

The segmental approach to logical diagnosis. Simple shunt  
lesions-diagnosis and imaging of interventions  
***Ventricular Septal Defect-Anatomy***

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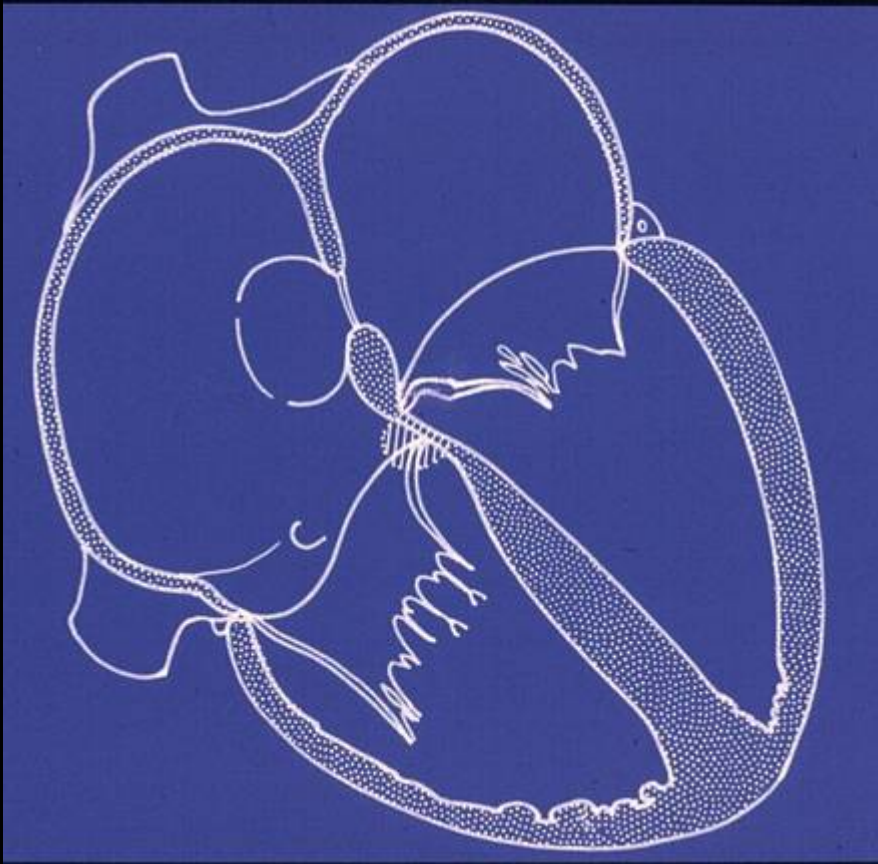
***Euroecho 9***

Florence, December 7-10, 2005



# Ventricular Septal Defect

## *Normal Heart*

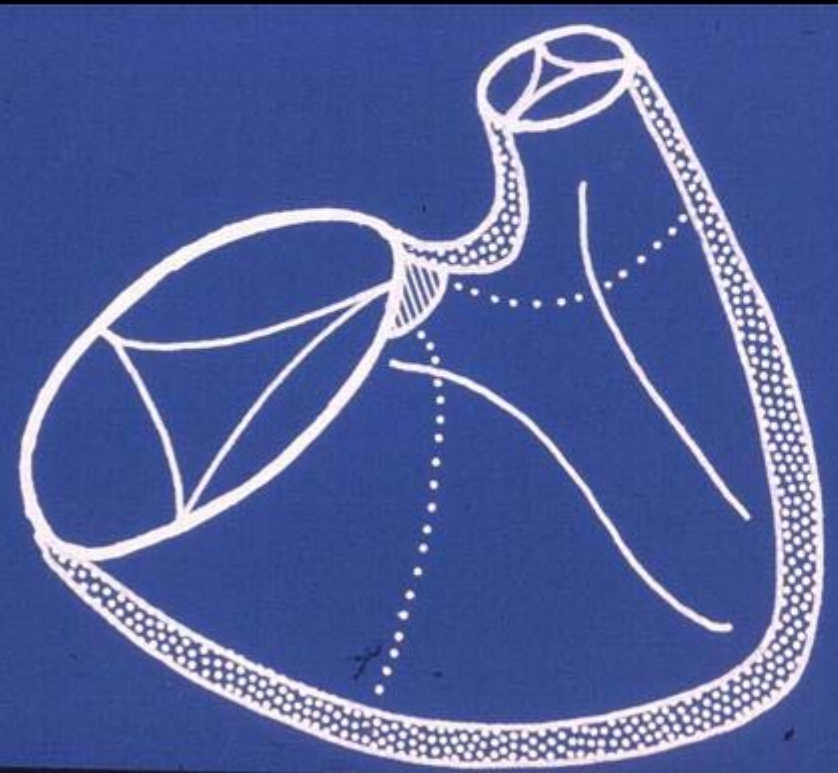


The normal ventricular septum is mostly composed of muscle (95-98%) and of a small fibrous portion, the membranous septum (3-5%)



