

A guide to understanding congenital heart disease by studying the embryological development of the fetal heart

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For many doctors, the study of embryology has been a difficult and sometimes forgotten issue, it is necessary to recognize that we have a great void in not knowing the embryological process of fetal cardiac development. I propose in a simple and sequential way the study of fetal cardiac embryology. Failure in the formation of primitive cardiac tubes will cause hypoplasia of the right or left cavity, after the folding of the tubes a clockwise rotation is made, if this fails it will give place to the situs inversus or even to isomerisms.

The interatrial septum is formed by the development and degeneration of septum primum and development of septum secundum, a poor development will lead to defects of the interatrial septum. Almost in unison the interventricular septum is formed, starting by its muscular portion, the upper or membranous portion is as a result of the pads, in this process a defect will give rise to interventricular communications.

The pads will lead to the formation of atrio-ventricular valves, initially it is a single valve, and this should continue its differentiation to form two valves, which in the case of the defect could remain as an aricle-ventricular channel, being hypoplastic, stenotic, insufficient or even atretic. The aorta is formed from the fourth aortic arch; its deficient development can lead to stenosis, atresia and coarctation.

Initially there is a single tube that emerges from the primitive ventricle, as the development of the ventricles progresses, so does the tube, which inside will divide and undergo a rotation, which in poor development will lead to conotruncal defects. Knowing the embryological origin of those pathologies, it is easier to identify, classify them and establish a prognosis. In each altered process of fetal cardiac development I will expose the resulting pathologies with their typical sonographic characteristics.