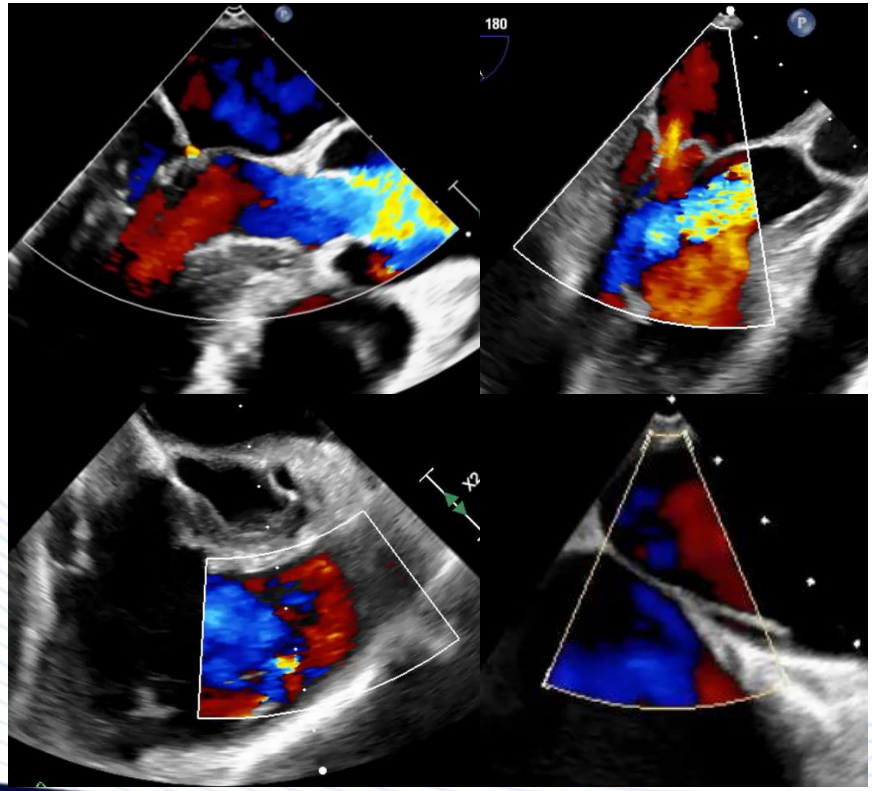






- Massive TR
- Etiology of TR is consistent with carcinoid disease, with tethering and reduced excursion of thickened leaflets
- Anterior leaflet is more severely affected and has reduced systolic and diastolic excursion
- Three leaflet configuration
- Biplane VC 1.7cm
- Coaptation gaps 7-9mm

Baseline Echocardiogram



- Multi-valve involvement
  - Mod-Severe AI
  - Moderate MR
  - Moderate PI
- Large patent PFO with R->L shunt

