ANPH 1

Cardiac/Circulatory Pathology continued

Arryhthmias

Defined as an irregular heartbeat or cardiac dysrhythmia and refers to a group of conditions

Bradycardia- slow heart rhythm, less than 60 beats per minute

Tachycardia- rapid heart rhythm, more than 100 BPM

Fibrillation-muscle fibres contract out of step with each other

- Atrial fibrillation (Afib) affects the atria, often due to an underlying medical condition such as mitral stenosis, rheumatic heart disease
- Ventricular fibrillation (Vfib) is immediately life threatening, as effective pumping of the blood stops the flow of blood to vital organs. It is considered a form of cardiac arrest and requires immediate CPR and defibrillation

Arteriovenous fistula

- a connection between an artery and a vein
- can be congenital
- Can be acquired due to a pathological process, such as trauma, rupture of arterial aneurysm into an adjacent vein
- Can be surgically created for hemodialysis treatments

Arteriovenous malformation (AVM)

An abnormal connection between arteries and veins, bypassing the capillary system.

Occurs mainly in the CNS, such as cerebral AVM, but can be in any location

A large percentage of people with AVM have no symptoms, and is an incidental finding at autopsy or during treatment of unrelated disorders

Found on CT or MRI imaging

Cerebral AVM’s can cause bleeding and hemorrhagic strokes

Dextrocardia, septal defects

Dextrocardia is a congenital condition where the apex of the heart is on the right.

Ventricular septal defect is an abnormality of the septum

Can be very tiny, to complete absence of the septum creating one large ventricle

Small defects may be asymptomatic

Large defects cause pulmonary hypertension, since the pressure from the left ventricle is normally much higher, it causes the pressure in the right ventricle to increase

The most common congenital cardiac abnormality

Septal Defects

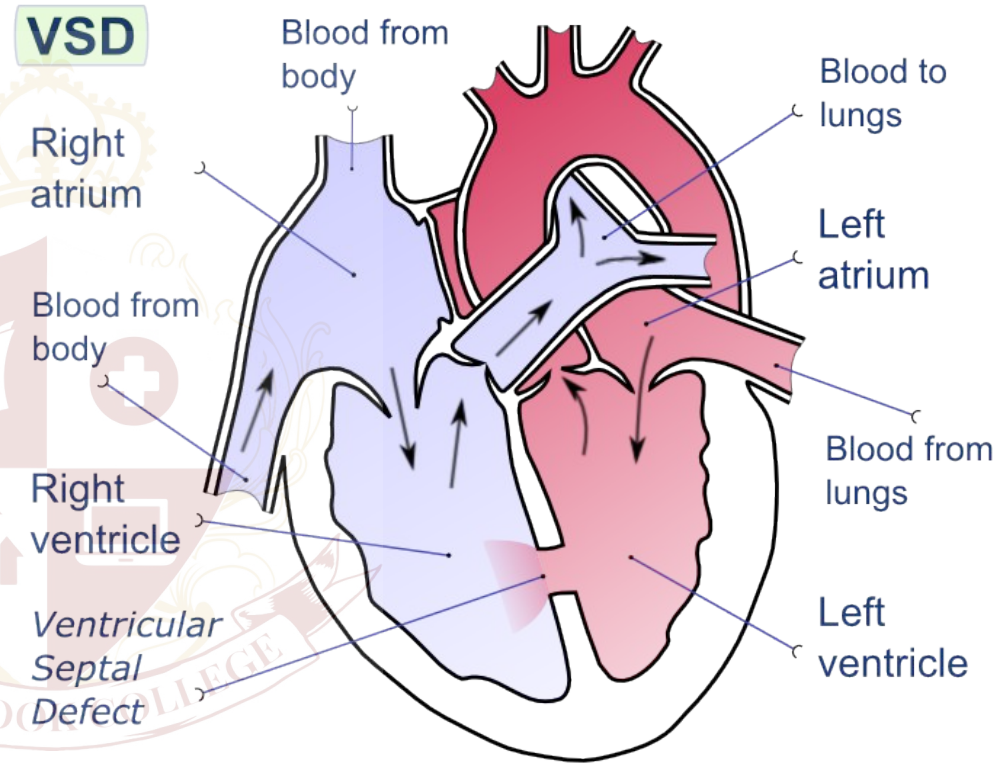
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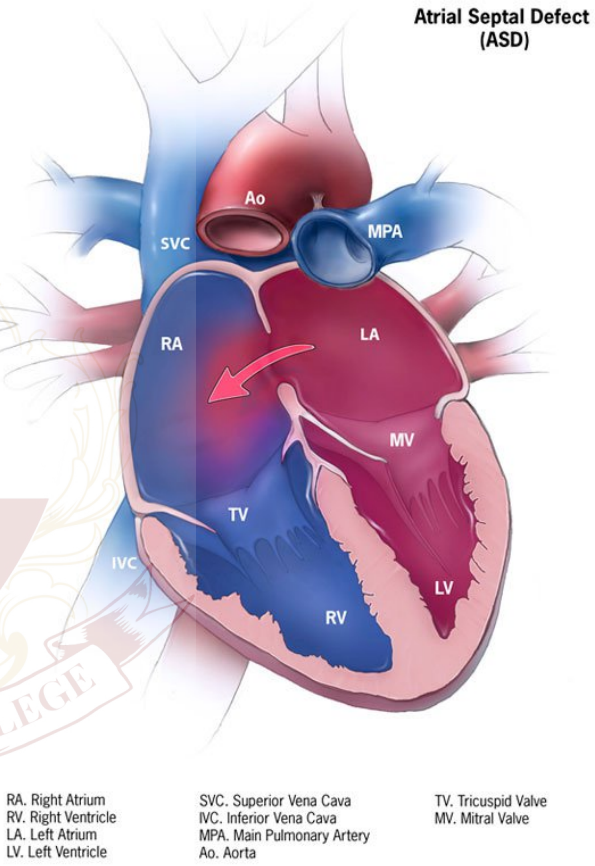
Septal Defects

