

## Mini AVR: Tailored Therapy





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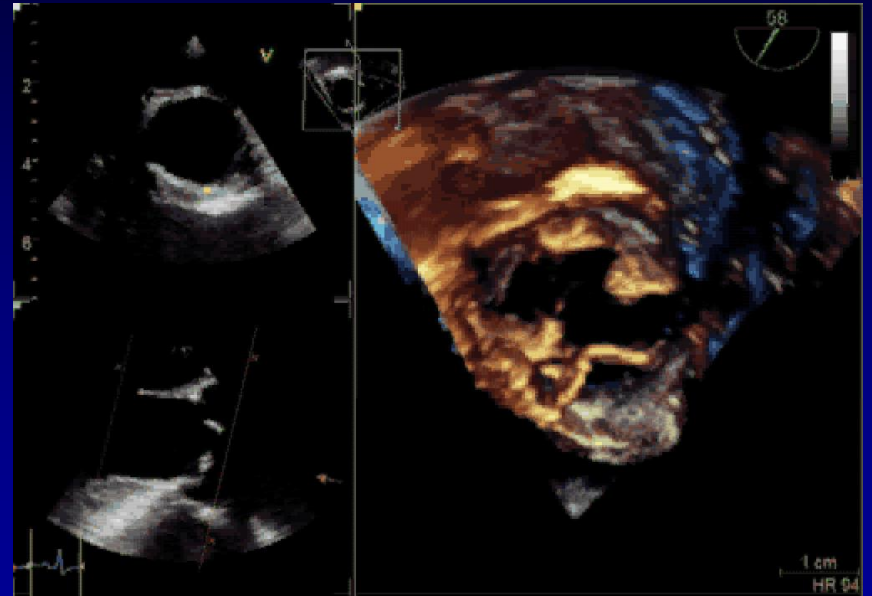
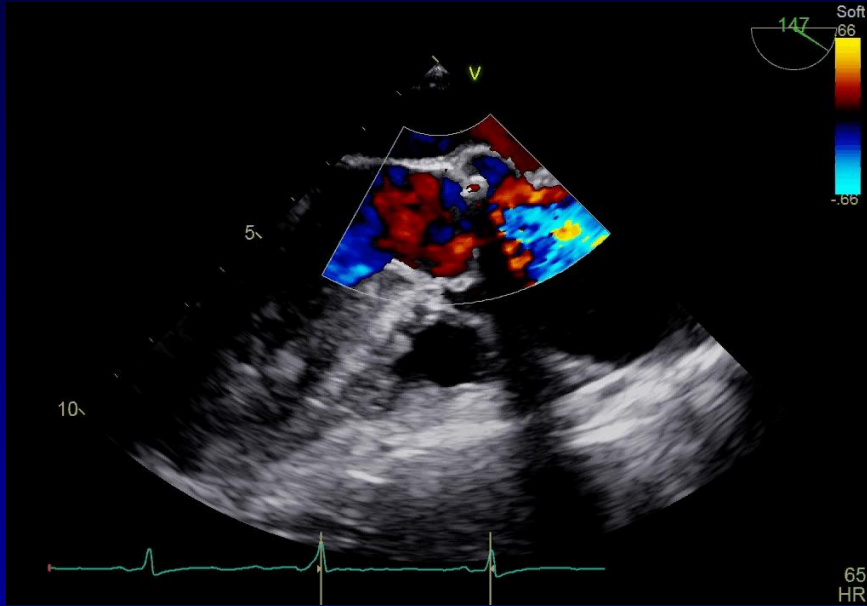
# Disclosures

- **Abbott: consultant, honoraria**
- **Jace Medical: royalties**
- **Edwards Lifesciences: Site Principal Investigator, educational honoraria**
- **Cryolife: Scientific Advisory Board**
- **LivaNova: Consultant, educational honoraria**

# Clinical Case

- **55 yo F research nurse with Bicuspid AV**
  - **AS with fatigue, decreased exercise tolerance**
  - **No overt symptoms**
  - **Echo gradients 67/43**
  - **Ascending aorta 4.3 cm by echo**

# Pre-op Echo



# Aortic Morphology

Age: 54, F  
 Se: 9  
 12/11/2017 1:01 PM  
 Kern: FC03  
 CTA\SEGMENT\Sagittal  
 C:ISOVUE 370 75CC

H

IMPORT\_INST  
 Aquilion ONE  
 IMPORT\_STAT ION  
 512x512  
 MPR  
 Filter:None



A

5mm/div

P

%R-R: 75



FOV: 320.31 mm  
 HELICAL\_CT  
 100 kV  
 540 mA  
 Tilt: 0.00  
 LAO 61: CRA 0  
 No: 1



F

5mm/div

TE RARE CON  
 W: 6 00 L: 80

Age: 54, F  
 Se: 7  
 12/11/2017 1:01 PM  
 Kern: FC03  
 CTA\SEGMENT\Axial  
 C:ISOVUE 370 75CC

H

IMPORT\_INST  
 Aquilion ONE  
 IMPORT\_STAT ION  
 512x512  
 3D VR  
 Slab: 58.59 mm



A

5mm/div

P

%R-R: 75



FOV: 320.31 mm  
 HELICAL\_CT  
 100 kV  
 540 mA  
 Tilt: 0.00  
 LAO 63: CRA 12  
 No: 2



