

Mitral Valve Disease 2020: *A Couple of Quandries*

James D. Thomas, MD, FACC, FASE
Director, Center for Heart Valve Disease
Bluhm Cardiovascular Institute
Professor of Medicine, Feinberg School
of Medicine, Northwestern University
Chicago, Illinois

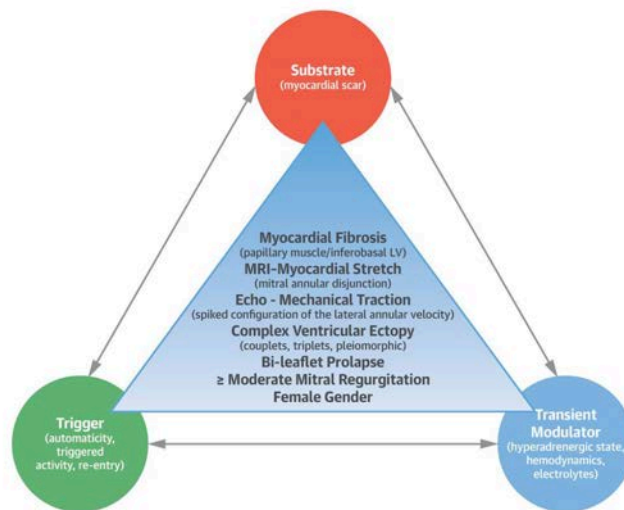
Conflicts of interest: GE, Abbott, Edwards, Caption Health (honoraria)
Spouse employment: Caption Health

1

Arrhythmic Mitral Valve Prolapse

JACC Review Topic of the Week

CENTRAL ILLUSTRATION: Mitral Valve Prolapse-Related Sudden Cardiac Death: Interactions and Risk Factors



Miller, M.A. et al. J Am Coll Cardiol. 2018;72(23PA):2904-14.

Northwestern
Medicine

17

Mitral Valve Disease 2019

A Few Hot Topics

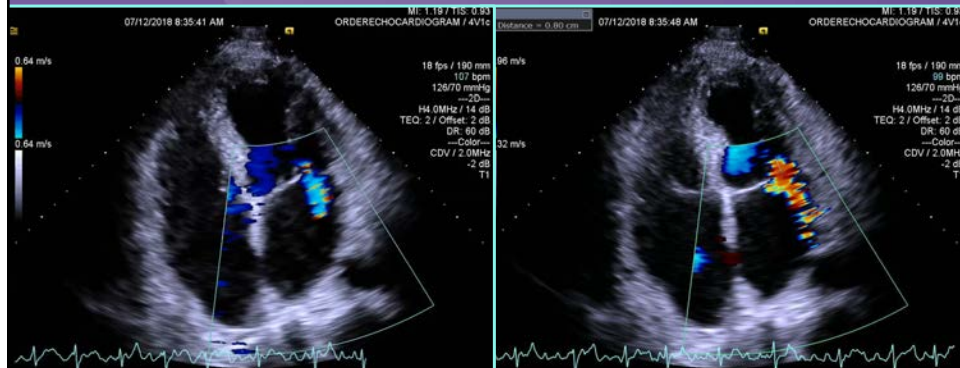
- *More to secondary MR than we thought*
- *Strain to guide timing of intervention*
- *New appreciation for arrhythmias in MVP*
- *Atrial fibrillation in mitral disease*

67yo Man Self-Referred for Second Opinion

- *2014: Routine echo with trivial MR, normal LA*
- *2016: Onset AF; echo showed mild-moderate MR, mild LAE; DCC, but reverted to AF 2 weeks later \Rightarrow rate control*
- *2018: severe LAE (55 mL/m²) with moderate MR (ROA 0.3 cm²)*