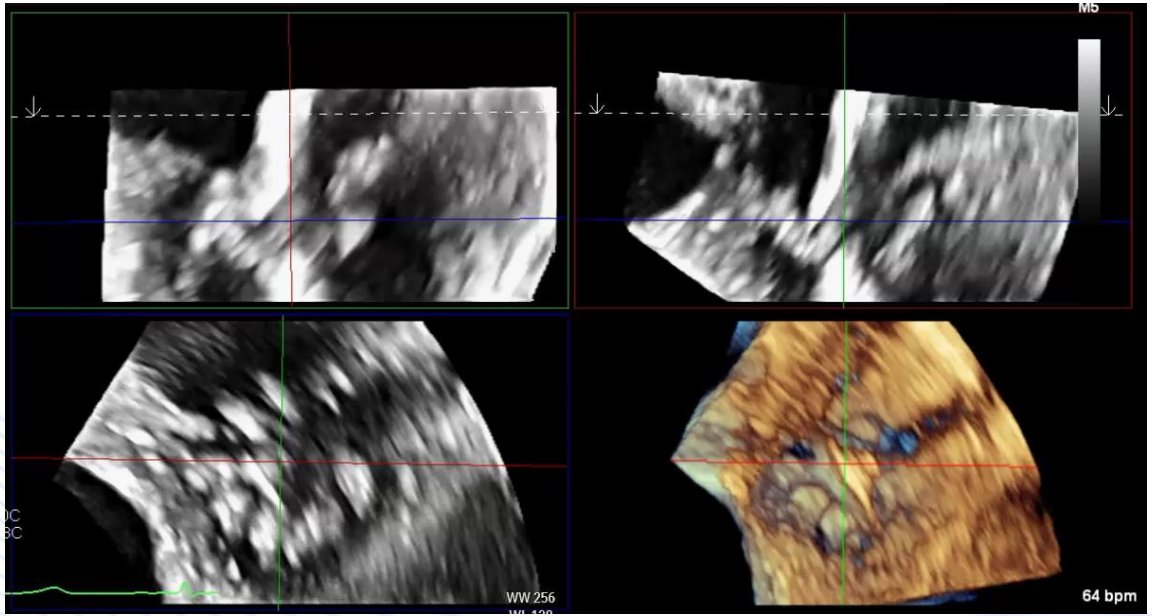
Workup

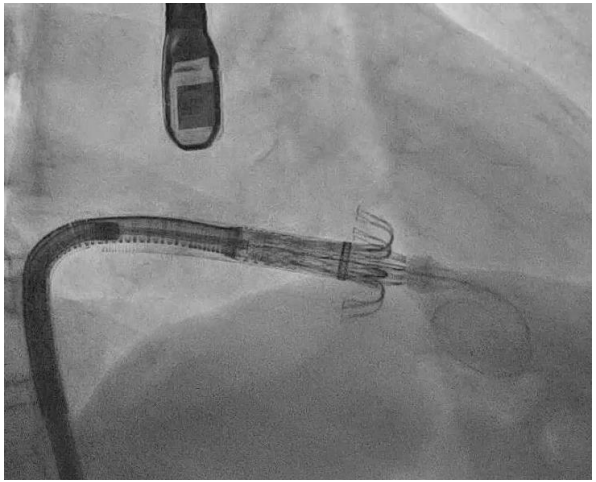
- Angiographically normal coronaries
- RHC:
  - RA 3 (V wave to 10mmHg)
  - RV 27/3 mmHg
  - PA 25/8 mmHg
  - PCWP 8 mmHg
  - PVR 2.6 WU
  - PAPi 5.7

Clinical Scenario

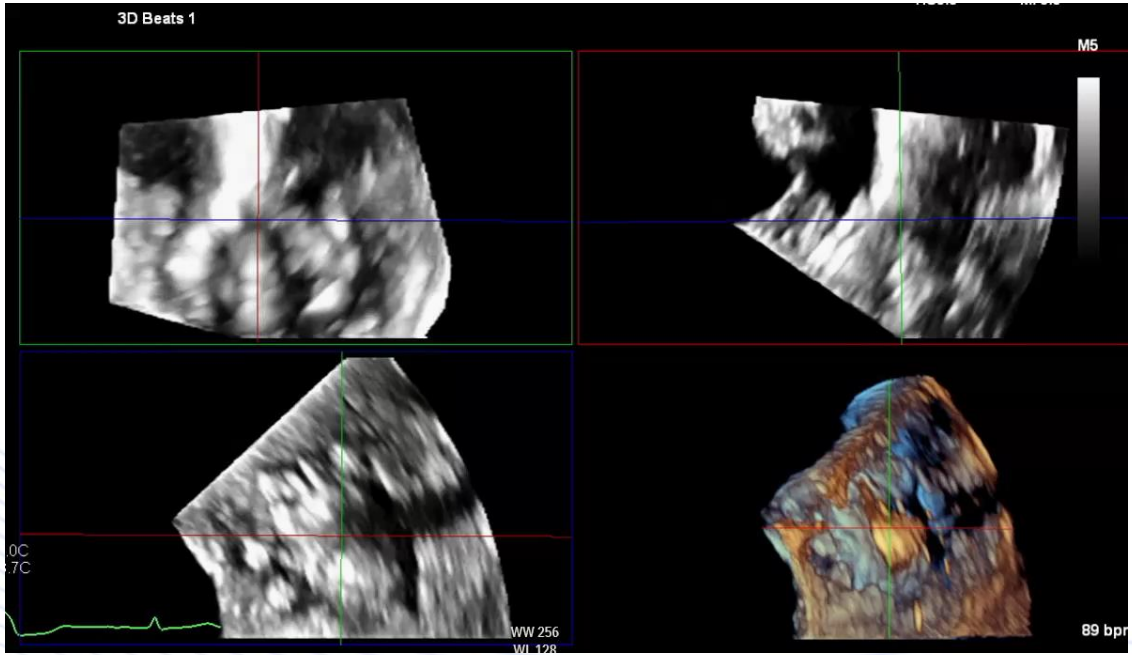
- Patient with liver, kidney, small bowel and mesenteric LN metastasis requiring surgical resection
  - Very symptomatic despite lanreotide therapy
- Very high risk of post-operative bleeding after liver resection due to massive TR
- Heart team discussion → good candidate for TTVR
  - **Octreotide prophylaxis** before TTVR to avoid carcinoid crisis
    - 1000 mcg IV bolus, followed by an infusion of 100 mcg/hr.

