



Selecting Patients for Tricuspid TEER: What are the RIGHT Questions to ASK?

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DISCLOSURES

Anita W. Asgar MD, MSc

Consulting/Honoraria:

Abbott Structural

Medtronic

Edwards LifeSciences

W.L. Gore

Anteris

Research Support:

Abbott Structural

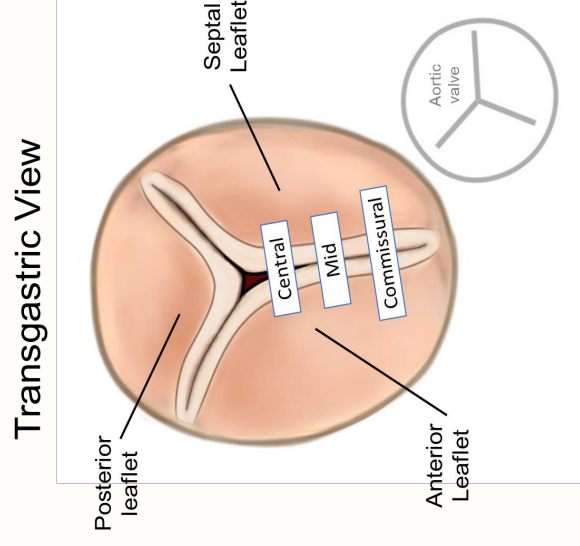


Goals of Tricuspid TEER

The goal of Tricuspid TEER is to restore leaflet coaptation and reduce tricuspid regurgitation.

Keys to Success in Procedural Planning:

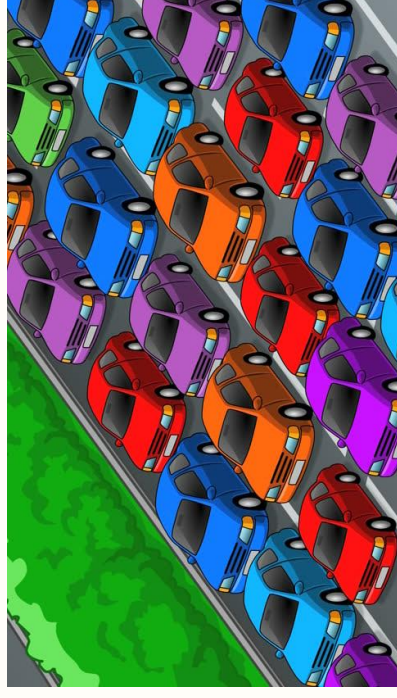
1. **Understanding Leaflet Anatomy**
2. **Understanding mechanism of TR**
3. **Developing a strategy to restore leaflet coaptation**



Patient Selection for Tricuspid TEER



vs.



*Patient Selection for T-TEER is about understanding the anatomical challenge:
Asking the RIGHT Questions and Making DECISIONS based on the answers*

Patient Selection for T-TEER

1. *What is the mechanism of the tricuspid regurgitation?*
2. *What is the quality of TEE imaging?*
3. *How do we describe the regurgitant jet?*
4. *How many leaflets are visualized on the trans-gastric view?*
5. *What are the leaflet lengths?*

Understanding Tricuspid Regurgitation

Patient Selection begins with a few key questions:

- 1. What is the mechanism of the tricuspid regurgitation?**
 - Degenerative disease with leaflet prolapse
 - Leaflet flail or chordal rupture
 - Annular dilatation from RV enlargement with central gap
 - Annular dilatation from atrial enlargement with central gap
 - Septal leaflet tethering from RV enlargement
 - Lead interaction: important to determine lead position and role in the TR if any

Understanding Tricuspid Regurgitation

Patient Selection begins with a few key questions:

- 1. *What is the mechanism of the tricuspid regurgitation?***
- 2. *What is the quality of TEE imaging?***
 - *Are the septal and lateral leaflets well visualized in the grasping view?*
 - *Is there a good trans-gastric view?*
 - *Is there any potentially problematic shadowing?*
 - *Is the heart horizontal? If yes, can we see the septal leaflet?*
- 3. *How do we describe the regurgitant jet?***
- 4. *How many leaflets are visualized on the trans-gastric view?***
- 5. *What are the leaflet lengths?***