F

5mm/div

TE RARE CON  
 W: 5 30 L: 385

# Bicuspid Valve and Aortopathy

- Bicuspid valve 0.5-2%
- Aortopathy in 35-80% of bicuspid patients

Della Corte et al., *EJCTS* 2007

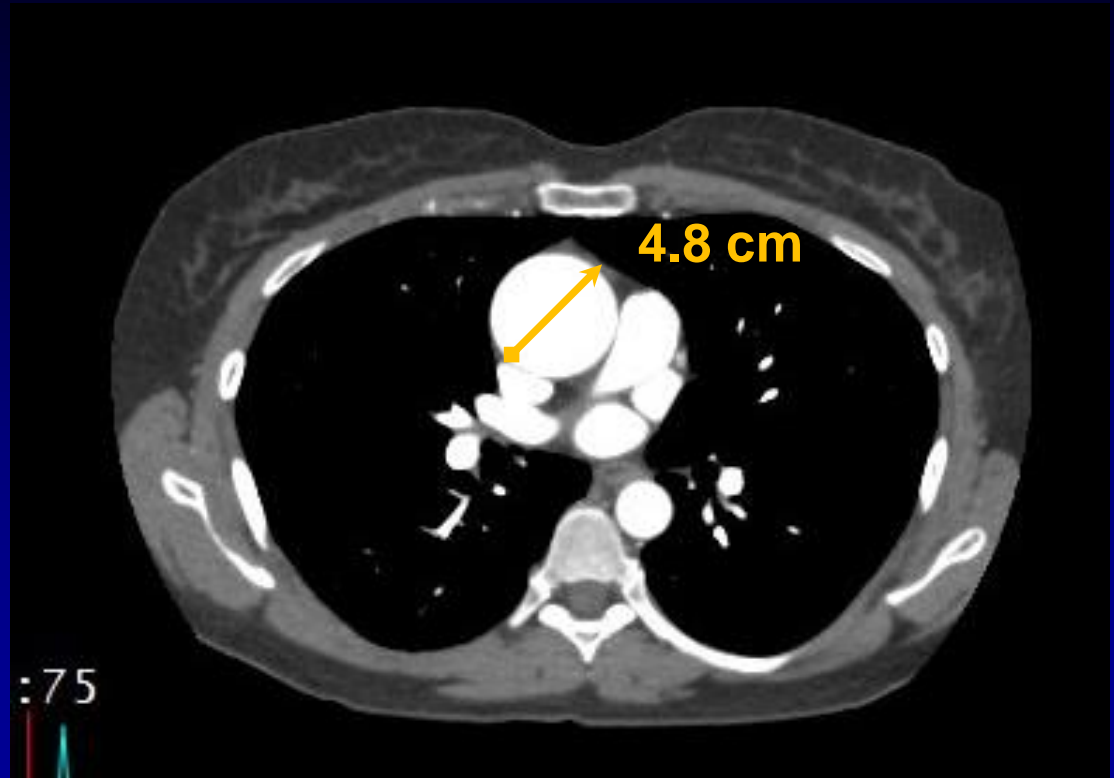


