Echocardiography Conference

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Atrial Septal Aneurysm

• Bulging of Fossa Ovalis
• Associated commonly with Atrial septal defect or small perforations
  – Left to Right or Right to Left shunt
Diagnostic criteria for ASA

- Diameter of base of atrial septal aneurysm $\geq 15$mm
- Bulging of atrial septum $\geq 15$mm
- Motion of the septum during respiration $\geq 15$mm
Associated abnormalities

- **Cardiac**
  - Ascending aorta aneurysm
  - Elongated thoracic aorta
  - Pericardial effusion
  - Constrictive pericarditis
  - Tricuspid regurgitation
  - Redundant Eustacian Valve

- **Pulmonary**
  - Pulmonary embolism
  - Right pneumonectomy
  - COPD
  - ARDS
  - OSA

Zanchetta
SPARC Study

• Prevalence of ASA is 2.9% in general population
  – 7.9% in patients with cerebral ischemic events
• 56% of pts with ASA have a Patent Foramen Ovale (with Right-Left shunt)
• Paradoxic embolism is major mechanism of vascular events
Chest Guidelines

• 1% prevalence of ASA in autopsy studies
• 3-4% prevalence in TEE studies of non-stroke patients
• High incidence of PFO with ASA (70-83%)
• Anecdotal reports of thrombus in aneurysm
FIGURE 7–83. Apical four-chamber view recorded in a patient with an atrial septal aneurysm. Note the marked bulging of the atrial septum into the cavity of the left atrium (arrow). The right-hand panel is recorded after injection of saline contrast medium. Note the contrast medium has filled the right ventricular cavity, and there are numerous individual microbubbles seen in the cavity of both the left atrium and left ventricle, consistent with a right-to-left shunt through fenestrations in the atrial septal aneurysm. Abbreviations are as per previous figures.

Braunwald
Chest Guidelines

• Aspirin useful for primary prevention of CVA in patients with atrial septal aneurysm and/or PFO

• In patients with CVA and documented embolic source (DVT) + ASA/PFO with R-L shunt, coumadin recommended long term
Next case…
Apical 4 Chamber
Basal Short Axis
Diagnostic Features of Tamponade

• RA diastolic collapse
  – Occurs when intrapericardial pressure $\geq 4$
  – Common and early finding
  – High sensitivity, low specificity
  – Best seen on apical and subcostal view

• RV diastolic collapse
  – Occurs when intrapericardial pressure $\geq 6-8$
  – Occurs after RA compression
  – Lower sensitivity, but high specificity and negative predictive values
  – Best seen on parasternal long, short axis, and subcostal view
Doppler inflow patterns

• Mitral
  – During inspiration, decline of 30-50% of E and A velocities

• Tricuspid
  – During inspiration, increase of E wave (>35-80%) and A wave (>25-50%)
    • Normal variation is 10-25%
Pulmonary Hypertension

• RV Pressure overload
  – Flattened or curved septum during late systole and early diastole (D-shaped LV)

• RV Volume overload
  – D-shape LV seen during mid-diastole; during systole normal contour is seen
M-Mode of Mitral Valve
Mitral inflow doppler (Pressure Half time)
Aortic Regurgitation doppler (Pressure Half time)
References

- Deeb N. Salem, MD, FCCP, Chair; Denise Hartnett Daudelin, RN, MPH; Herbert J. Levine, MD; Stephen G. Pauker, MD; Mark H. Eckman, MD and Joshua Riff, BSc. Antithrombotic Therapy in Valvular Heart Disease. *Chest*. 2001;119:207S-219S.