

Cardiac Erosion: What Does It Mean by Aortic Rim Deficiency?

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Cardiac Erosion

- Rare complication of ASD device closure
- Seen with self centring, double disk devices
- Can have life threatening consequences
- Important to understand the mechanisms
- Prevent occurrence if possible

3 Publications

- Amin et al: Erosion of ASO device after closure of secundum ASD: Review of registry of complications and recommendations to minimize future risks (Cathet Cardiovasc Interv 2004; 63:496-502)
- Divekar et al: Cardiac perforation after device closure of ASD with ASO (JACC 2005; 45:1213-1218)

- Amin Z. Echocardiographic “predictors” of cardiac erosion after Amplatzer Septal Occluder placement (Cathet Cardiovasc Interven 2014; 83:84-92)

Cardiac Erosion

- Deficient aortic rim
- “Oversized” device
- Female gender
- Malalignment of the atrial septum
- Superior ASD
- Thin and friable posterior rim
- Tenting of transverse sinus

Why so much attention to DAR?

- Very commonly seen (85%)
- IFU was altered
 - DAR became a “relative contraindication”
- 85% of the eligible candidates can potentially sue

What constitutes an
“Aortic Rim?”

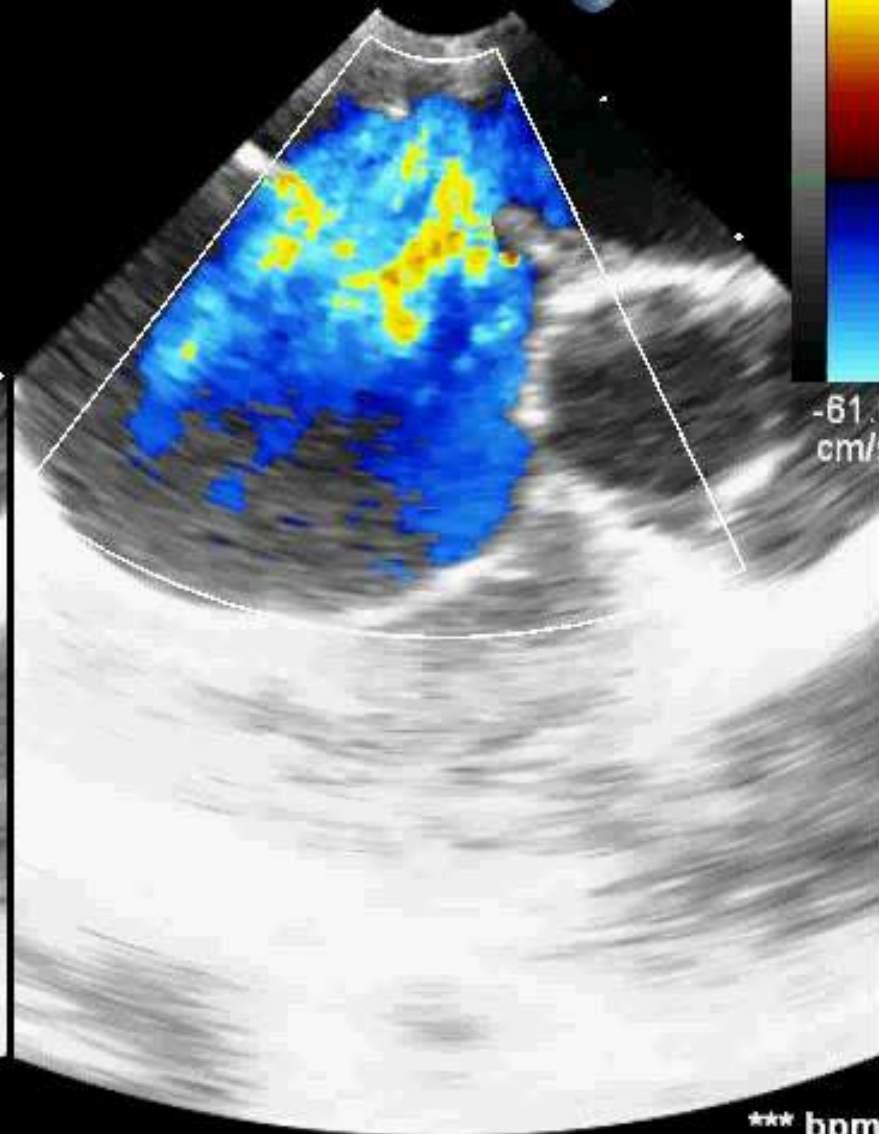
FR 23Hz
6.0cm

2D

74%
C 50
P Off
Gen

CF

59%
4.4MHz
WF High
Med



PAT T: 37.0C
TEE T: 40.4C

*** bpm

Anatomical Considerations

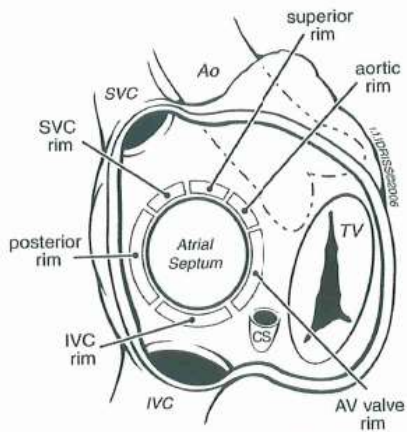
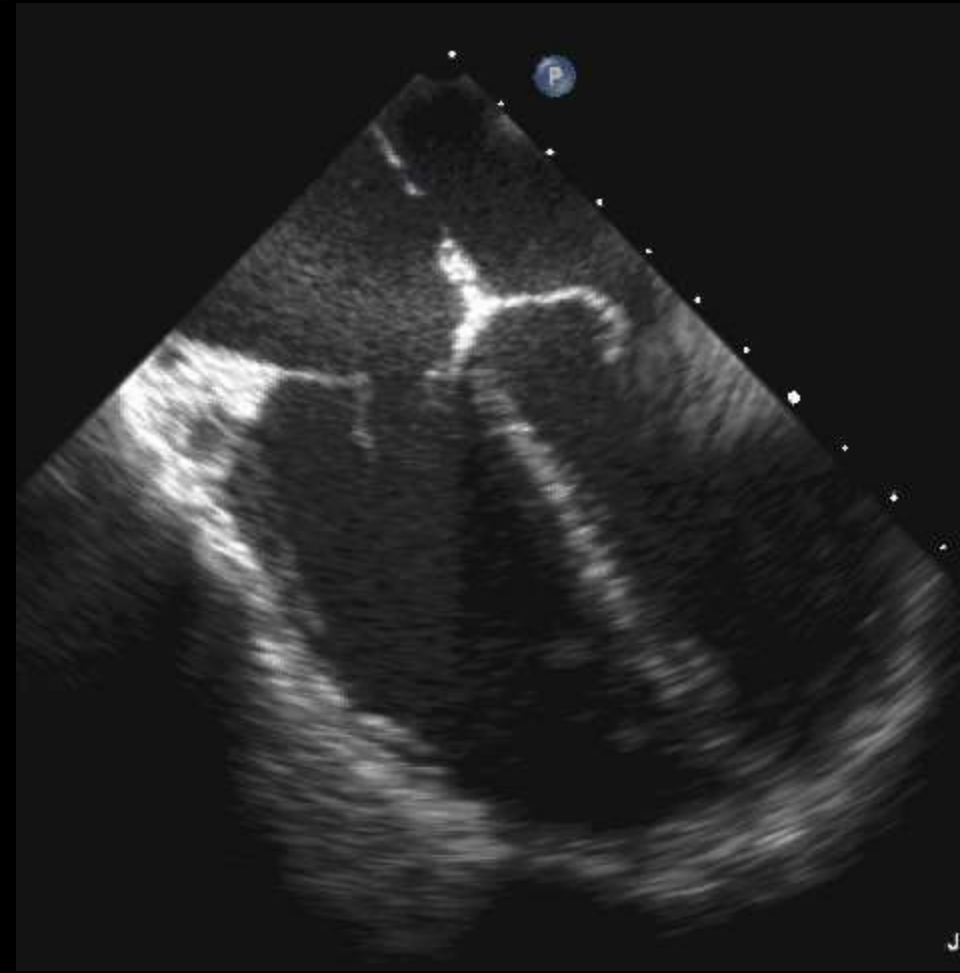
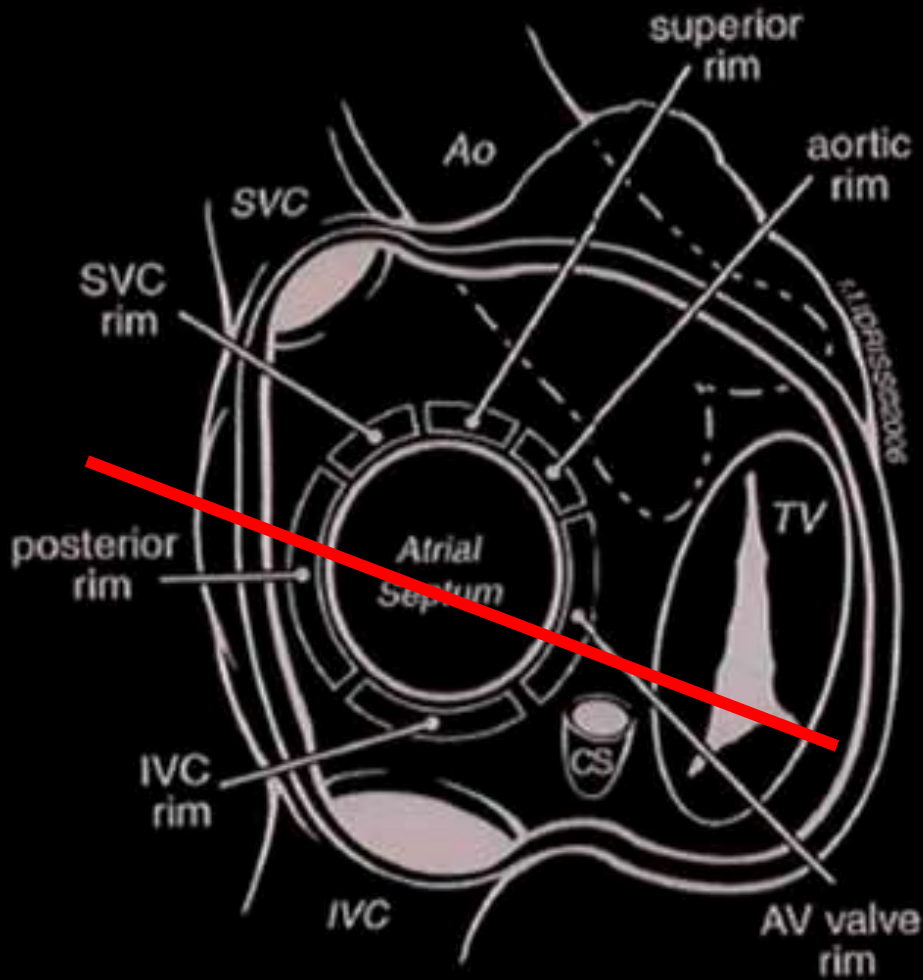