# Ventricular Septal Defect

## *Normal Heart*

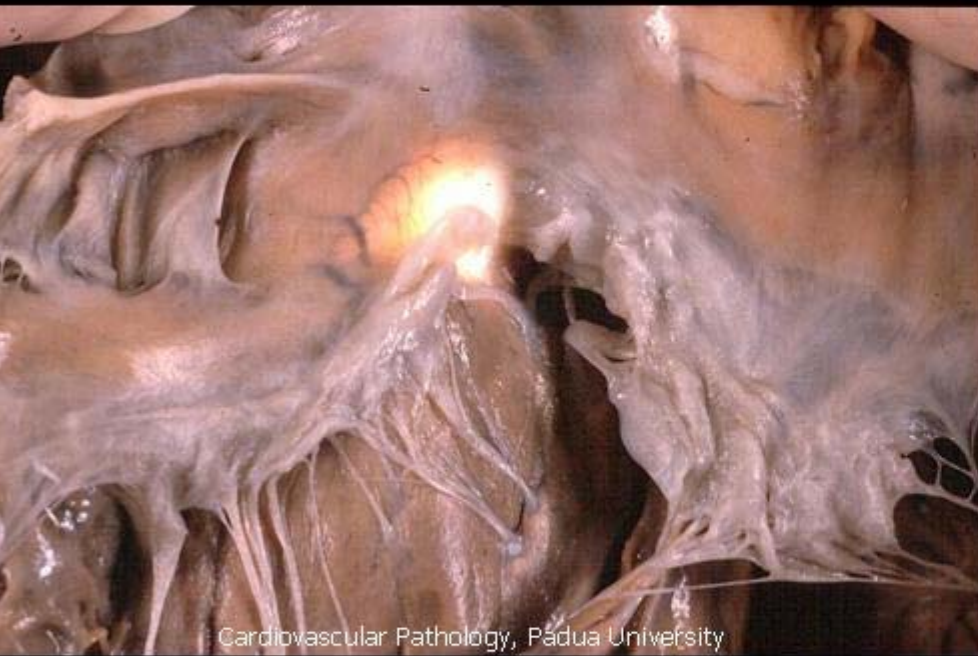


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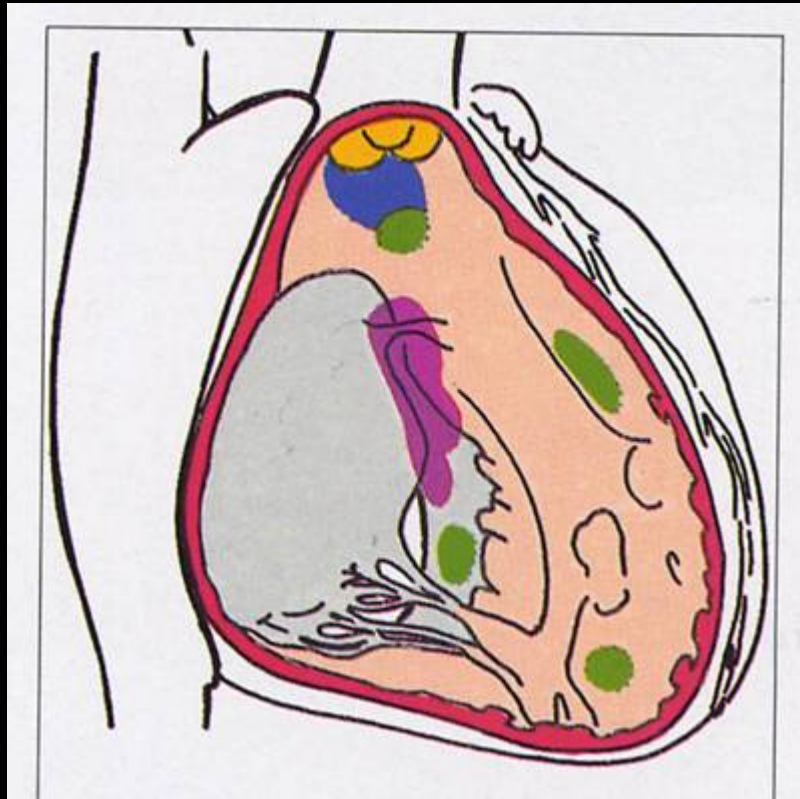


# Ventricular Septal Defect

## *Normal Heart*



# Ventricular Septal Defect



- Perimembranous
- Muscular
- Subarterial

*From S.Y. Ho, E.J. Baker, M.L. Rigby & R.H. Anderson  
"Color Atlas of Congenital Heart Disease"  
Mosby-Wolfe 1995*



# Ventricular Septal Defect

## *Perimembranous Defects*

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- The borders are in part muscular and in part fibrous
- Extended into the inlet, trabecular or outlet muscular components
- Close relation with the AV conduction system