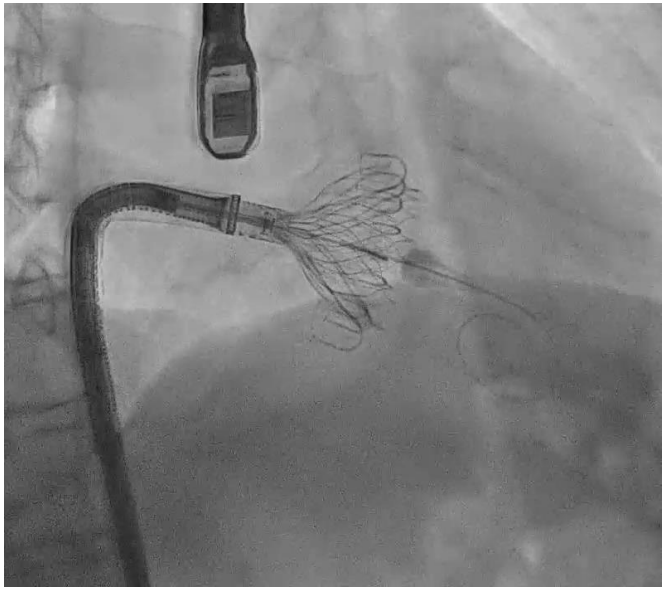
TTVR- Leaflet Engagement



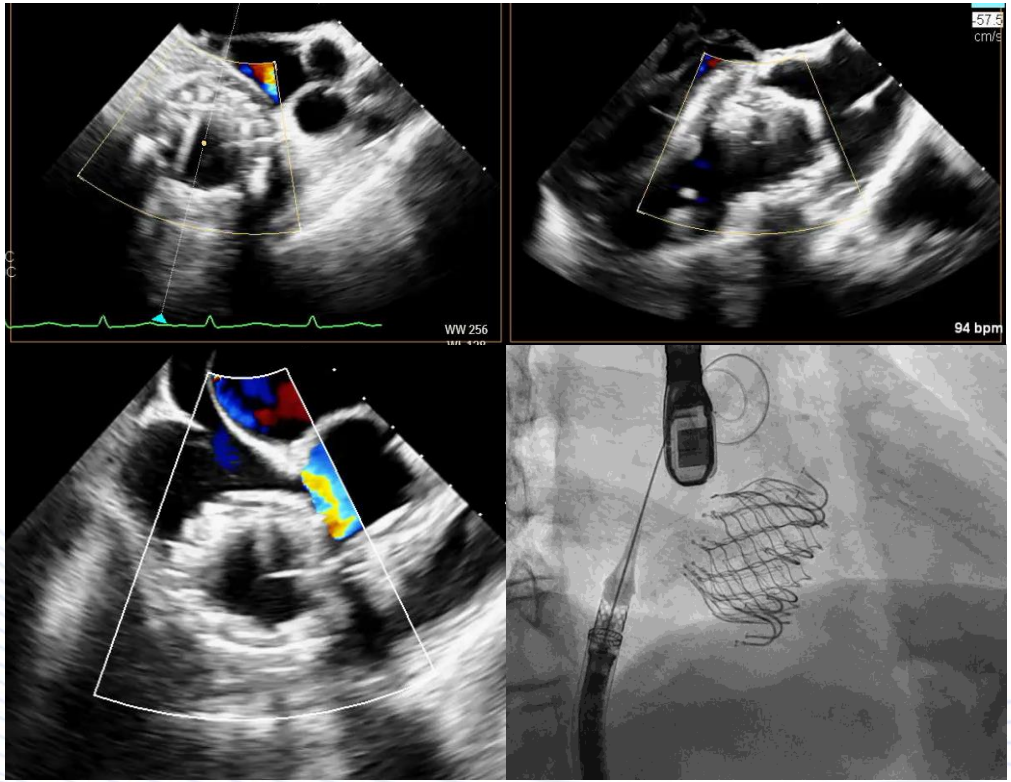


TTVR- Ventricular Expansion and Release





TTVR- Final Result

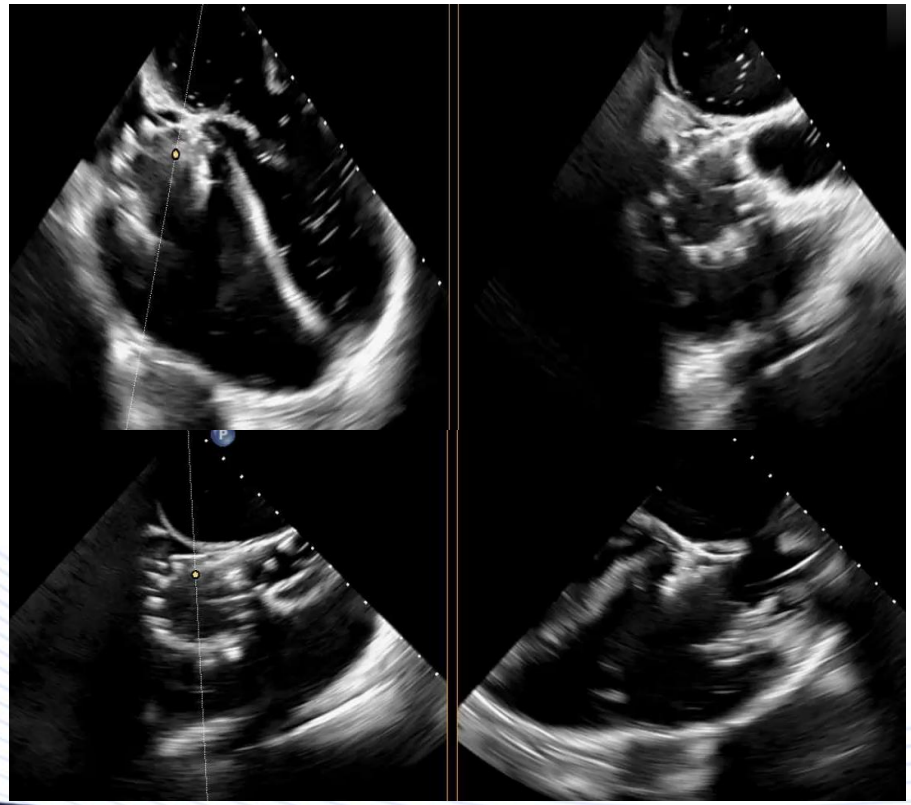


- Stable 44 mm EVOQUE
- No Residual TR
- MG<1 mmHg
- No pericardial Effusion

Post-Extubation → CAC

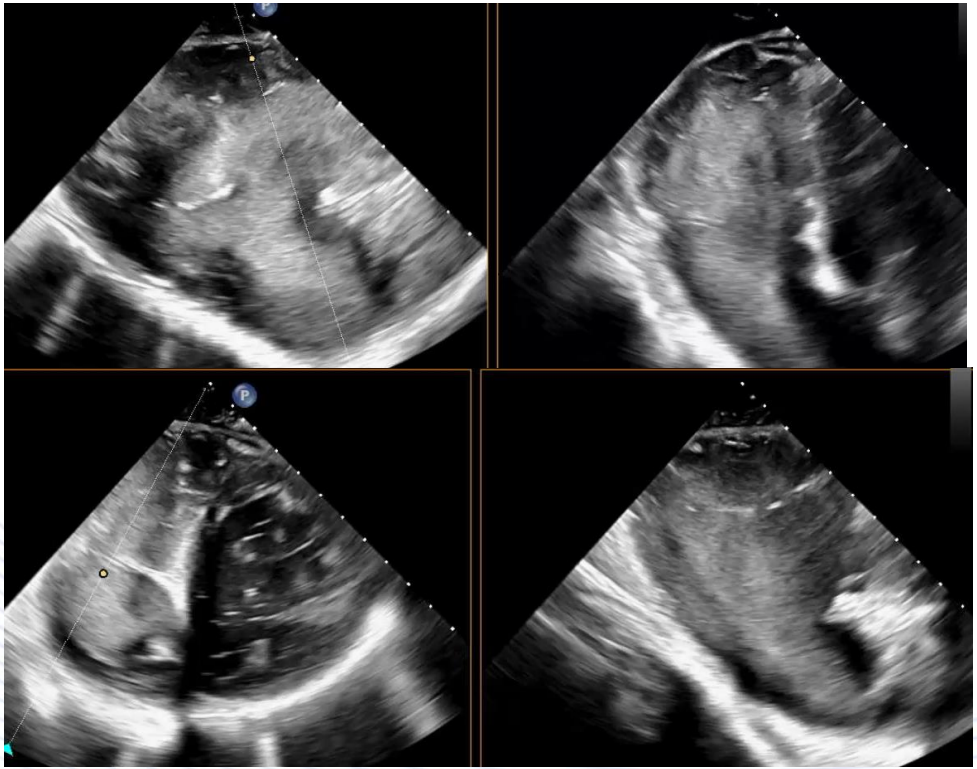
- **Profound hypotension** and **tachycardia** immediately post-extubation
- Chest compressions initiated
- Progressed to **PEA arrest**
- Cannulated for **ECMO**
- Multiple episodes of VF, VT and TdP followed and were treated with DC shocks

Post-Extubation → CAC



- EVOQUE stable
- No pericardial effusion
- LV function depressed
- Severe RV dysfunction

Post-Extubation → CAC



- Unresponsive to inotropes
- Progressive bradycardia
- Patient expired soon after

Take Home Message

- Carcinoid heart disease with tricuspid involvement is amenable to treatment with TTVR
- This case highlights an unknown complication post-TTVR.
- Post-procedure TEE demonstrated valve stability and preserved cardiac function
- Sudden decompensation thought to be provoked by massive PE vs acute RV afterload mismatch vs severe serotonin crisis