Fig. 1. Classification of atrial septal rims.



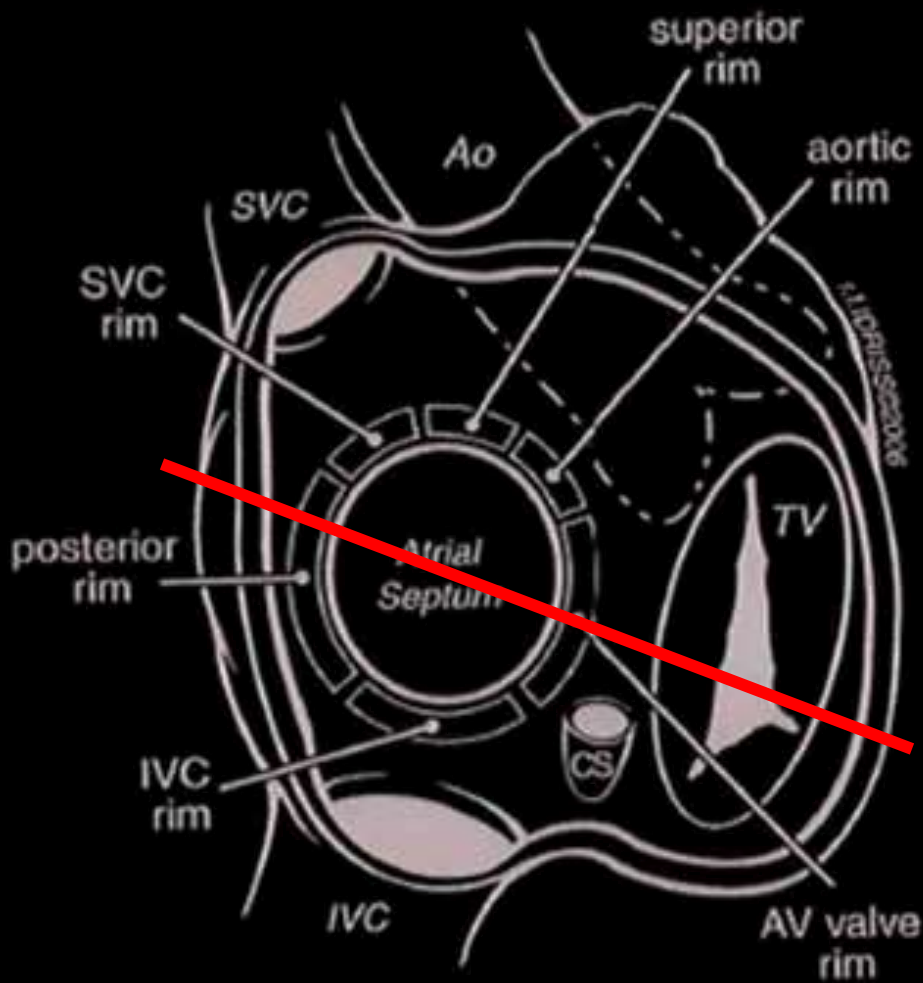
Courtesy: Prof Zahid Amin

TEE 0°