# Ventricular Septal Defect

## *Membranous Defect*

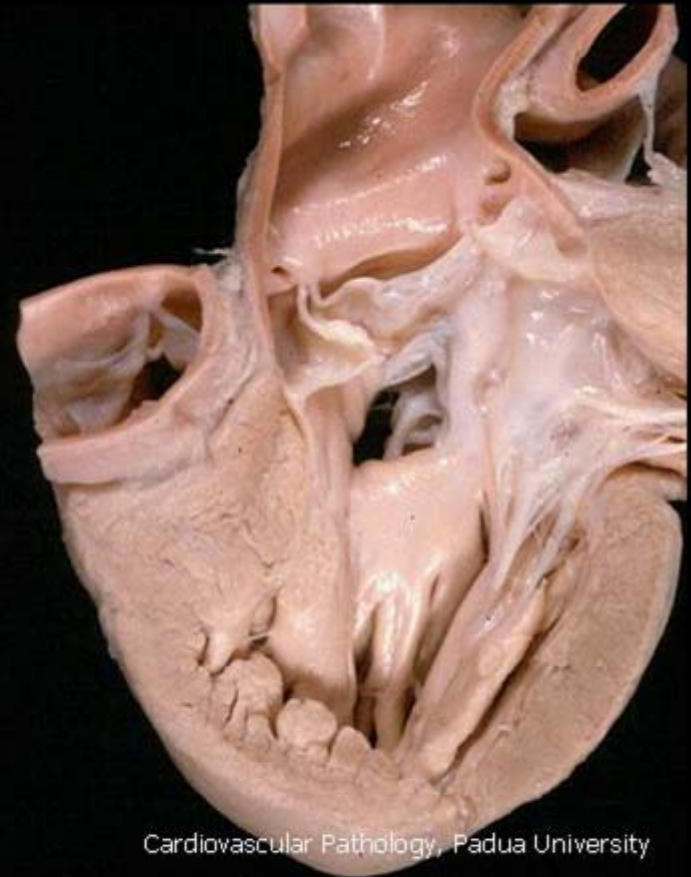


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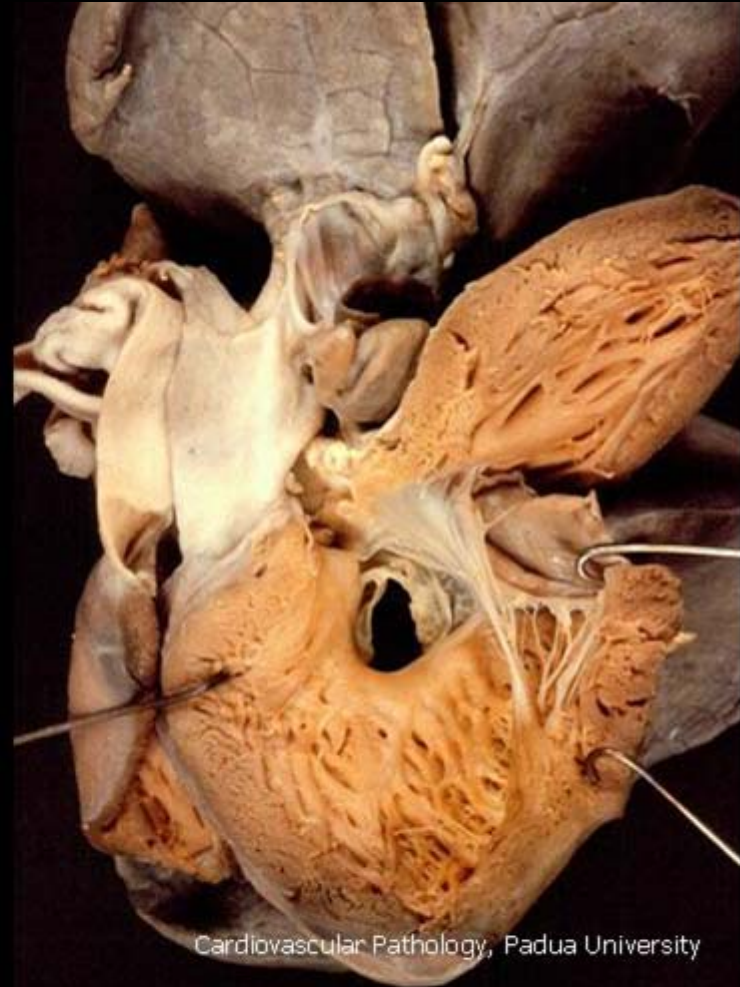
# Ventricular Septal Defect

