Ventricular Septal Defect

1. Give an overview of the disease, it’s diagnosis, and management

Ventricular Septal Defect

# Definition

A disease state due to a hole in the ventricular septum.

# Incidence, Age, Sex, and Geography

It is the most common congenital heart defect.

It is congenital and there are no obvious sexual, or geographic factors influencing development.

# Aetiology, and Pathology

The cause is unknown. A normal ventricular septum is composed on an apical muscular portion and a basal membranous portion. These fuse during early development. Most VSDs develop at the junction between these areas.

Not all defects are clinically or physiologically significant. Of those that are, the direct consequences are that right-ventricular pressures are high and flow in the pulmonary circulation is abnormally high. Consequences of this depend on the magnitude of the defect:

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| --- | --- |
| Very small | No consequence |
| Moderate | Eventually the overloaded pulmonary circulation increases in resistance and pulmonary hypertension develops.   * The shunt initially reduces in magnitude (*but pressures are not reduced as the defect’s size is unchanged*) * The shunt may reverse direction in severe cases leading to cyanosis |
| Large | Heart failure develops in infancy. (*without cyanosis*) |

# Symptoms, Signs and Tests

The age at presentation determines the mode of presentation and likely significance of the defect:

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| --- | --- | --- |
| Neonate | Heart failure | Good prognosis but likely to require surgical repair. |
| Childhood-teens-early adulthood | Cyanosis and pulmonary hypertension (Eisenmenger’s) | Poor prognosis. |
| Older adults | Incidental finding of murmur | Excellent prognosis. |

Adults are likely to present with cyanosis and features of right-heart failure:

* Breathlessness and fatigue
* Peripheral oedema

On examination:

1. **A pansystolic murmur** – loudest left parasternally but heard everywhere
2. **Right heart failure**

**Maladie de Roger** is the superficially paradoxically finding of a loud murmur associated with an insignificant defect; this is a consequence of the high-velocity, highly turbulent flow through the defect.

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| --- | --- |
| ECG | Non-diagnostic.  Biventricular hypertrophy is characteristic   * …but picture often obscured as high right and left sided forces cancel each other out |
| Echo | Diagnostic in most cases. |

# Management and Prognosis

Prognosis is largely good.

However, adults presenting with Eisenmenger’s syndrome have a poor prognosis. There is also an increased incidence of Infective Endocarditis.

## Management

### Heart failure in infancy…

1. Diuretics and medical management of failure
2. Monitor – *many patients will improve with time; those who don’t need correction*

### Eisenmenger’s syndrome

This has a poor prognosis and may require a heart-lung transplant.

### Adults

No specific management is required.

A low index of suspicion for Infective Endocarditis may be wise.