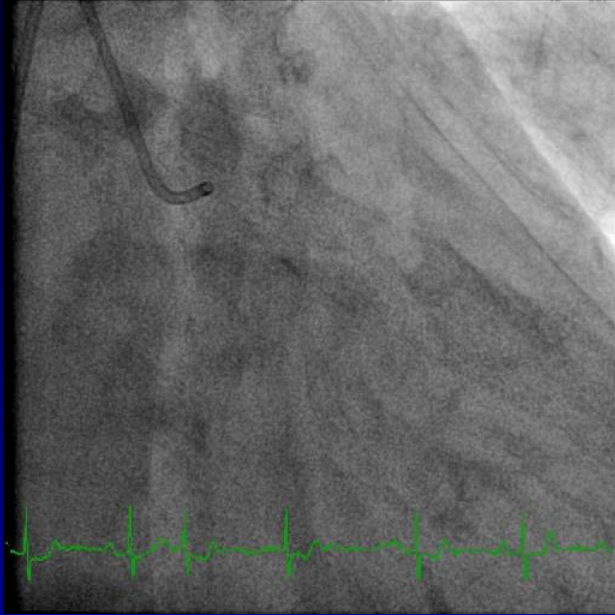


# Aorta

4.8 cm Aorta

Area to height ratio





**What approach?**

# Strategy

## Goal: Durability

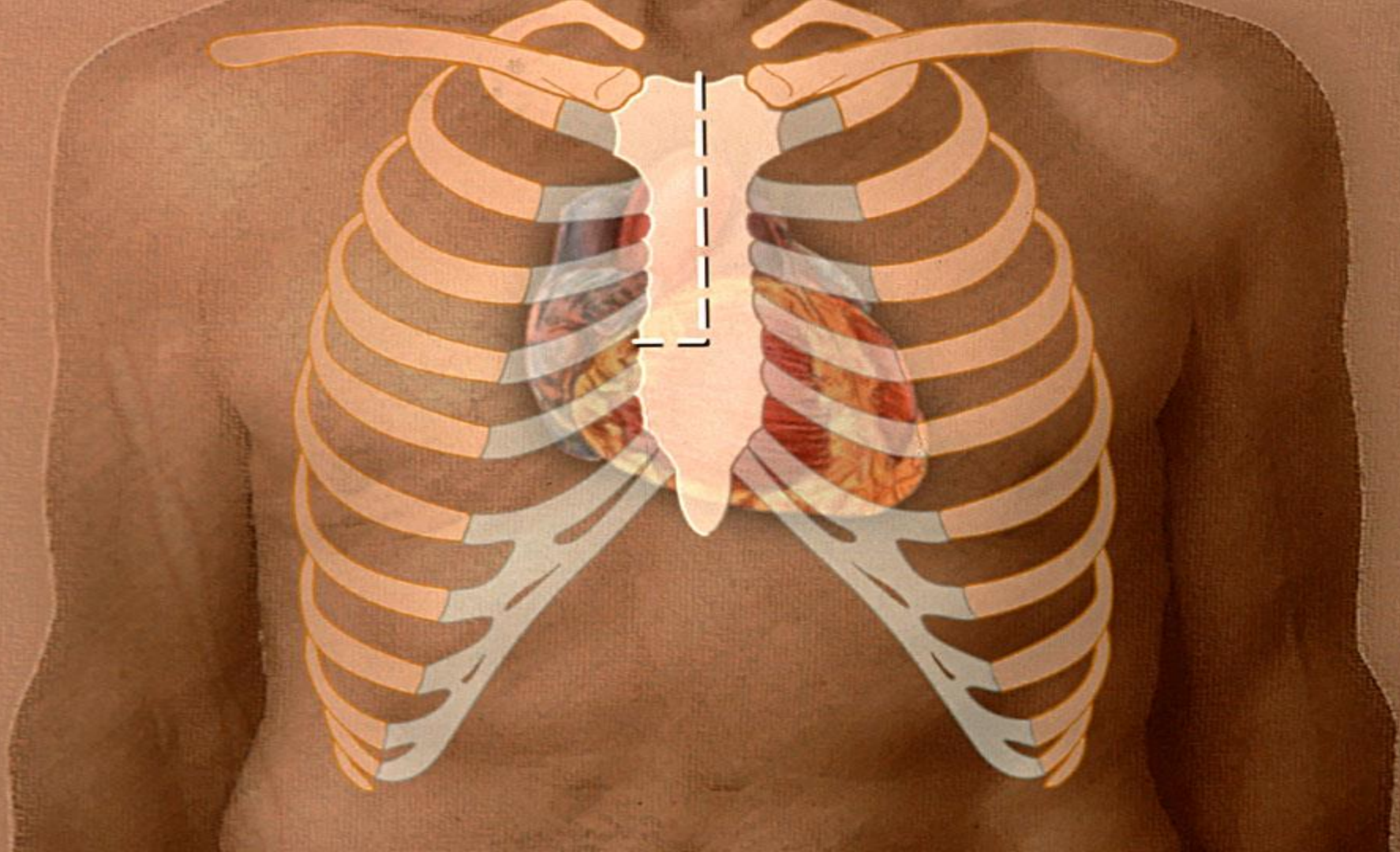
- Valve
- Aorta

## Considerations

- Repair