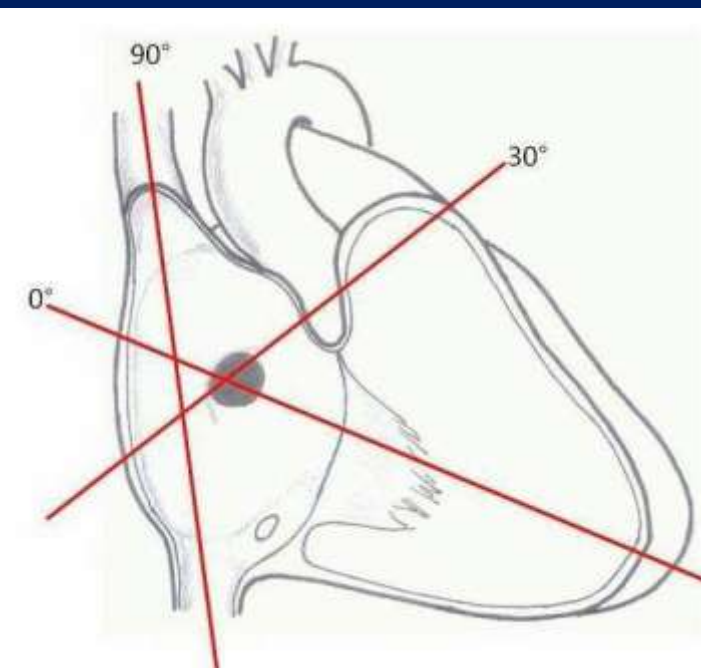


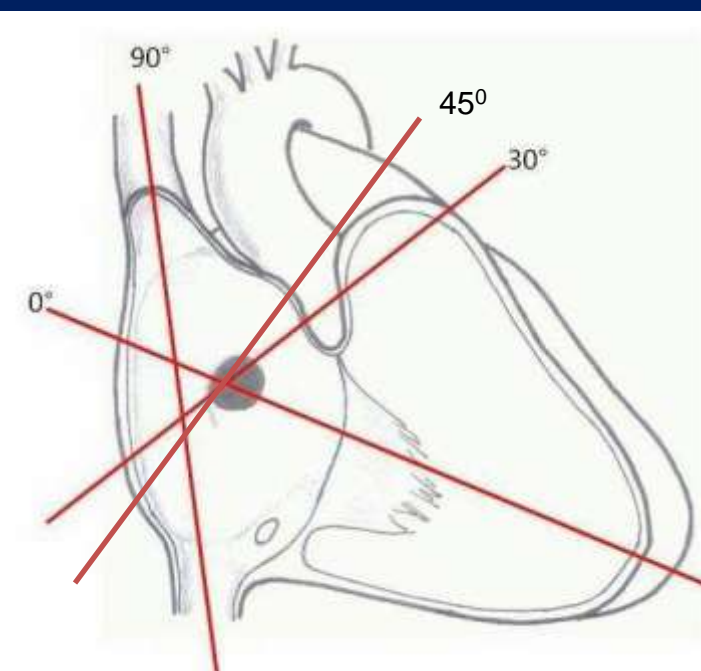
Courtesy: Prof Zahid Amin

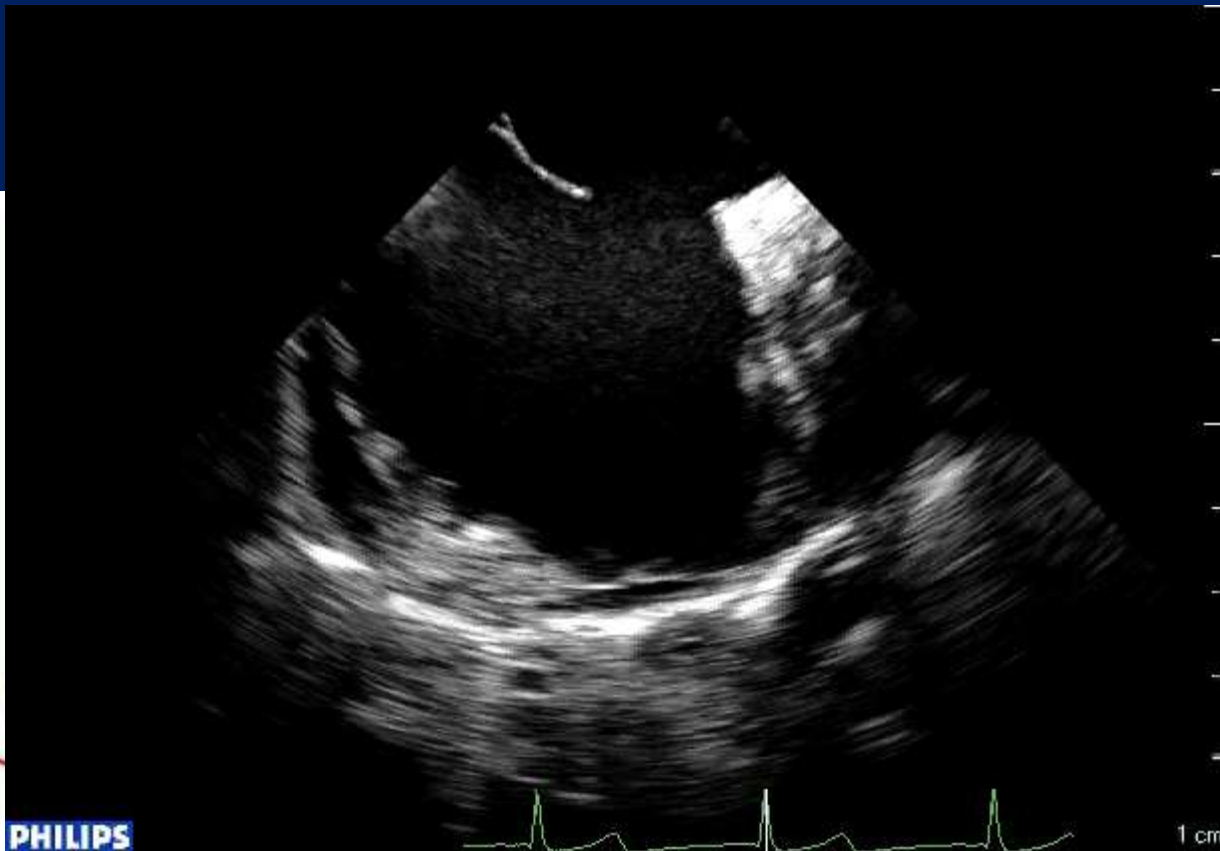
