DEVICE CLOSURE OF CONGENITAL SINUS OF VALSALVA ANEURYSM RUPTURE

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Case History

- 18yr Male
- Recurrent episodes of LRTI since two months of age – three to four episodes per year
- Breathlessness on exertion for 13 years
- Syncope, two episodes – one year back & one month back
- On examination, wide pulse pressure & continuous murmur with thrill in left parasternal area
Preoperative ECG
Echocardiography - RSOV to RV

Para-Sternal Short axis (Basal)  
Para-Sternal Long axis
Trans-Esophageal echocardiography

Basal view (at Aortic Valve)  Color flow doppler
Trans-Esophageal echocardiography

Long axis view
Catheterization study

- Lt 6F Femoral Arterial and Rt 7F Femoral Venous sheaths

- $O_2$ Saturation- Step up of 11% in RV
  
  (RA- 64%; RV- 75%; Aorta- 98%)

- Significant Left to Right shunt (>2:1)
Aortic root angiogram showing rupture of sinus of Valsalva into RV- 6mm at aortic end
Access:
Left femoral artery 6 F sheath
Right Femoral Vein 7 F sheath
Judkins Right 6F from Lt Femoral arterial route, 0.035” 260 cms J tipped Terumo wire passed across Rt aortic sinus into RV
Snaring with 10 mm Goose neck snare from Rt Femoral vein- forming an Arterio-venous rail
Snaring with 10 mm Goose neck snare from Rt Femoral vein- forming an Arterio-venous rail
Exchanged with 0.035” Amplatzer Stiff wire
8Fr delivery sheath for device
10/12 PDA duct occluder device deployed
Aorta retention disc first
Check Aortic root angiogram after 10-15 min retention disc of the device released
Post-Operative Course - Uneventful
24 hrs ICU observation

- Antibiotic prophylaxis for 6 months
- Post-op on Ecospirin 75 mg OD
- 0.15-1.5% of cardiac surgeries correspond to SVA repair
- five times higher in Asian countries
- Male predominance (4:1), Average age- 39 yrs
- Location: Right Coronary sinus (65-86%), Noncoronary sinus (10-30%), Left sinus (2-5%)
- Rupture of a SVA- RV (60%), RA (29%), LA (6%), LV (4%) or pericardium (1%)
- Untreated ruptured SVA, Average survival - 3.9 yrs after diagnosis

Cir Ciruj 2009;77:441-445
Sakakibara and Konno Classification

- Type I - Right SV & existing tract of RV below pulmonary valve
- Type II - Right SV into the supraventricularis crest
- Type IIIa - Right SV & RA
- Type IIIv - Posterior zone of right SV & RV
- Type IIIa+v - Right SV & both RA and RV
- Type IV - Noncoronary SV & RA

Cardiac Surg Ann 2006;9:165-176
Stand-Out Points of this case

- Relatively rare, life threatening Congenital anomaly
- Emphasis on History & Clinical examination in Atypical Presentation of congenital RSOV
- Transcatheter closure of RSOV safe and feasible
- Keep a watch on the distance of coronary artery from the defect and Aortic regurgitation due to impingement on AV
- Non Coronary sinus defects easier for device closure
Percutaneous closure of ruptured sinus Valsalva aneurysm (RSVA) was first attempted by Cullen et al in 1994 using a Rashkind umbrella. Coils in small connections. Limited to case reports and case series.