- Replace
- Root
- Sinotubular junction
- Ascending
- Arch

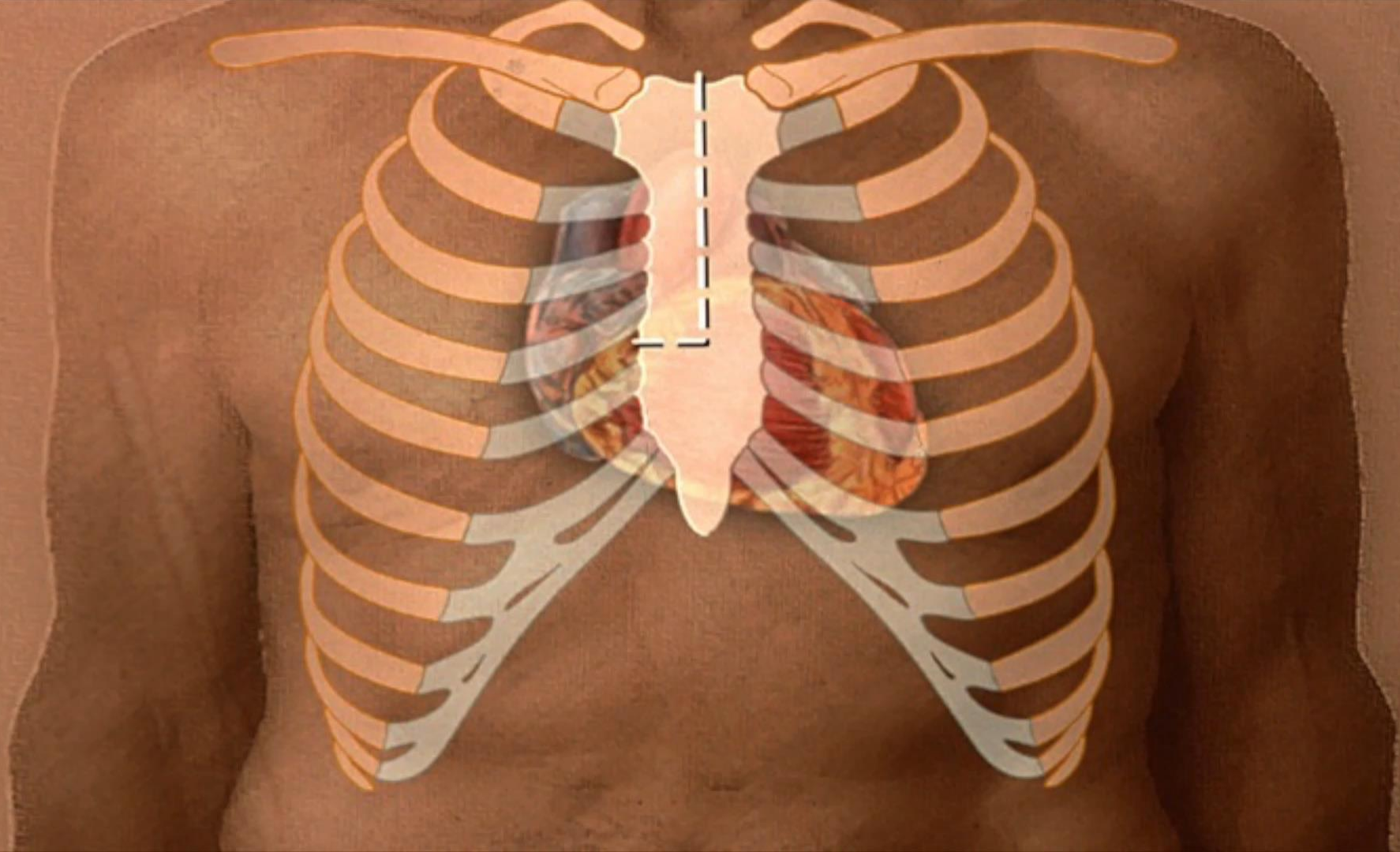


**Lifestyle!**





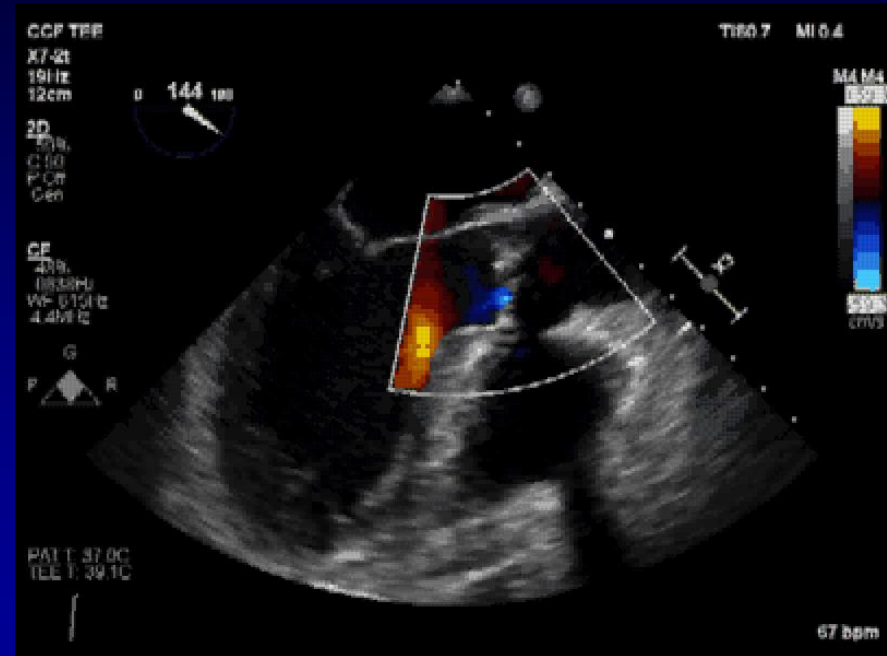
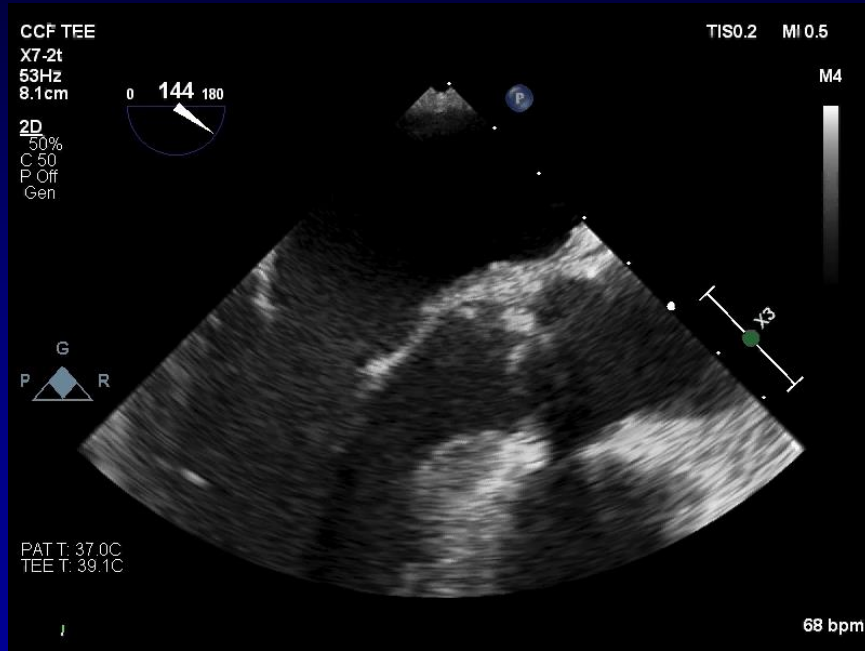