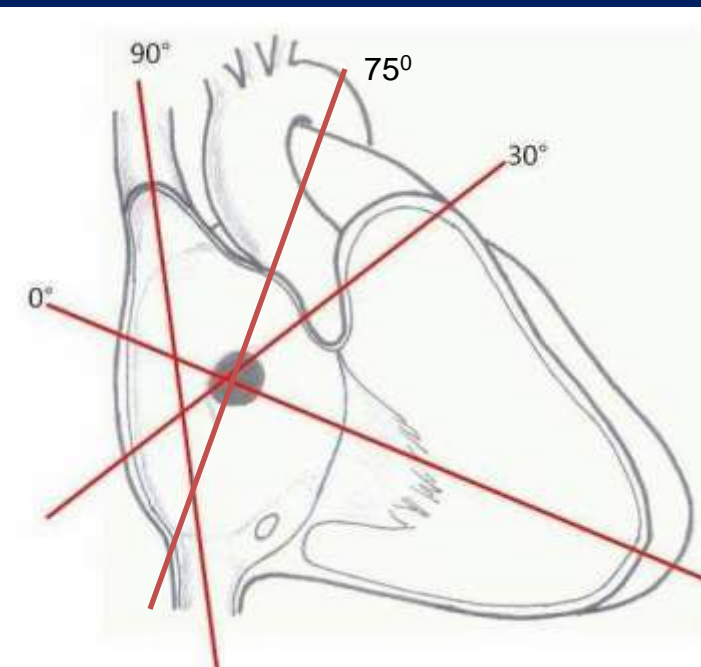
TEE 0° Superior



Courtesy: Prof Zahid Amin







What constitutes DAR?