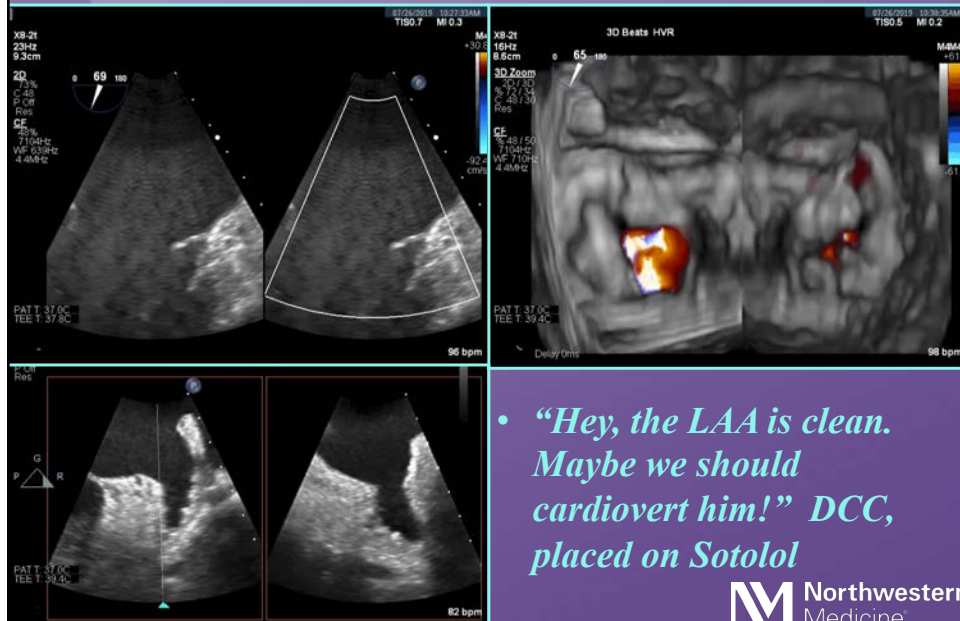
67yo Man Self-Referred for Second Opinion

- 2014: Routine echo with trivial MR
- 2016: Onset AF; echo showed mild-moderate MR, mild LAE; DCC, but reverted to AF 2 weeks later \Rightarrow rate control
- 2018: severe LAE (55 mL/m²) with moderate MR (ROA 0.3 cm²)



20

- 2019: More short of breath, TEE to assess MR: ROA 0.4 cm² in broad jet, severe LAE, suitable for MitraClip

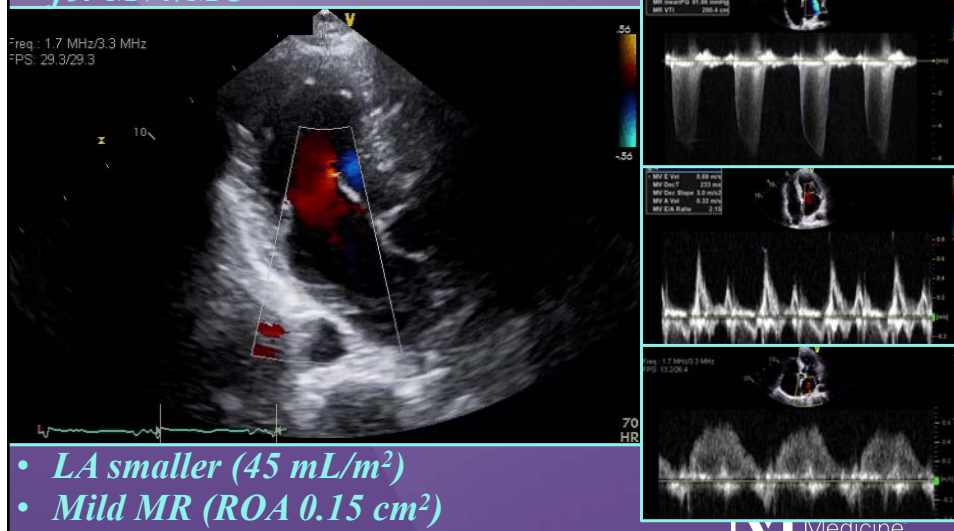


21

- 3 weeks later: Remains in NSR though with palpitations before afternoon sotalol dose. Overall feeling better.
- Self-referred to Northwestern for second opinion on need for MVr/MC

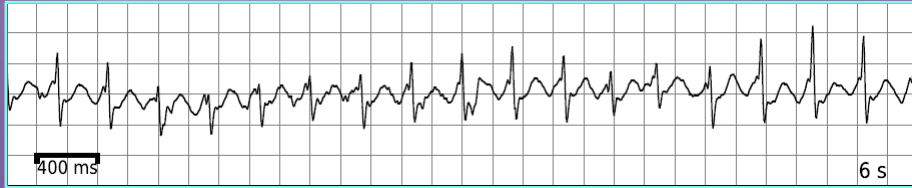
22

- 3 weeks later: Remains in NSR though with palpitations before afternoon sotalol dose. Overall feeling better.
- Self-referred to Northwestern for second opinion on need for MVr/MC