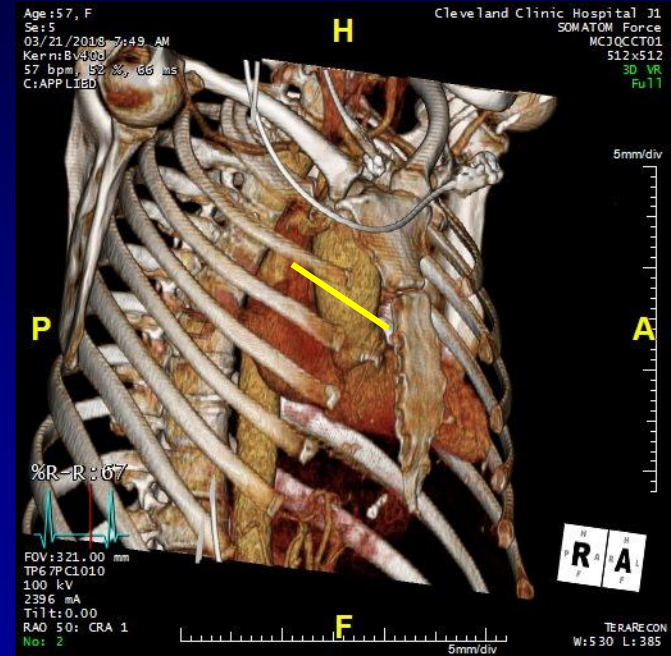
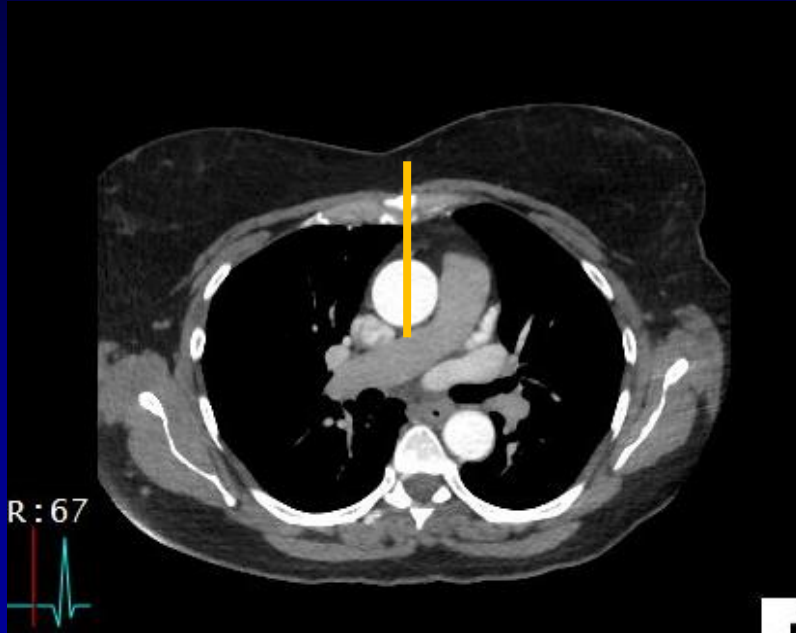
# Case 2