## *Perimembranous Inlet Defect*



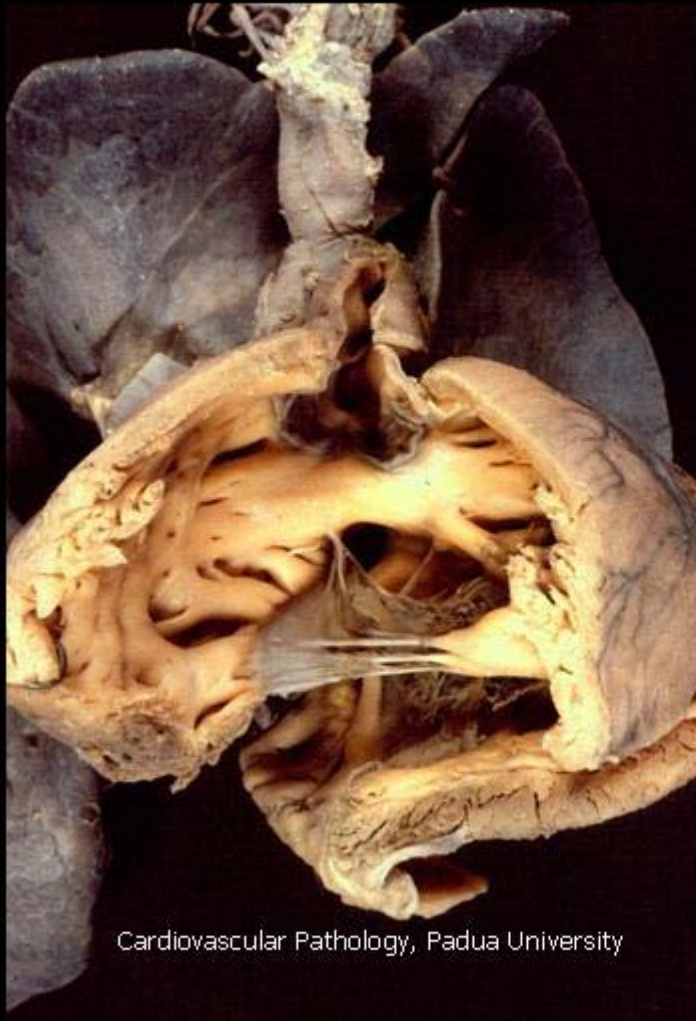
# Ventricular Septal Defect

## *Perimembranous Apical Defect*



# Ventricular Septal Defect

## *Perimembranous Outlet Defect*



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# Ventricular Septal Defect

## *Muscular Defects*

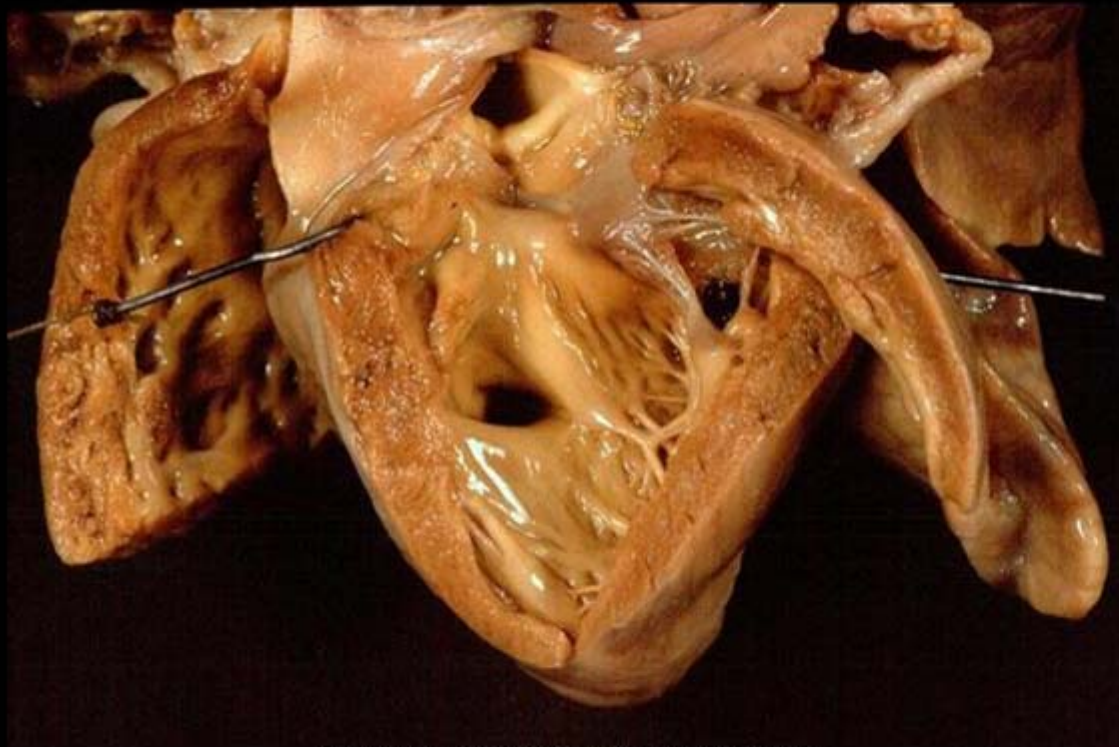
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- Completely muscular borders
- Located into the inlet, apical or outlet components
- Multiple (Swiss-cheese defects) or coexisting with perimembranous or subarterial defects
- No relation with the AV conduction system