Understanding the Tricuspid Pathology

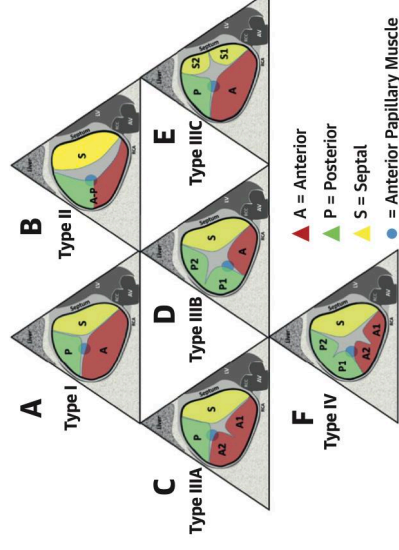
Patient Selection begins with a few key questions:

1. ***What is the mechanism of the tricuspid regurgitation?***
2. ***What is the quality of imaging?***
3. ***How do we describe the regurgitant jet?***
 - *Central or eccentric*
 - *Wide or focal*
 - *Where is the location of the regurgitant jet?*
4. ***How many leaflets are visualized on the trans-gastric view?***
5. ***What are the leaflet lengths?***

Understanding the Tricuspid Pathology

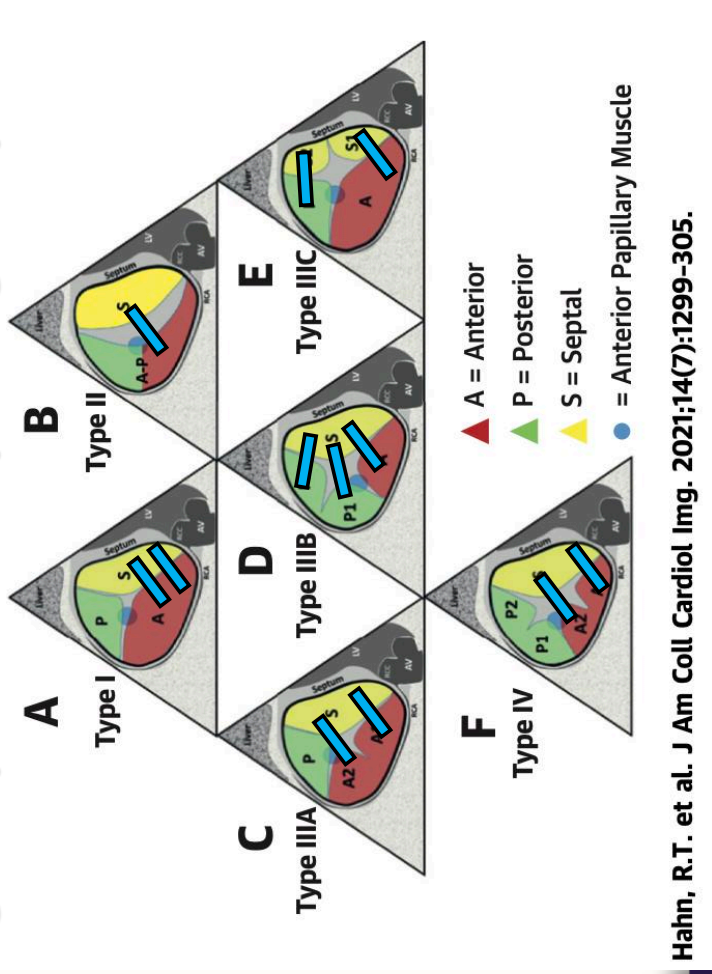
Patient Selection begins with a few key questions:

1. *What is the mechanism of the tricuspid regurgitation?*
2. *What is the quality of imaging?*
3. *How do we describe the regurgitant jet?*
4. *How many leaflets are visualized on the trans-gastric view?*
 - *Important to understand the different coaptation planes prior to clip insertion*
 - *Distortion of the coaptation planes can lead to new areas of regurgitation following clip placement*



Hahn, R.T. et al. J Am Coll Cardiol Img. 2021;14(7):1299-305.

