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**COURSE:** ANA 202-GROSS ANATOMY OF THORAX AND ABDOMEN.

**COLLEGE:** MEDICINE AND HEALTH SCIENCES.

**DEPERTMENT:** ANATOMY.

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ASSIGNMENT.

1. You will be provided with a video, watch it and use it to describe the heart and its functions

2. Write on five (5) different congenital anomalies of the heart

ANSWER.

1.THE HEART.

The heart is a muscle about the size of a fist, it lies behind into the left of the sternum or the breast bone. The purpose of the heart is to pump blood through blood vessels {arteries and veins} to all parts of the body. The heart is divided into 4 chambers, the top two chambers is the atria and they are the collection chambers for blood while the bottom two chambers are the ventricles and they receive blood from the atria and pump it into the lungs and the body. The chambers are separated by valves which control the direction of blood flow. There are 4 valves, the tricuspid valve, pulmonary valve, mitral valve and aortic valve.

Circulation begins at the right side of the heart, where blood from the body enters the right atrium, this blood passes to the right ventricle where it is pumped to the lungs to receive oxygen, once it receives oxygen it flows to the left atrium and then to the left ventricle where it is pumped to the aorta and the rest of the body. On the right side of the heart the tricuspid valve separates the right atrium and the right ventricle, allowing blood to enter the ventricle but not flow backwards to the atrium, blood flows through the pulmonary valves to go into the lungs. On the left side of the heart the mitral valve separates the left atrium and the left ventricle, blood flows from the left ventricle to the aorta through the aortic valve and to the rest of the body.

Arteries carry blood with oxygen and nutrients through out the body while veins take blood back to the heart, which takes it to the lungs to be oxygenated. The heart arteries {coronary arteries} provide oxygen and nutrient to the heart muscles. The right coronary artery supplies nutrients to the bottom and back of the heart, the left coronary heart is split into two vessels one branch supplies blood to the front of the heart the other branch delivers blood to the left side of the heart.

An electric system transmits signals through out the heart to control its pumping, the electrical signal starts in the sinoatrial node {SA node} which is located in the upper portion of the left atrium, it is known as the natural pacemaker of the heart. The electrical signal passes down to the lower chambers of the heart through the atrioventricular node {AV node} which controls the signals so that the atria contracts before the ventricles. In the ventricles pathways carry the signals throughout the muscle, so that they contract at the same time to pump blood to the lungs and through the body.

2.i) **Atrial septal defect;** Atrial septal defect is a common congenital heart defect. This condition is an abnormal hole between the upper two chambers of the heart, in the area known as the atria. There are four kinds of ASD holes, depending on their position along the septum – the wall that separates the two sides of the heart. In most cases, infants with ASDs are asymptomatic. It occurs more frequently in females than in males.

Patent oval foramen

The most common form of ASD is patent oval foramen, a small space is located on the superior part of the floor of the oval fossa. Probe patent oval foramen results from incomplete adhesion between the flaplike valve of the oval foramen and the septum secundum after birth this can occur in abnormal resorption of the septum primum during the formation of the foramen secundum. If excessive resorption of the septum primum occurs, the resulting short septum primum will not close the oval foramen and if an abnormally large oval foramen occurs because of defective development of the septum secundum, a normal septum primum will not close the abnormal oval foramen at birth. Large ostium secundum ASDs may also occur because of a combination of excessive resorption of the septum primum and a large oval foramen, as a result of this blood is shunted through the oval foramen from the right atrium into the left atrium and produces cyanosis (deficient oxygenation of blood).

ii) **Tetralogy of Fallot;** Tetralogy of Fallot, or TOF, is a relatively common heart abnormality. TOF is an abnormal position or orientation of the ventricular septum, with a hole present between the two lower heart chambers. The aortic valve overrides this hole instead of coming directly out of the left ventricular outflow tract consequently, the blood flow coming out of the right ventricle is obstructed. This causes a thickening of the heart muscle in the right ventricle. The severity of the defect and the need for early intervention depends on the degree of the obstruction of blood going to the lungs. All cases of TOF require surgical repair.

iii) **Ventricular septal defect;** Ventricular septal defect is the most common congenital heart defect among newborns. VSDs are small to large sized holes between the lower chambers of the heart. They're typically diagnosed due to the presence of a heart murmur (an additional sound heard when listening to the heart with a stethoscope). Many infants and children with VSD are otherwise asymptomatic. The larger the hole is, the greater the chance that the infant will develop congestive heart failure from excessive blood flow crossing the hole from the left ventricle back into the lungs, essentially flooding the lungs. Infants with large VSDs typically breathe fast, have high heart rates, sweat all the time (even while resting) and have difficulty gaining weight. It occurs more in males than females.

iv) **Dextrocardia;** This is the bending of the heart tube to the left instead of to the right. It is the most frequent positional abnormality of the heart. If there is no other associated vascular abnormalities, this heart functions normally. It can also be defined condition in which the heart is pointed toward the right side of the chest instead of normally pointing to the left. It is present at birth. In dextrocardia with situs inversus, the position of abdominal viscera is also reverse.

v)**Ectopic Cordis;** This means that the heart is in an abnormal location. In the thoracic form of ectopia cordis, the heart is partly or completely exposed on the surface of the thorax(heart lies on the surface of the chest), it is usually associated with widely separated halves of the sternum and an open pericardial sac. Death occurs in most cases during the first few days after birth, usually from infection, cardiac failure, or hypoxemia. If there are not severe cardiac defects, surgical therapy usually consists of covering the heart with skin. In some cases of ectopia cordis, the heart protrudes through the diaphragm into the abdomen. The most common thoracic form of ectopia cordis results from faulty development of the sternum and pericardium