# Ventricular Septal Defect

## *Muscular Apical Defects*



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# Ventricular Septal Defect

## *Muscular Apical Defects*



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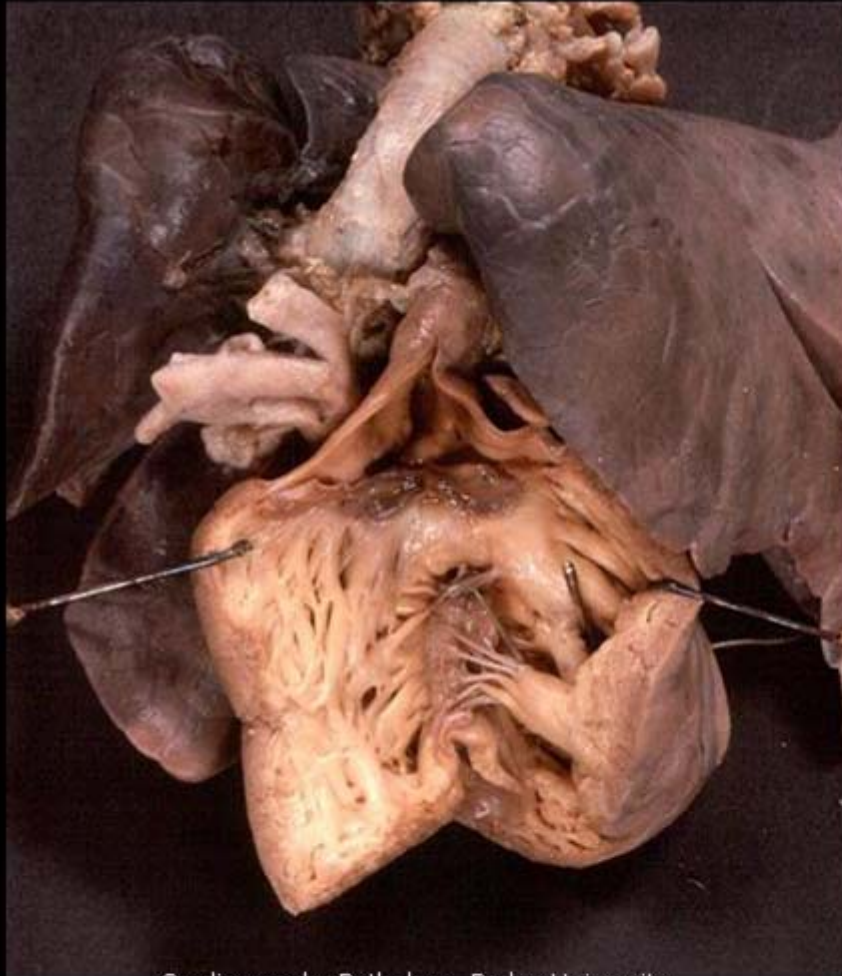


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# Ventricular Septal Defect

## *Muscular Apical Defects*



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# Ventricular Septal Defect

## *Muscular Apical Defect*



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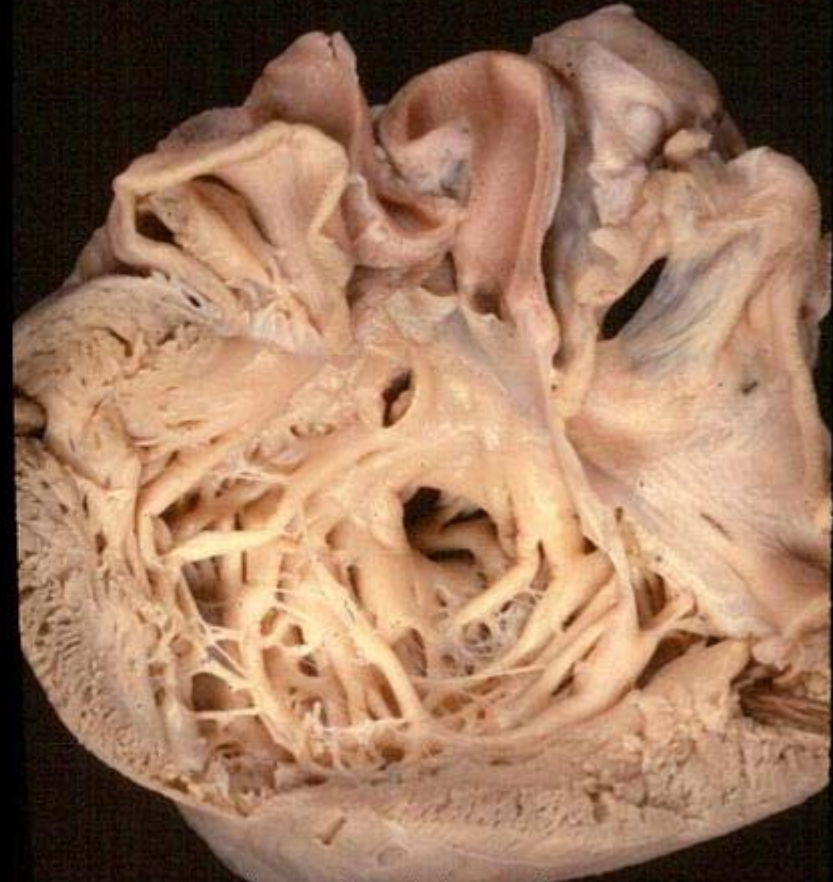