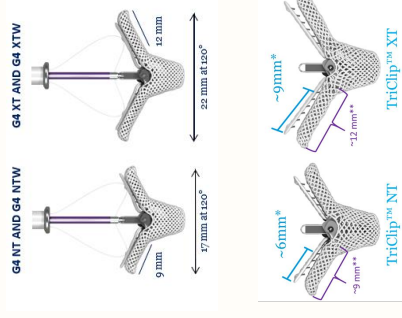
Restoring Coaptation, Respecting Coaptation Planes



Understanding the Tricuspid Pathology

Patient Selection begins with a few key questions:

1. **What is the mechanism of the tricuspid regurgitation?**
2. **What is the quality of imaging?**
3. **How do we describe the regurgitant jet?**
4. **How many leaflets are visualized on the trans-gastric view?**
5. **What are the leaflet lengths?**
 - Choice of clip depends on adequate leaflet insertion inside the clip to prevent SLDA
 - Leaflet length should be measured in the grasping view at the site of clip implantation
 - XTW/XT: 9 mm insertion recommended
 - NTW/NT: 6 mm insertion recommended



What Type of Anatomy is Less Suitable for T-TEER?

- 1. What is the mechanism of the tricuspid regurgitation?**
 - Severe leaflet tethering, carcinoid, endocarditis
- 2. What is the quality of imaging?**
 - POOR, unable to visualize leaflets
- 3. How do we describe the regurgitant jet?**
 - Large, wide jet >10mm more challenging
- 4. How many leaflets are visualized on the trans-gastric view?**
 - Probably no leaflet limit but need to understand and respect coaptation planes
 - Multiple coaptation planes add complexity
- 5. What are the leaflet lengths?**
 - Short (less than 6mm)

Patient Selection

Case Example:

- 84-year-old male with severe symptomatic TR and multiple admissions for right sided heart failure on maximal medical therapy with diuretics, chronic renal impairment
- Previous history of permanent pacemaker implanted 2003

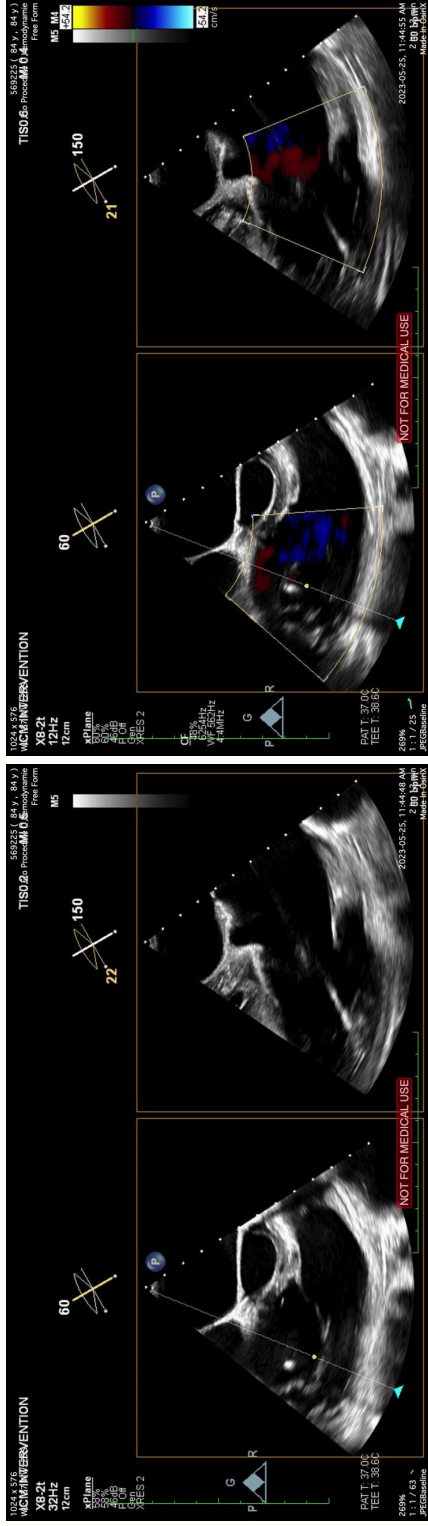
What questions do we need to ask?

Is this patient a T-TEER candidate?

