

Atrioventricular septal defect (AVSD)

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Imperial College London

www.rbht.nhs.uk/Morphology

Royal Brompton & Harefield

AtrioVentricular Septal Defect

(Atrioventricular canal defect, endocardial cushion defect, ostium primum ASD)

A Group of Malformations unified by -

- Common AV Junction
- Together with biventricular AV Connections (2 atria, each connected to its own ventricle)



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AVSD: the AV junction



Normal heart (figure of 8)



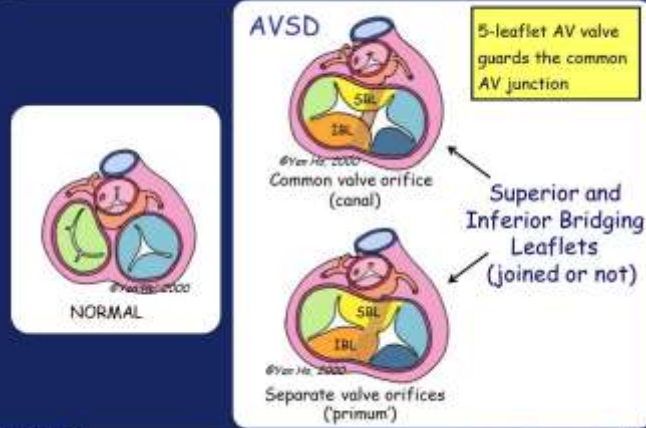
AVSD

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AVSD

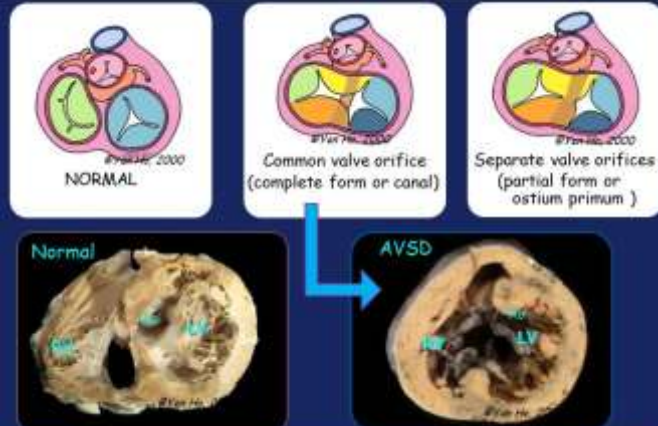


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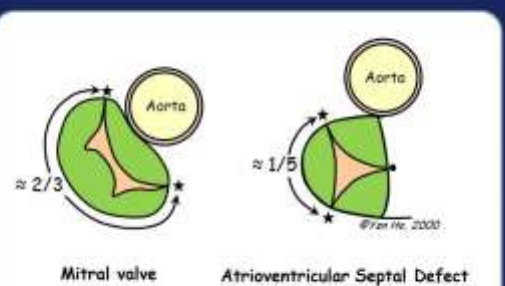
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AVSD: left AV valve

Circumferential proportion of left mural leaflet



Not a mitral valve!

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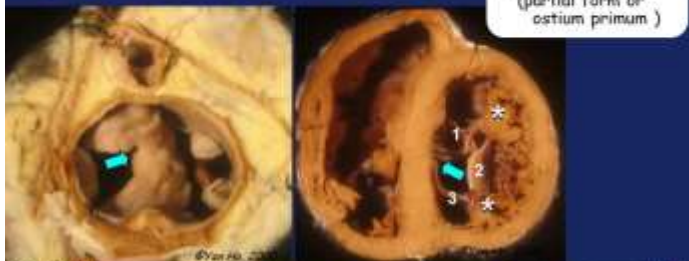
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AVSD: left AV valve

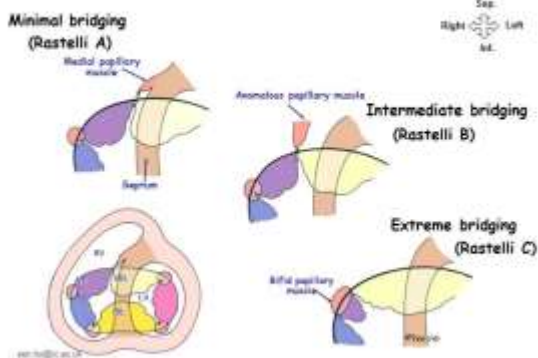
'cleft': zone of apposition

- 3-leaflet left AV valve
- Sup-inf papillary muscles *

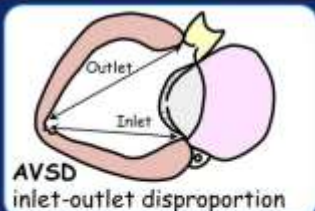


AVSD: superior bridging leaflet

How much of the superior bridging leaflet (SBL) inserts into the RV?

