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Course Title: Gross Anatomy of the Thorax and Abdomen

Question: You will be provided with a video, watch it and use it to describe the heart and its functions. Write on five (5) different congenital anomalies of the heart.

1.

The heart is a muscle about the size of your fist, and it lies behind and to the left of your breast bone or sternum. The purpose of the heart is to pump blood from blood vessels, arteries and veins to all the parts of the body. The heart is divided into 4 chambers, the top two chambers are called the atrium and are collection chambers for blood, the bottom two are called the ventricles which receive blood from the atrium and pass to the lungs and the rest of the body. The chambers are separated by valves which control the direction of blood flow, there are 4 valves; Tricuspid, Pulmonic, Mitral and Aortic.

Circulation begins at the right side of the heart where blood from the body comes through the right atrium, this blood passes through the right ventricle where it is pumped to the lungs to receive oxygen, once it receives oxygen it is pumped to the left atrium then to the left ventricle where it is pumped to the aorta then to the rest of the body.

On the right side of the heart the tricuspid valve separates the right atrium from the right ventricle to prevent backflow of blood, blood flows through the pulmonic valve to the lungs. On the left side the mitral valve separates the left atrium from the left ventricle, blood flows from the left ventricle to the atrium through the aortic valve. Arteries carry oxygenated blood with other nutrients throughout the body, veins take blood back into the heart which pumps it to the lungs to be oxygenated.

The heart has arteries which provides it with oxygen and nutrients called coronary arteries. An electric system transmits pulses throughout the heart to keep it pumping.

2.

## DEXTROCARDIA

Dextrocardia is a condition where the heart lies on the right side of the thorax instead of the left and it occurs when the heart loops to the left instead of the right. The defect may be induced during gastrulation, when laterality is established, or slightly later when cardiac looping occurs. Dextrocardia occurs with situs inversus, a complete reversal of asymmetry in all organs, or may be associated with laterality sequences (heterotaxy) in which only some organ positions are reversed.

## Septal Defects

### ATRIAL SEPTAL DEFECTS

A congenital anomaly of the interatrial septum usually incomplete closure of the oval foramen, is an atrial septal defect (ASD). A probe-size patency is present in the superior part of the oval fossa in 15-25% of adults. These small openings, by themselves, cause no hemodynamic abnormalities and are therefore, of no clinical significance and should not be considered forms of ASDs. Clinically significant ASDs vary widely in size and location and may occur as part of more complex congenital heart disease, Large ASDs allow oxygenated blood from the lungs to be shunted from the left atrium through the ASD into the right atrium, causing enlargement of the right atrium and ventricle and dilation of the pulmonary trunk. This left-to-right shunt of blood overloads the pulmonary vascular system, resulting in hypertrophy of the right atrium and ventricle and pulmonary arteries.

### VENTRICULAR SEPTAL DEFECTS

The membranous part of the IVS develops separately from the muscular part and has a complex embryological origin. Consequently, this part is the common site of ventricular septal defects (VSD), although defects also occur in the muscular part VSDs rank first on all lists of cardiac defects. Isolated VSDs account for approximately 25% of all forms of congenital heart disease. The size of the defect

varies from 1 to 25 mm. A VSD causes a left-to-right shunt of blood through the defect. A large rent increases pulmonary blood flow, which causes severe pulmonary disease (hyper-tension, or increased blood pressure) and may cause cardiac failure. The much less common VSD in the muscular part of the septum frequently closes spontaneously during childhood.

### COMPLETE ATRIOVENTRICULAR CANAL DEFECT (CAVC)

This is the most serious septal defect. It's when you have a hole in your heart that affects all four chambers. A CAVC prevents oxygen-rich blood from going to the right places in your body. Your doctor can repair it with patches. But some people need more than one surgery to treat it.

### TETRALOGY OF FALLOT

Tetralogy of Fallot, which is a combination of four defects, including:

A large ventricular septal defect (VSD)

Thickened wall around your right ventricle, or lower chamber

Your aorta is located above the hole in your ventricular wall

Stiff pulmonary valve that prevents blood from flowing easily from the heart to the lungs

A baby born with tetralogy of Fallot may need to have open heart surgery soon after birth to fix the problems.