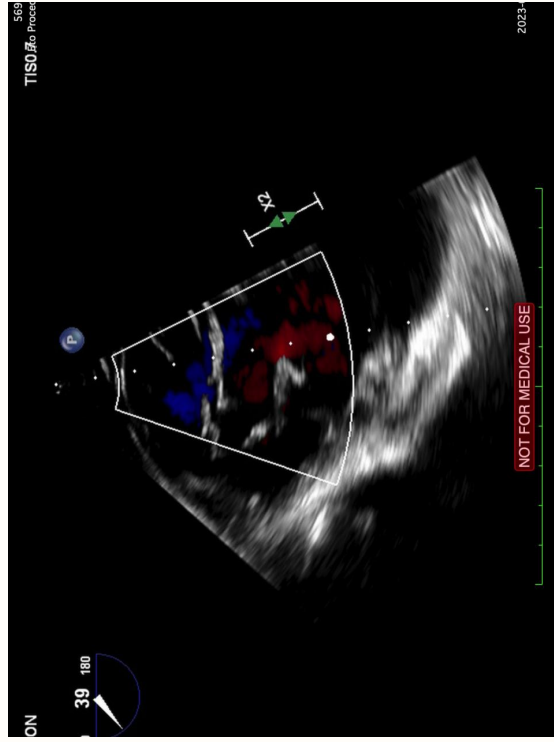
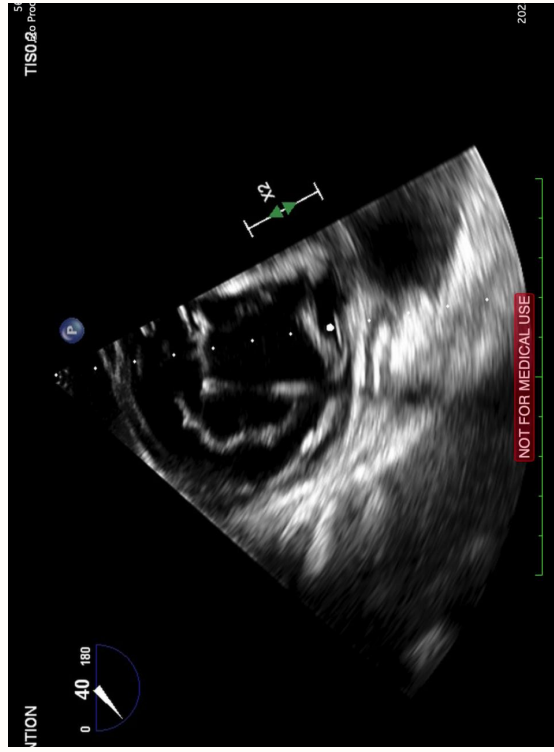
Is this Patient a T-TEER candidate?

- 1. What is the mechanism of the tricuspid regurgitation?***
- 2. What is the quality of TEE imaging?***
- 3. How do we describe the regurgitant jet?***
- 4. How many leaflets are visualized on the trans-gastric view?***
- 5. What are the leaflet lengths?***

Case Presentation



Case Presentation



Is this Patient a T-TEER candidate?

- 1. What is the mechanism of the tricuspid regurgitation?**
 - Annular dilatation
- 2. What is the quality of TEE imaging?**
 - Good 2D views without significant shadowing, leaflets visualized with Pacemaker, good trans-gastric images
- 3. How do we describe the regurgitant jet?**
 - Central jet, doesn't appear to be caused by pacemaker which is relatively posterior
- 4. How many leaflets are visualized on the trans-gastric view?**
 - 3 leaflets without impingement of the septal leaflet by the pacemaker
- 5. What are the leaflet lengths?**
 - Sufficiently long for a XT