# Ventricular Septal Defect

## *Muscular Outlet Defect*



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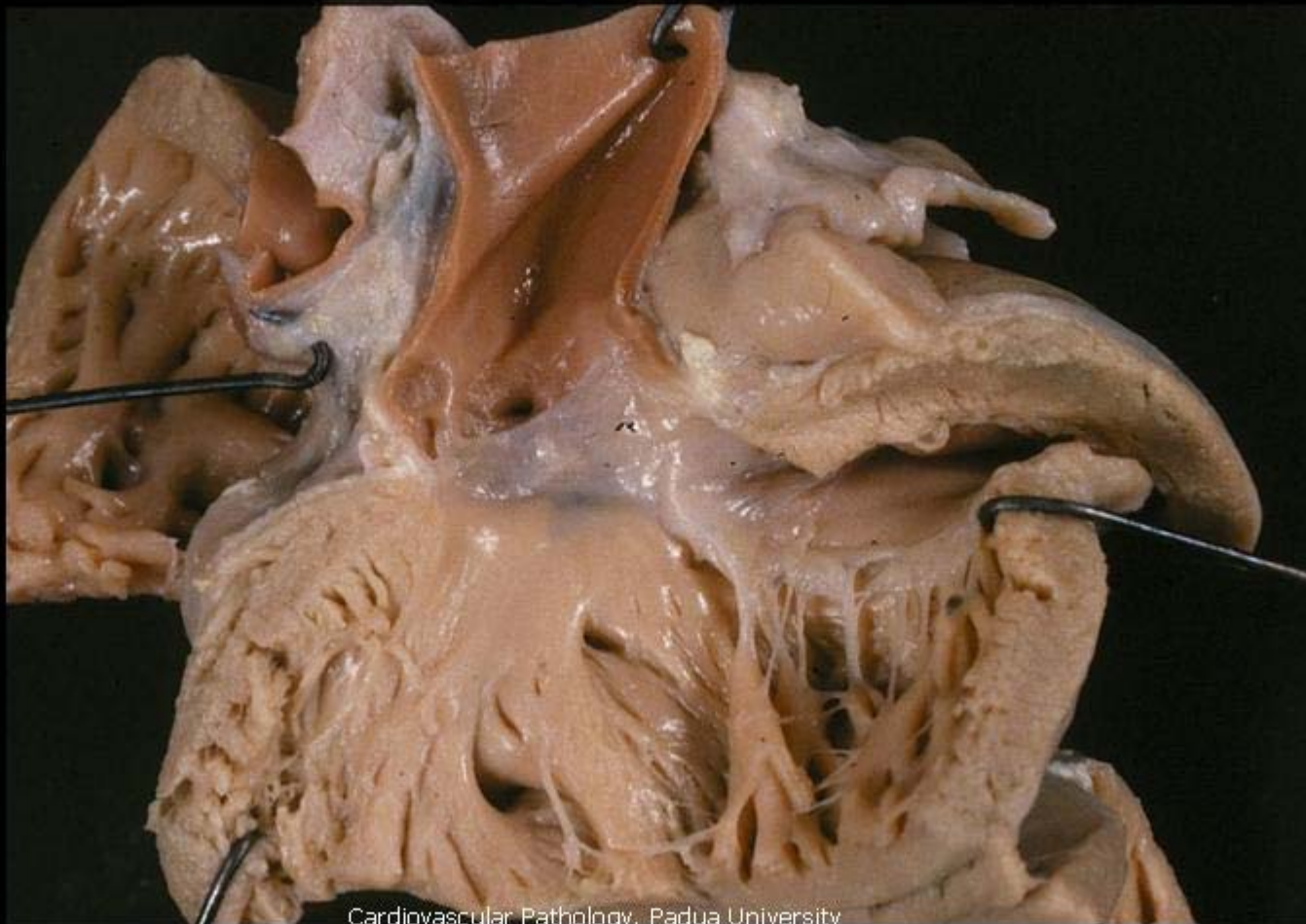
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# Ventricular Septal Defect

