Holoprosencephaly

Dysgenetic Brain Development

Navigating the Fetal and Neonatal Brain Using Common Anatomical Landmarks: Prenatal Diagnosis and Neonatal Correlation of Brain Anomalies

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Introduction

The Cavum Septum Pellucidum (CSP)

Ultrasound Characteristics:
The cavum septum pellucidum is easily visualized with ultrasound. It is a normal anatomical structure present in the fetal and neonatal brain. It is located between the lateral ventricles and the corpus callosum. At birth, the cavum septum pellucidum is often not visible due to the fusion of the laminae that separate the lateral ventricles. Ultrasound examination can help identify any abnormalities in the CSP.

The lateral ventricles are cavities filled with cerebrospinal fluid. In the neonatal period, much hinges on early detection of abnormalities in the ventricular system. Anomalies in the ventricular system can be classified based on their severity and can include hydrocephaly, microcephaly, and atrial septal defects.

The cisterna magna is another normal anatomical structure present in the fetal and neonatal brain. It is located posterior to the cerebellum and anterior to the occipital lobes. The cisterna magna is often visible on ultrasound and can be used as a reference point for measuring other structures in the brain.

The thalamus is a pair of almond-shaped structures located in the basal ganglia. The thalamus is involved in sensory and motor functions and plays a role in regulating the electrical activity of the brain. The thalamus can be easily identified on ultrasound imaging and is often used as a reference point for measuring other structures in the brain.

Cerebellum and Cisterna Magna

The cerebellum is a complex structure located at the back of the brain. The cerebellum is involved in the coordination of muscle movements and is responsible for maintaining balance and posture. The cerebellum is easily visualized on ultrasound imaging and is often used as a reference point for measuring other structures in the brain.

Coronal Planes of Imaging the Neonatal Brain

A series of at least 6 images are obtained at the same level to measure specific parameters. The craniocaudal plane provides optimum imaging for the thalamus, whereas the cranio-caudal plane passes through the thalamus. The parasagittal plane is used to observe the thalamus and provides good imaging for the cisterna magna. Differentiated at the ventricular level with the thalamus.