Case Presentation

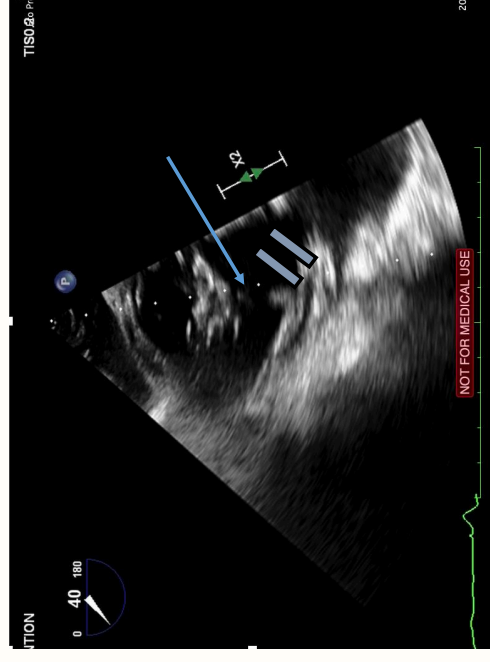
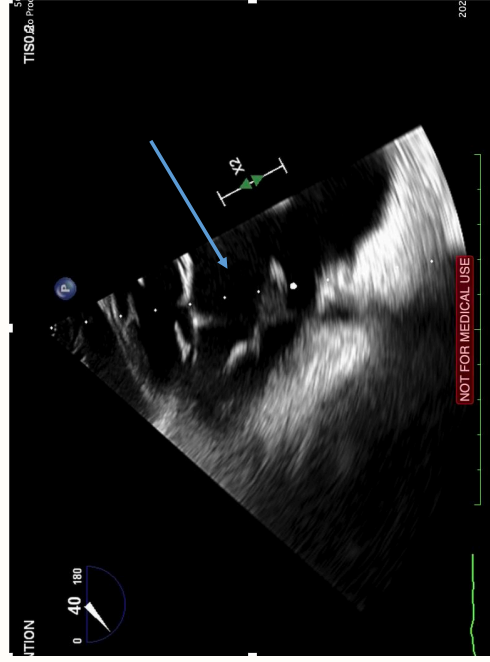
What is your procedural strategy?

- *How will you choose to restore coaptation?*
- *Which clip will you choose?*
- *Where will you put your first clip?*
- *How many clips will you need?*



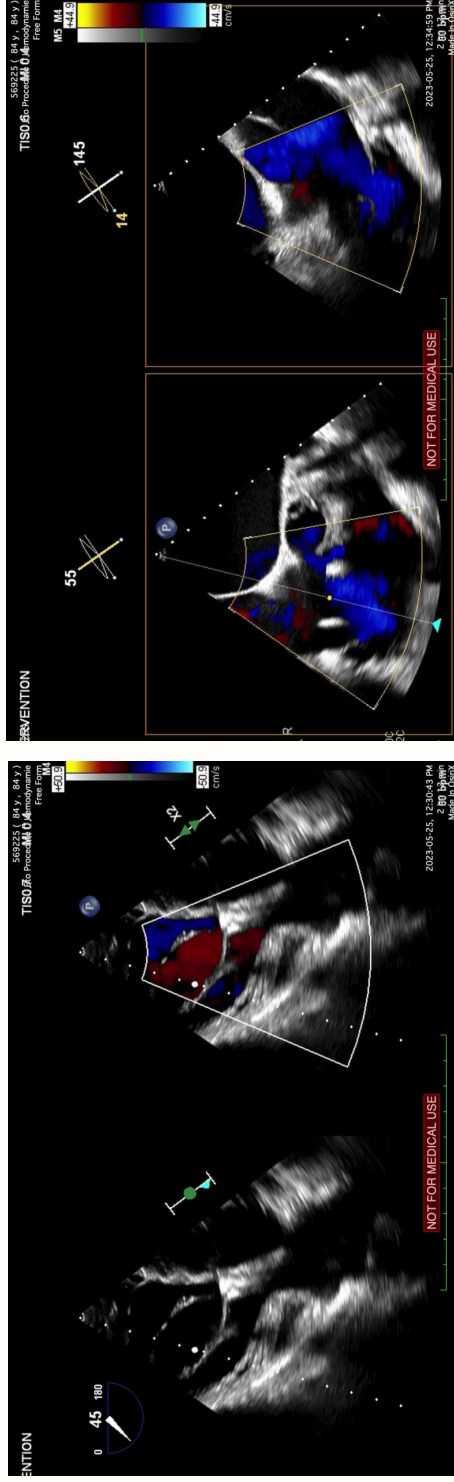
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Where is the line of coaptation?