Atrial septal defect- blood flows between the atria

This causes oxygen-rich blood from the left atrium to mix with oxygen-poor blood of the right atrium

This blood enters the left ventricle and circulates through the body

Causes cyanosis, a bluish tint to the skin, especially lips and nails



Patent ductus arteriosus

The ductus arteriosus is a normal part of fetal circulation

The blood vessel connects the pulmonary artery to the aorta, which allows blood to bypass the lungs

Typically, after birth, this connection closes

PDA occurs most frequently in premature infants, since their heart and lungs are not fully developed

If it does not close, it allows blood from the aorta (high pressure) to go into the pulmonary artery (lower pressure)

If detected, it can be treated surgically by closing it off or treated with medications such as NSAIDS which can initiate closure by inhibiting prostaglandin synthesis

Patent foramen ovale

PFO is form of an atrial septal defect, caused when the foramen ovale does not close after birth

Clinically linked to stroke, sleep apnea and migraine

Peripheral vascular disease PVD

A disorder of blood circulation in the extremities that causes blood vessels (arteries) to become narrowed or blocked.

Typically it affects the legs.

It causes intense leg pain that resolves with rest, called “intermittent claudication”

The biggest risk factor is smoking, causing atherosclerosis

Left untreated, it can progress to where patients require amputation due to tissue death

Tetrology of fallot

Consists of four abnormalities:

- high ventricular septal defect
- pulmonary stenosis
- Overriding of the aortic orifice above the ventricular defect
- right ventricular hypertrophy

- ➢ Pulmonary stenosis causes elevation of pressure in the right ventricle, causing hypertrophy
- ➢ Because the opening of the pulmonary valve is narrow, an inadequate amount of blood reaches the lungs to be oxygenated, resulting in cyanosis
- ➢ Requires surgical repair