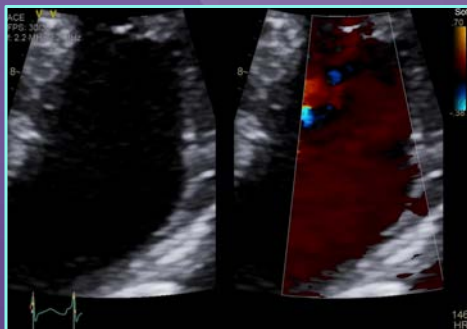
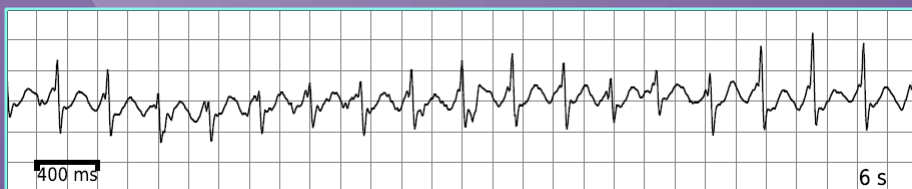
23

- *Scheduled for an exercise echo later that afternoon*
- *Remember those palpitations he reported before PM sotalol dose???*



24

- *Scheduled for an exercise echo later that afternoon*
- *Remember those palpitations he reported before PM sotalol dose???*



- *And the MR was worse!*
- *Figured he needed more sotalol, not cold hard steel*

25

Atrial Functional Mitral Regurgitation

JACC Review Topic of the Week

Sébastien Deferm, MD,^{a,b} Philippe B. Bertrand, MD, PhD,^{a,b} Frederik H. Verbrugge, MD, PhD,^{a,b} David Verhaert, MD,^a Filip Rega, MD, PhD,^c James D. Thomas, MD,^d Pieter M. Vandervoort, MD^{a,b}

CENTRAL ILLUSTRATION Secondary Mitral Regurgitation Versus Atrial Functional Mitral Regurgitation

Secondary Mitral Regurgitation	Atrial Functional Mitral Regurgitation
<p>Closing Force</p> <ul style="list-style-type: none"> ↓ LV contractility ↑ LA pressure ↓ Atrial contraction <p>Tethering Force</p> <ul style="list-style-type: none"> ↓ LV dilation = y-tension ↓ Mitral annular annuloplasty ↑ Mitral annular annuloplasty <p>Eccentric MR jet</p>	<p>Closing Force</p> <ul style="list-style-type: none"> ↓ LA pressure ↓ Atrial contraction <p>Leaflet Malcoaptation</p> <ul style="list-style-type: none"> ↑ Mitral annular annuloplasty ↓ Mitral annular annuloplasty ↑ Mitral annular annuloplasty ↓ Mitral annular annuloplasty <p>Central MR jet</p>
<p>Etiology and Prevalence</p> <ul style="list-style-type: none"> • 17%–59% post myocardial infarction • >50% in dilated cardiomyopathy 	<ul style="list-style-type: none"> • 6%–7% in lone AF • Up to 53% in HFpEF
<p>Diagnosis</p> <ul style="list-style-type: none"> • Systolic LV dysfunction • Restricted leaflet motion and tethering • Eccentric jet > central jet • Relative LA dilation 	<ul style="list-style-type: none"> • Normal systolic LV function • Normal leaflet motion • Central jet • Severe LA dilation
<p>Management</p> <ul style="list-style-type: none"> • Optimal HF therapy • Cardiac resynchronization therapy • Revascularization • MitraClip 	<ul style="list-style-type: none"> • Address AF/HFpEF risk factors and lifestyle • HF therapy, diuretics as indicated • Early sinus restoration strategy • Intervention, annuloplasty, MitraClip

Deferm, S, et al. J Am Coll Cardiol. 2019;73(26):3465–76.

AF = atrial fibrillation; HF = heart failure; HFpEF = heart failure with preserved ejection fraction; LA = left atrium; LV = left ventricle; MR = mitral regurgitation; MR = mitral regurgitation.

FIGURE 1 Echocardiographic Comparison of Secondary MR in the Context of LV Disease, Opposed to Atrial Functional MR

SECONDARY MR

ATRIAL FUNCTIONAL MR

Subtotal or leaflet tethering with eccentric mitral regurgitation (MR) jet in secondary MR (left) and excessive left atrial dilation with central MR jet in atrial functional MR (right).

```

graph TD
    HFpEF --> LV_dilatation[LV dilatation dysfunction]
    LV_dilatation --> Atrial_fibrillation[Atrial fibrillation]
    HFpEF --> Atrial_fibrillation
    Atrial_fibrillation --> LA_dilation[LA dilation]
    LA_dilation --> Aneurysmal_dilation[Aneurysmal dilation]
    Aneurysmal_dilation --> Atrial_functional_MR[Atrial functional MR]
    
```

western
line

26

Many thanks!

27