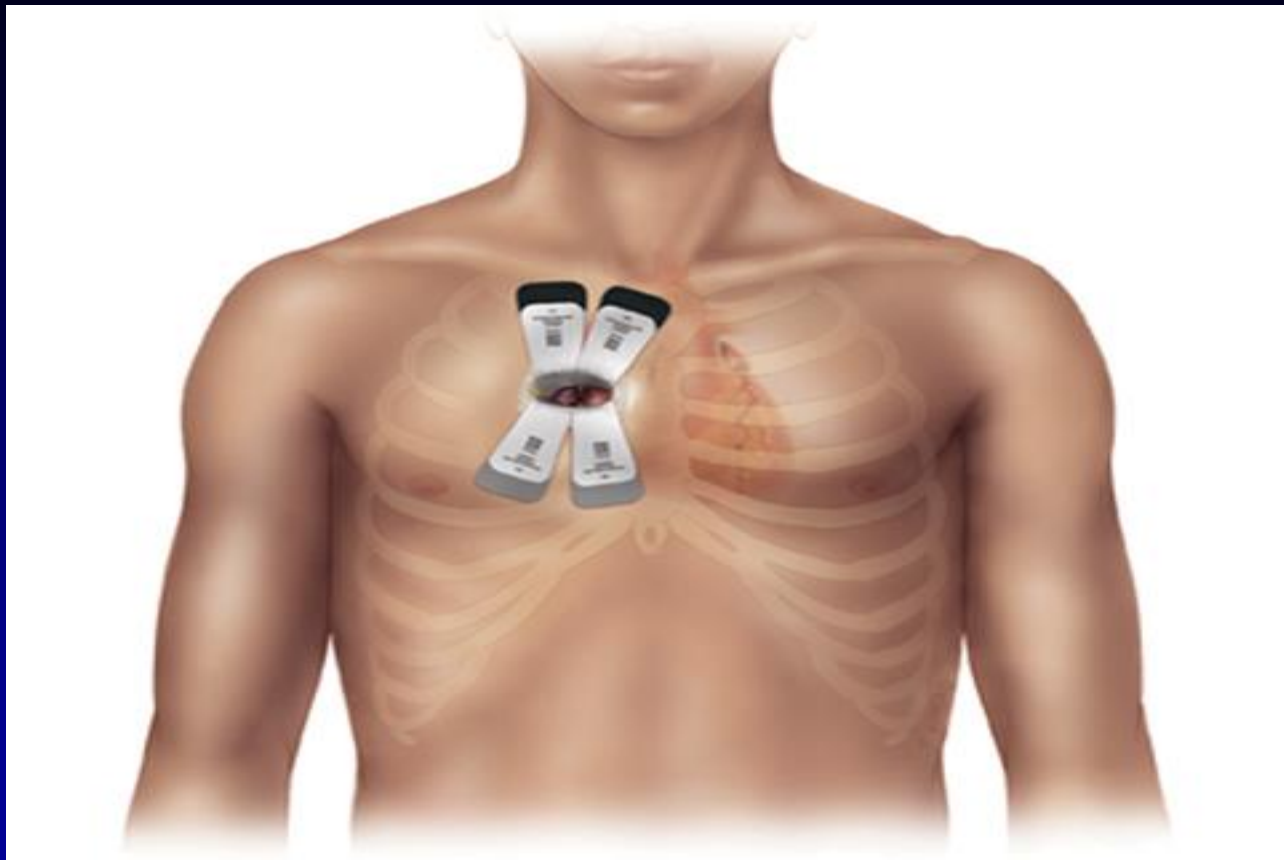
- **57 F with 20 year hx “heart murmur”**
  - **Exertional chest pain with hills**
  - **Outside echo mean grad 68 mmHg**
  - **Peak velocity 5.6 m/s**
  - **Elevated BNP**
  - **Normal coronaries**