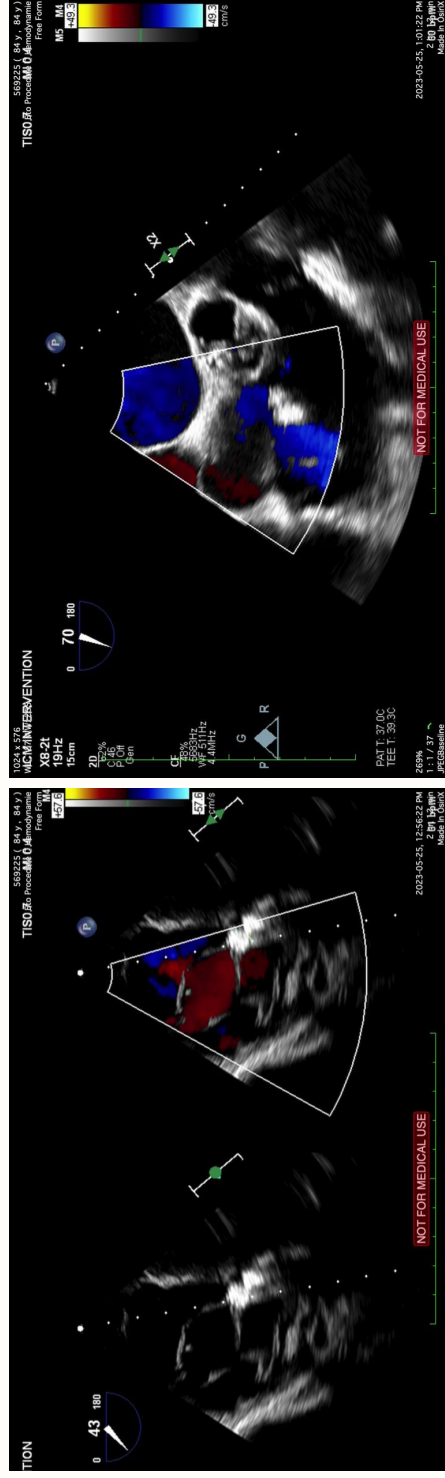
In order to restore coaptation without distorting anatomy, clip placement should be perpendicular to the line of coaptation

Case Presentation: Clip #1 XTW (A-S c)



What would you do now? Another clip?

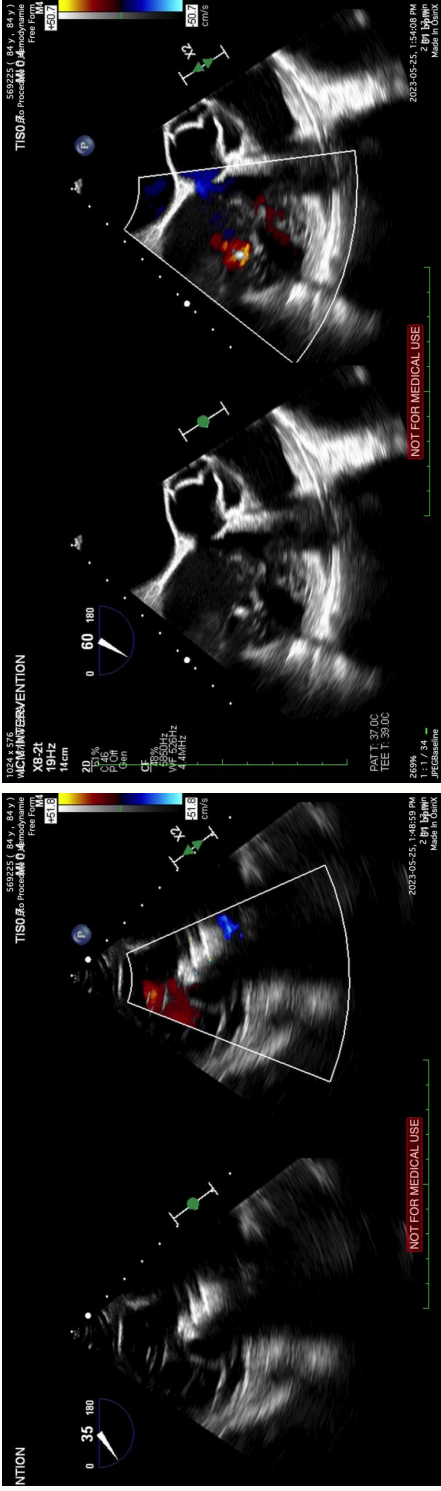
Case Presentation: Clip #2 XTW (A-S m)



What would you do now? Are you done? Another clip?

