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Asymmetric Ventriculomegaly, Interhemispheric Cyst and Dysgenesis of The Corpus Callosum (Avid) - an Imaging Triad in Adult Female

KEYWORDS: AVID, adult, woman

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ABSTRACT *AVID has been well reported in fetuses and neonates with developmental delay. We report a case of an imaging triad of asymmetric ventriculomegaly, Interhemispheric cyst and dysgenesis of the Corpus callosum (AVID) in a 40-year-old female. Asymmetric ventriculomegaly in this case was the key to excluding isolated aqueductal stenosis and was associated with callosal malformation with a type 1a interhemispheric cyst. when hydrocephalus is present in association with other intracranial anomalies, the prognosis is less favorable and often includes developmental delays.*

Case report

A 40-year-old female with a history of recurrent seizure came to our department to evaluate the cause. Laboratory findings were unremarkable. CECT head was performed. CECT head revealed asymmetric dilatation of lateral ventricles, a cyst located in interhemispheric region and partial dysgenesis of corpus callosum (Fig 1).

Discussion

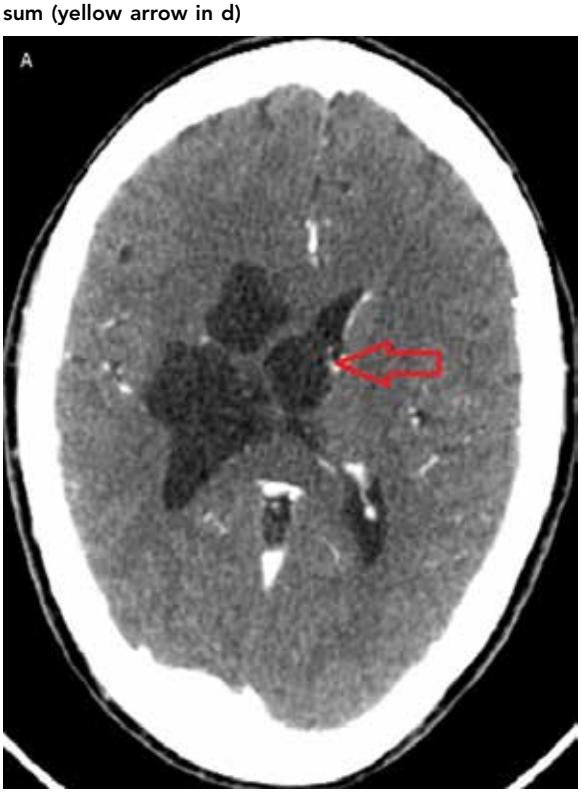
Asymmetric ventriculomegaly is the initial and key imaging finding in this case. Malformation of the corpus callosum is known to be associated with interhemispheric cysts and an absent cavum septi pellucidi. Barkovich et al classified interhemispheric cysts as type 1 or 2, with subcategories in both(1). According to Barkovich et al, type 1 cysts are defined as cysts that are in communication with the ventricular system. Type 1a cysts are further subdivided into unilocular cysts, which communicate with the ventricular system and are associated with hydrocephalus and macrocephaly but not other congenital brain anomalies such as thalamic fusion and heterotopias. Our case include a cases of type 1a cysts with associated callosal malformations, with the key Imaging finding of asymmetric ventriculomegaly at presentation. The differential diagnosis for cystic brain lesions includes two main subcategories: developmental and destructive processes. Supratentorial developmental lesions include schizencephaly, holoprosencephaly, arachnoid cysts, and interhemispheric cysts(1-4). Schizencephaly can be excluded by the midline location of an interhemispheric cyst, with mass effect causing the asymmetric appearance of the ventricles; typical schizencephaly is a cortical defect extending from the pial surface to the underlying ventricle and does not have mass effect on adjacent brain parenchyma(1-4). Alobar holoprosencephaly is indicated by the presence of a monoventricle extending across the midline, with a continuous cortical mantle. In contrast, a falx is present in the setting of AVID, and there is no continuous midline brain parenchyma. Arachnoid cysts have a mass effect, are extra-axial in the fetal skull, and are not connected to the underlying ventricle; the interhemispheric type 1a cyst of AVID is intra-axial as an extension of the lateral ventricle(1-4).

