Congenital Cardiac Disease Pathology

Recognise the morphological features of pathological secondary ventricular myocardial hypertrophy (concentric and eccentric).

Primary = Intrinsic problem with myocardium.
- Genetic abnormality
- Unknown cause

Secondary = Adaptive change (remodelling) secondary to increased workload caused by another CVS disease.
- Physiological - 10-15% enlargement possible.
- Volume overload
- Pressure overload

Explain the mechanisms, and be able to give relevant examples of conditions, that cause concentric and eccentric ventricular hypertrophy.

Volume Overload → Increased Preload
- Increased end diastolic volume
- Enlargement of ventricle
- Hypertrophy of myocardium - but dilation causes stretching so appears normal/thinner
- ECCENTRIC HYPERTROPHY
- Causes
  - Valvular insufficiencies
  - Abnormal blood flow patterns (shunts)

Pressure Overload → Increased Afterload
- Ventricle must generate greater pressure to eject blood
- CONCENTRIC HYPERTROPHY
- Causes
  - Stenosis of ventricular outflow tract
  - Increased pulmonary (lung disease) or systemic (aortic) arterial pressure

Explain the potential maladaptive changes, and their consequences, that may occur in the myocardium as a result of prolonged pathological myocardial hypertrophy.

Reduced ventricular wall compliance → impairs contractility and relaxation.
Myocardial blood supply cannot meet metabolic demands of increased mass.
Myocardiocyte death and fibrosis.
Exhaustion → reduced cardiac output and development of CHF.

Define, name, describe and recognise the most common and important congenital heart diseases.