# Pre echo

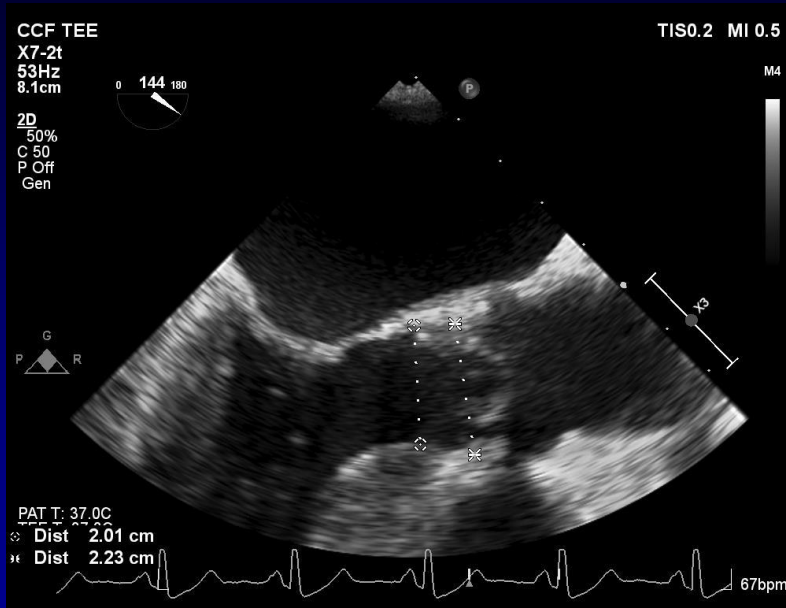


# Image guided approach

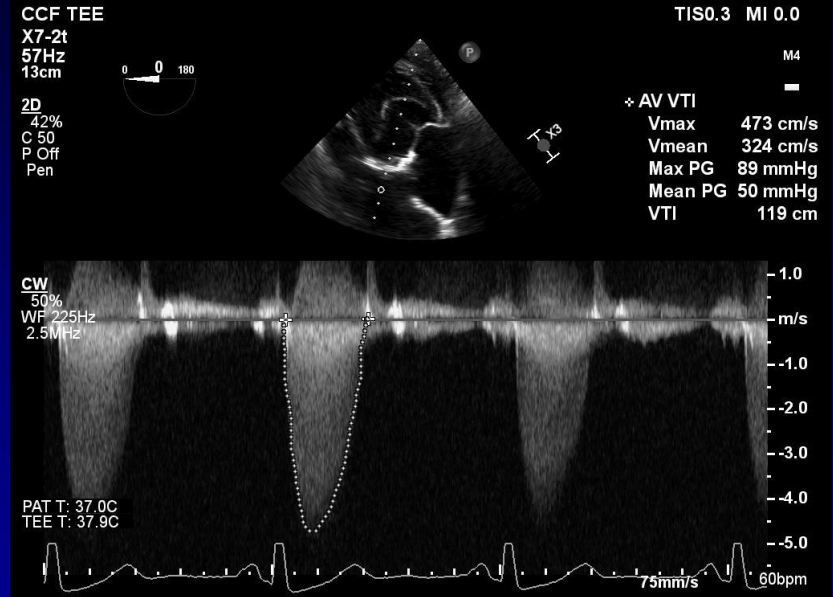




# TEE



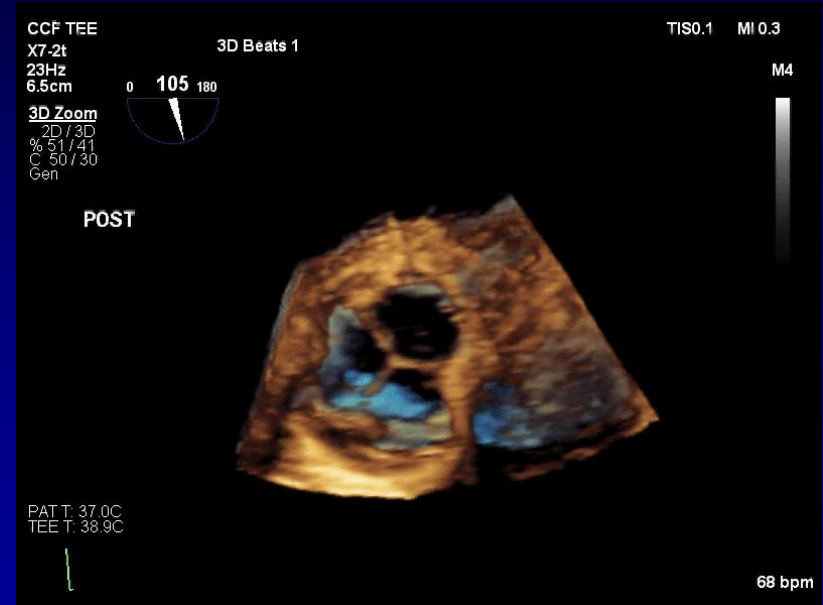
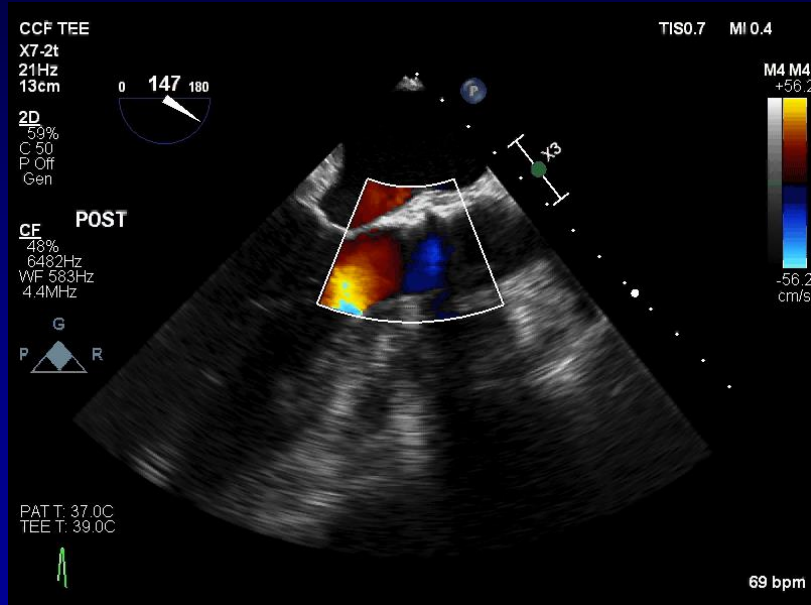
**Anulus 2.2 cm**  
**LVOT 2.0 cm**