Conclusion

The imaging triad of an interhemispheric cyst, callosal malformation, and ventriculomegaly has been noted in the literature; however, most cases have been based on postnatal diagnosis. To our knowledge, our case is uncommon describing diagnosis of the AVID triad using computed tomography in a 40-year-old female.

Legends

Fig.1. CECT images show interhemispheric cyst (red arrow in a and c) asymmetric ventriculomegaly (blue arrow in b and c), and partial dysgenesis of corpus callosum (yellow arrow in d)



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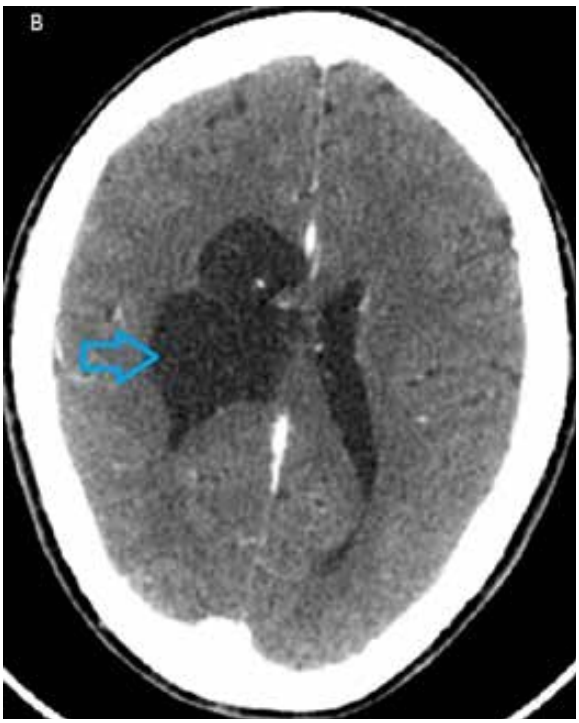

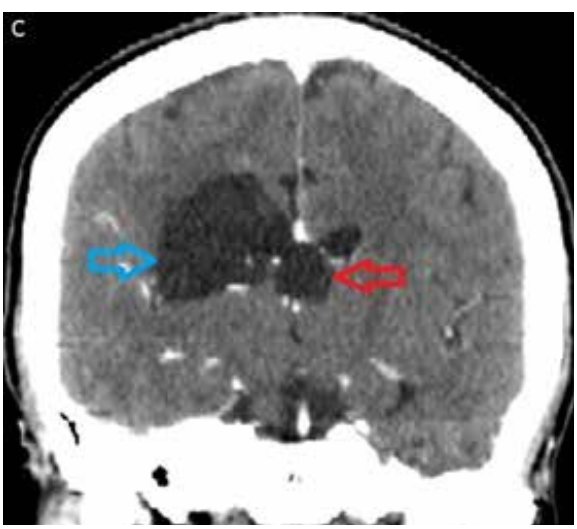

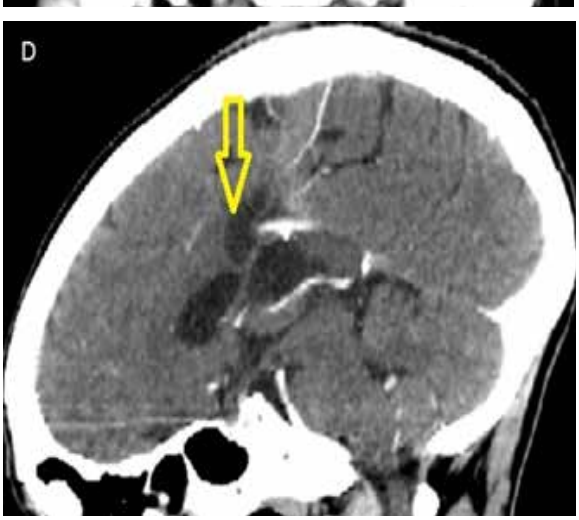

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