- Rim < 5mm
- Not in one single plane
- Multiple planes
- Spanning > 30 to 40 degrees
- Relative contraindication
- Counselling accordingly

What did they observe?

- All erosions occurred at the dome of the atria
- Deficient aortic rim was seen in 89%

What did they infer?

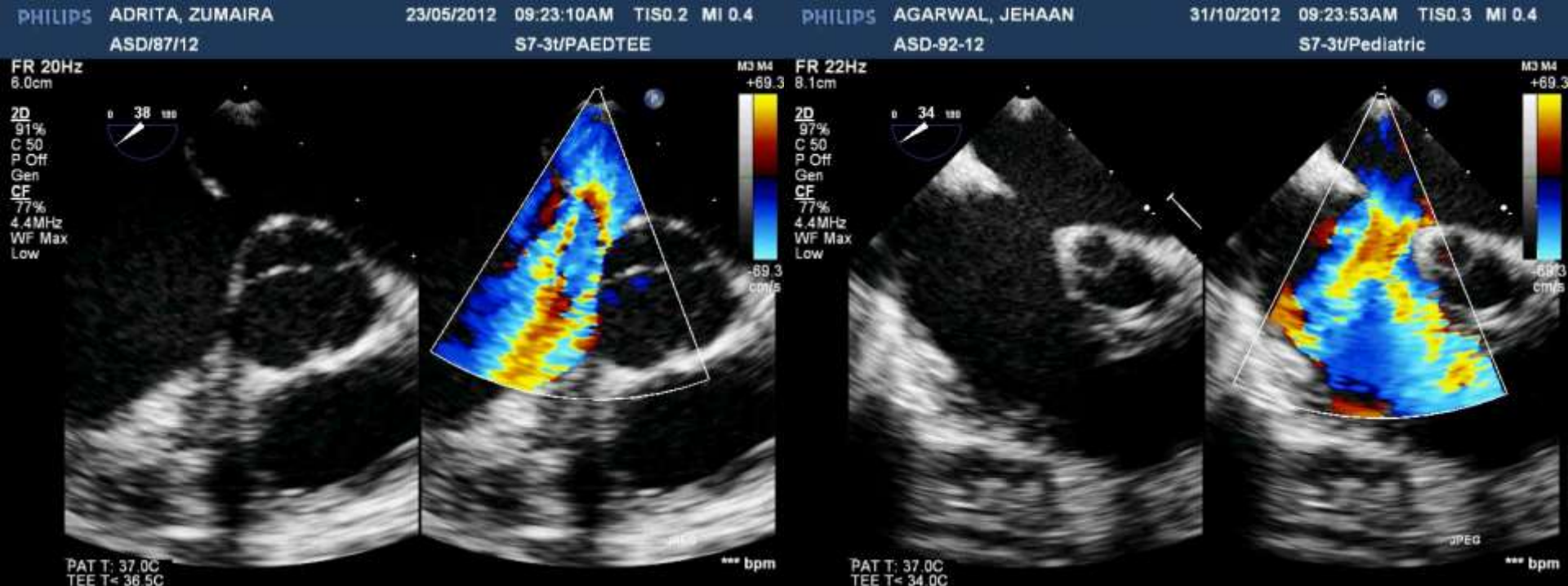
- Those with deficient aortic rim are prone to erosion

Why is this inference incorrect?

- There is no data on the aortic rim status in those who did not erode
- No test of statistical significance applied
- Why “5mm”?
- What happens with 6 or 7 mm?
- Why 30 to 40 degree deficiency?
- What happens with 20 or 25 degree?

Looking at numerator alone....!!

- In last 6 months we did 80 ASDs of which 72 had deficient aortic rim (90%)
- Our Stroke Unit
- 23/24 (96%) patients admitted with CVA were either bald or gray
- Baldness/graying are “predictors” of Stroke





Conclusion OR Confusion?

- What constitutes deficient aortic rim?
 - I do NOT think we have the answer
- Does deficient aortic rim cause erosion?
 - I am NOT sure (I don't think so)
- Should we stop closing ASDs with deficient aortic rims?
 - I do NOT believe we have the data (I continue to close)
- **COUNSELLING** patients and families