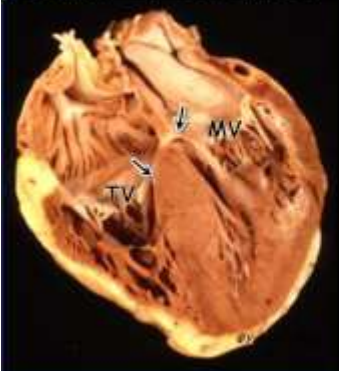


AVSD: Outflow tract 2-chamber view

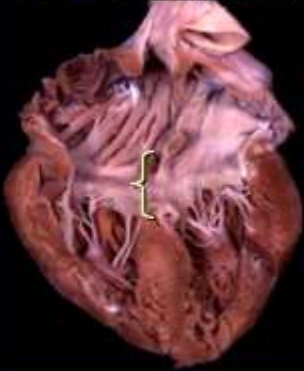


AVSD: Inflows: 4-chamber view

Normal TV-MV offset



AVSD Loss of offset



AVSD: level of shunting

Bridging leaflets attached to ventricular septum

Floating bridging leaflets

Bridging leaflets attached to atrial septum

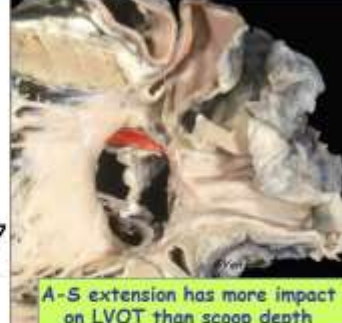
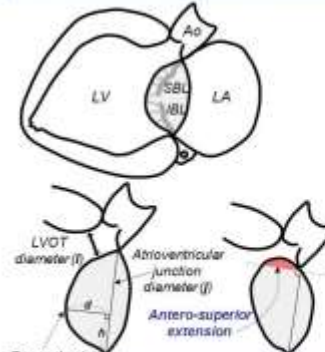


Interatrial ('ostium primum ASD', partial / incomplete AVSD)

Interatrial & Interventricular (complete AVSD / canal) (transitional / intermediate)

Interventricular (VSD component only)

AVSD: LVOT



16 / 31 hearts with complete AVSD
Adachi, Ho, McCarthy, Uemura. Ventricular scoop in atrioventricular septal defects. Ann Thorac Surg 2009;87:198-203

Indexed values	
•Depth: $d/D \times 100$ (%)	
•Height: $h/D \times 100$ (%)	
•LVOT diameter: $h/D \times 100$ (%)	

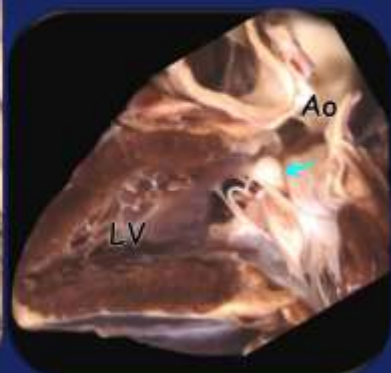
AVSD: Associated anomalies

- Right ventricular outflow obstruction
 - tetralogy of Fallot
- Left ventricular outflow obstruction
- Isomeric arrangement of atrial appendages
 - Right isomerism: usually common AV valve orifice
 - Left isomerism: usually separate AV valve orifices
- left-hand ventricular topology ('ventricular inversion')
- Others.....valvar anomalies, coarct., etc
- Chamber disproportion
- Deviation of ventricular or atrial septum

AVSD: LVOTO



Fibrous tags, aneurysm

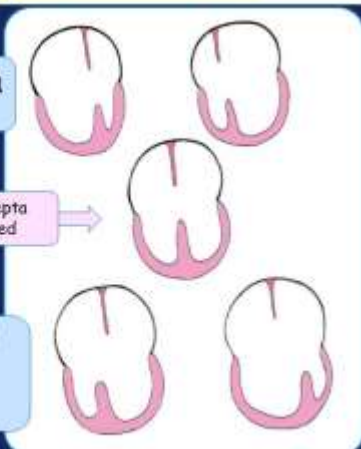


AVSD: Unbalanced

Aligned septa & unbalanced

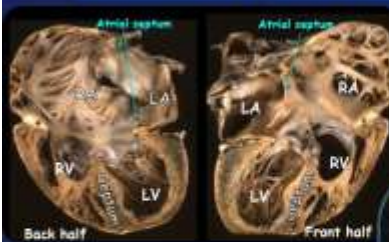
Aligned septa & balanced

Malaligned septa & unbalanced



septa malaligned: unbalanced atria, balanced ventricles

Dominant right atrium: partial AVSD



Double outlet right atrium

Van Mierop LHS. 1977



AVSD without septal defect



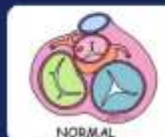
AVSD

Constants

- Biventricular AV connections
- Common atrioventricular junction
- Inlet-Outlet disproportion

Tips:

- Hole in the middle of heart on 4-chamber plane & lack of offset between right and left AV valves (no TV or MV)
- 3-leaflet left AV valve on short axis (not MV)



NORMAL



Common valvar orifice



Separate valve orifices

Thank you