**Peak 89 mmHG**  
**Mean 50 mm Hg**



# Post implant 23 mm





# Operative planning

**Bentall, Valve sparing root, arch**

**Sternotomy**

**Ascending +/- AV procedure**

**J-incision**

**Valve repair or replacement**

**Mini thor**

# Outcomes of less invasive J-incision approach to aortic valve surgery

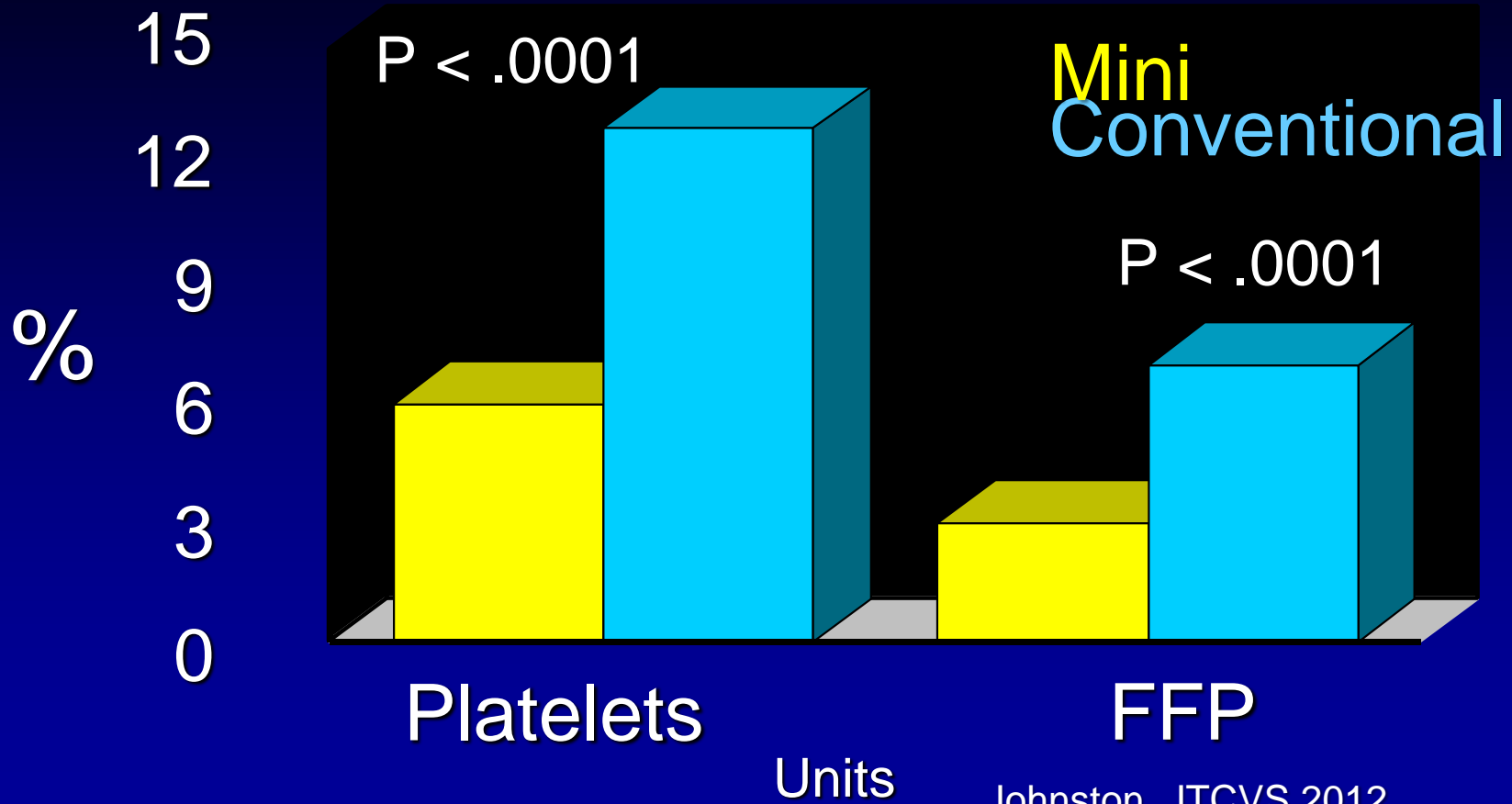
Douglas R. Johnston, MD,<sup>a</sup> Fernando A. Atik, MD,<sup>a</sup> Jeevanantham Rajeswaran, MSc,<sup>b</sup>  
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Tomislav Mihaljevic, MD,<sup>a</sup> A. Marc Gillinov, MD,<sup>a</sup> Bruce W. Lytle, MD,<sup>a</sup> and Lars G. Svensson, MD, PhD<sup>a</sup>

**2689 Patients**

**1995-2004**

**0.7 % Mortality**

# Blood Use: Matched



# Outcomes of a Less-Invasive Approach for Proximal Aortic Operations



Melissa M. Levack, MD, Muhammad Aftab, MD, Eric E. Roselli, MD, Douglas R. Johnston, MD, Edward G. Soltesz, MD, MPH, A. Marc Gillinov, MD, Gösta B. Pettersson, MD, PhD, Brian Griffin, MD, Richard Grimm, DO, Donald F. Hammer, MD, Adil H. Al Kindi, MD, MS, Turki B. Albacker, MD, MS, Edgardo Sepulveda, MD, Lucy Thuita, MS, Eugene H. Blackstone, MD, Joseph F. Sabik, III, MD, and Lars G. Svensson, MD, PhD

Department of Thoracic and Cardiovascular Surgery, Aorta Center, and Department of Cardiovascular Medicine, Heart and Vascular Institute, and Department of Quantitative Health Sciences, Research Institute, Cleveland Clinic, Cleveland, Ohio

## 483 J incision aortic repairs

## Zero Mortality



# Successful Use of Sternal-Sparing Minimally Invasive Surgery for Proximal Ascending Aortic Pathology

Joseph Lamelas, MD, Peter C. Chen, MD, Gabriel Loor, MD, and Angelo LaPietra, MD

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(Ann Thorac Surg 2018;106:742–9)

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**Mortality 3.2% !!!**

# Full Sternotomy, Hemisternotomy, and Minithoracotomy for Aortic Valve Surgery: Is There a Difference?

Elisa Mikus, MD, Simone Calvi, MD, Gianluca Campo, MD, Rita Pavasini, MD, Marco Paris, MD, Eliana Raviola, MD, Marco Panzavolta, MD, Alberto Tripodi, MD, Roberto Ferrari, MD, PhD, and Mauro Del Giglio, MD, PhD

Cardiothoracic and Vascular Department, Maria Cecilia Hospital, GVM Care & Research, Cotignola (RA); Cardiovascular Institute, Azienda Ospedaliero-Universitaria di Ferrara, Cona (FE); and Cardiovascular Department, Istituto Clinico San Rocco, Ome (BS), Italy

**Ann Thorac Surg 2018**

**No difference in mortality**

**Shorter ? Crossclamp times in RAT**

# **Patient focused strategy**

**Excellent surgical outcomes  
support normal patient lifestyle**