## *Muscular Multiple (Swiss-cheese)*

## *Defects*



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# Ventricular Septal Defect

## *Subarterial Defect*

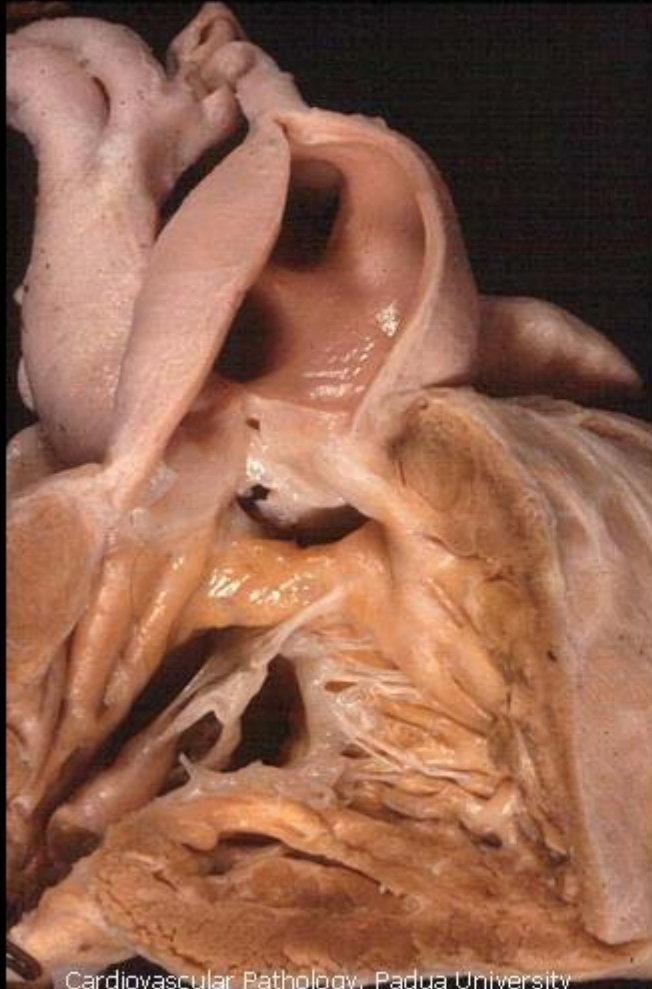
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- Fibrous continuity between the pulmonary and aortic valves due to the absence of the outlet septum
- One or both arterial valves override the ventricular septum
- The postero-inferior rim of the defect can be muscular or in continuity with the central fibrous body (perimembranous defect)

