What’s the Plan, Stan?

Matthew W Parker, MD
University of Massachusetts Medical center
The Patient

81M, told he had severe mitral regurgitation several years ago when he has his first episode of atrial fibrillation, but had been reluctant to undergo surgery for fear of stroke. Now with decreasing exercise capacity and two hospitalizations for heart failure requiring IV diuresis in the past year.

PMHx significant for MR, mild-mod pulmonary hypertension, worsening TR and deteriorating RV function; stroke 10 years ago without persistent defects; COPD not on oxygen; sustained an aortic transection repaired in the 1980s
PISA Radius 1.2-1.3 cm at 36 cm/s
ERO 0.5-0.6 cm² (+/- due to a-fib)
What is the degree of mitral regurgitation?
1. Mild
2. Moderate
3. Severe
4. Cannot determine
What’s the Plan?

• 81M severe symptomatic mitral regurgitation

• STS Risk for mitral valve replacement 4.6%

• Scheduled for MitraClip®
What is the cause of this patient’s mitral regurgitation?

1. Carpentier Type I (normal motion)
2. Carpentier Type II (excess motion)
3. Carpentier Type IIIa (systolic and diastolic restriction)
4. Carpentier Type IIIb (systolic restriction)
5. Carpentier Type IV (systolic anterior motion)

6. I’m not sure yet
Cause of the Mitral Regurgitation

Carpentier Classification of Mitral Regurgitation

Type I  Type II  Type IIIa  Type IIIb
Type I. Normal leaflet motion

Endocarditis with Perforation

Pure Annular Dilatation
- Infarct basal to the papillary muscle
- Left atrial enlargement

Cleft Mitral Valve

Type II. Excess leaflet motion

Ruptured Chord(s)
- Fibroelastic deficiency
- Endocarditis

Myxomatous Disease
- Prolapse
- Flail

Ruptured Papillary Muscle
Type II. Excess leaflet motion

Type IIIa. Restricted leaflet motion (systole and diastole)

- Rheumatic Disease
- Mitral annular calcification
- Fen-phen valvulopathy
Type IIIb. Restricted leaflet motion (systole only)

Tethering from infarcts affecting the lateral papillary muscle

“Type IV.” Systolic anterior motion

Hypertrophic Cardiomyopathy with obstruction

Hyperdynamic circulatory states

Extensive Anterior MI

Takotsubo Syndrome
Take-Away

• Mechanism of MR is just as important as severity

• Carpentier Classification provides a framework to describe a diseased mitral valve

• Percutaneous intervention is only successful when echo can show interventional colleagues the plan