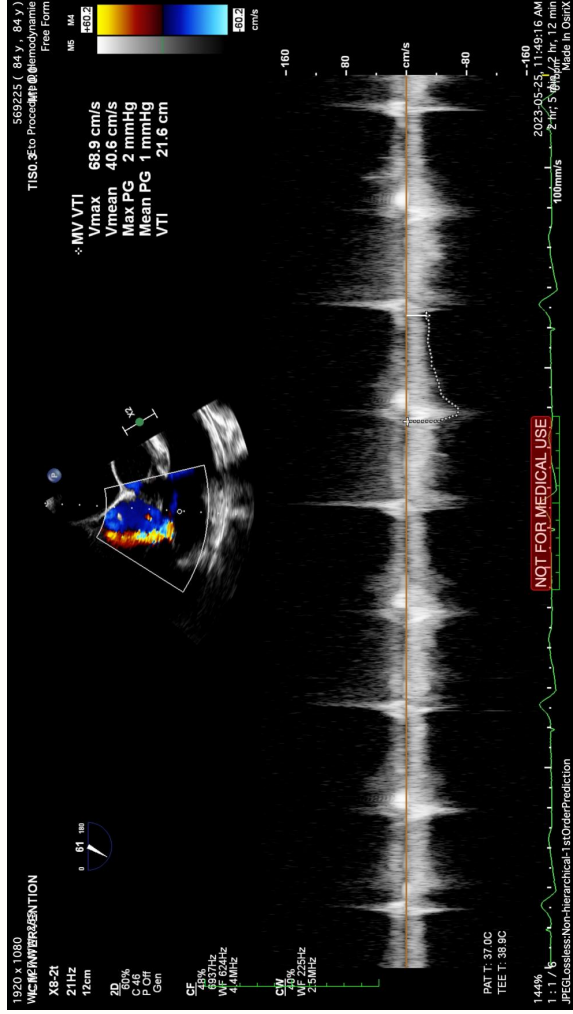


Case Presentation: Clip #3 XTW



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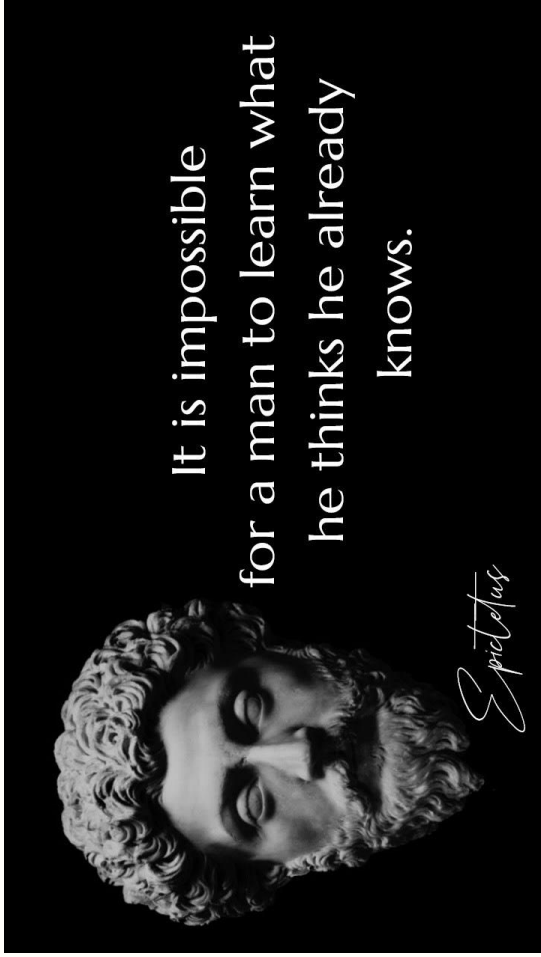
Final Gradient



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Conclusion

- Patient Selection for T-TEER depends on understanding the mechanism of TR and leaflet anatomy as well as the quality of echocardiographic imaging
- Think about how you can restore leaflet coaptation without distorting the anatomy or opening planes of coaptation between the anterior and posterior leaflets.
RESTORE don't DISTORT
- Choose your clips based on leaflet lengths at the target grasping area but also take into consideration the amount of leaflet available near the coaptation plane.



It is impossible
for a man to learn what
he thinks he already
knows.

Epictetus

Thank you for your attention



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