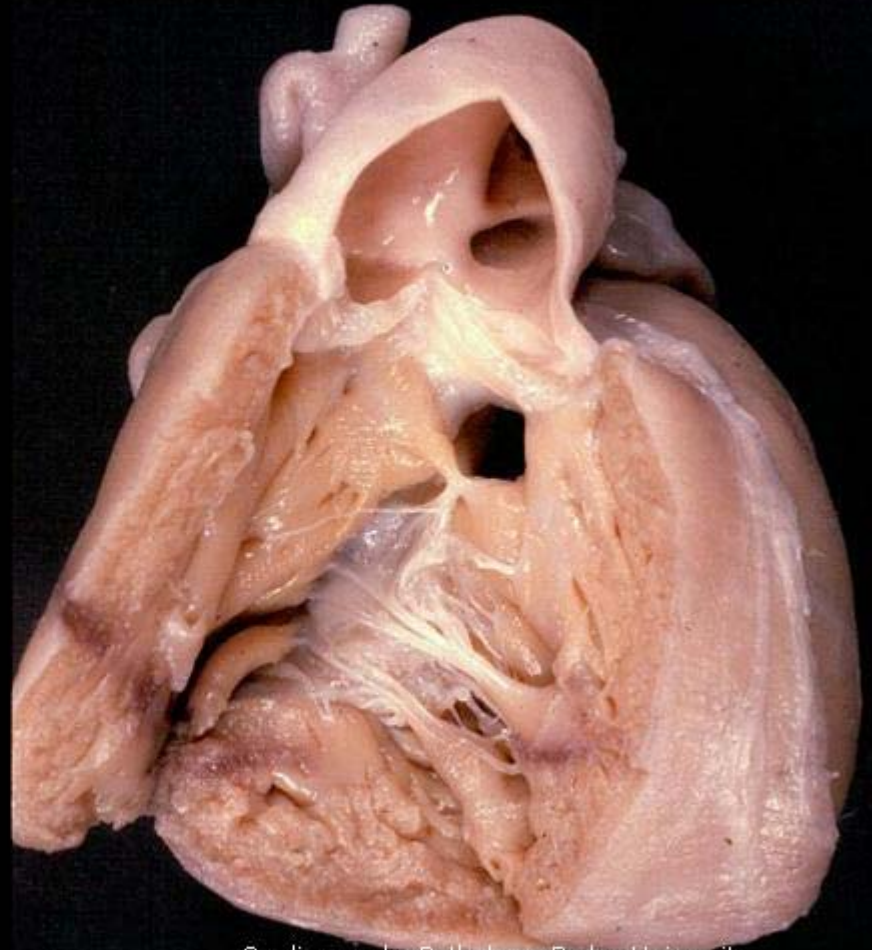


# Ventricular Septal Defect

## *Subarterial Defects*



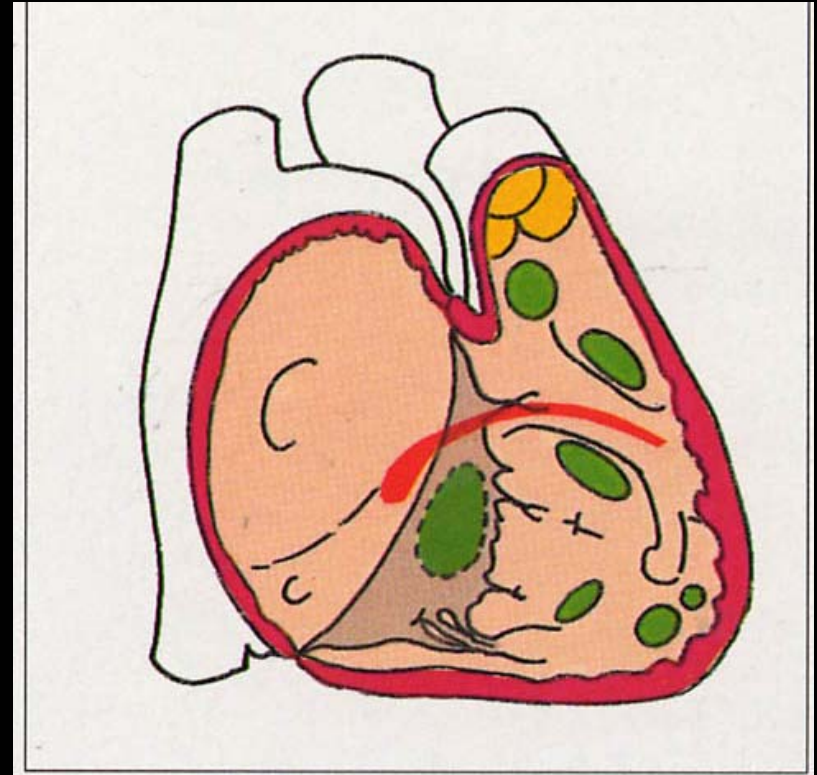
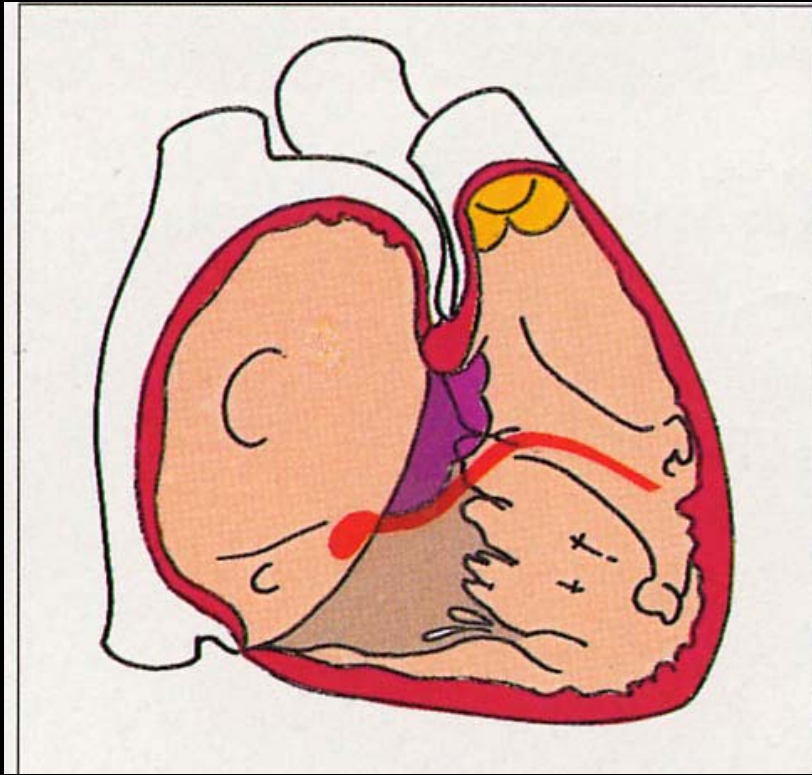
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# Ventricular Septal Defect AV Conduction System



*From S.Y. Ho, E.J. Baker, M.L. Rigby & R.H. Anderson  
"Color Atlas of Congenital Heart Disease"  
Mosby-Wolfe 1995*



# Ventricular Septal Defect AV Conduction System



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# Ventricular Septal Defect

## Anatomic Types

Isolated VSD	N. Cases	%
Perimembranous	81	80
Muscular	10	10
Multiple	10	10
Total	101	100

*Anatomical Collection of CHD, University of Padua: 1400 hearts*

