

ID: 169

Educational Abstract

Topics: Neuroradiology, Pediatric Radiology

Keywords: Schizencephaly, Congenital Brain Anomalies, MRI

Imaging Spectrum of Schizencephaly

Fatt Yang Chew, Chang You Song, Yu Chien Lo, Chao Chun Lin, Ying Hsuan Li, Chung Shen Wu

China Medical University Hospital, Taiwan

Learning Objectives

- To review a wide spectrum of the imaging appearances of schizencephaly.
- To understand the type and distribution of schizencephaly.
- To demonstrate the variable brain anomalies associated with schizencephaly.

Background

Schizencephaly is an uncommon disorder of cortical malformations due to abnormal late neuronal migration and cortical organization. It is characterized by gray matter-lined clefts that extend through the hemisphere, from the ependyma lining of the lateral ventricle to the cortical surface. Schizencephaly was first described by Yakovlev and Wadsworth in the 1940s through detailed neuropathologic analysis in a number of patients with clefts in the cerebral mantle.

Findings & Procedure Details

Schizencephaly could be detected in a variety of imaging modalities such as ultrasonography and computer tomography but the method of choice is magnetic resonance imaging (MRI), which is more sensitive in detecting the clefts as well as their associated abnormalities with its superior differentiation of gray matter and white matter. In MRI, schizencephaly appears as a cleft that often lined with gray matter. The clefts can be unilateral or bilateral with fused or separated lips, which are defined as closed-lip and open-lip schizencephaly. It might associate with heterogeneous brain abnormalities such as absent of septum pellucidum, dysgenesis of the corpus callosum, microgyria, pachygyria, polymicrogyria, and heterotopic gray matter.

Conclusion

MRI is a critical imaging tool for the diagnosis of schizencephaly. It is essential to demonstrate the morphology, distribution, and extent of this disorder. Furthermore, it can identify the associated brain anomalies and related syndromes.