Porencephalic cyst

Mugtaba Alghazali, Ikhlas Abdelaziz, Hatim Zain Alabdeen

ABSTRACT

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CASE REPORT

A two-year-old Sudanese male was presented in neurology clinical department with delayed growth and development, and seizures. Then referred to radiology department. Non-contrast magnetic resonance imaging scan of brain axial, sagittal and coronal. T1-weighted, T2-weighted, fluid attenuation inversion recovery (FLAIR) and diffusion weighted imaging (DWI) were done (Figure 1A–D). Images showed well defined intracranial cyst on left frontoparietal region connected with the ipsilateral lateral ventricle, associated with diffuse brain atrophic changes in term of dilatation of ventricular system, prominent cortical sulci and dilated extra-axial cerebrospinal fluid spaces.

The intracranial cyst margin not lined by a grey matter and is associated with a small amount of adjacent FLAIR hyper-intensities, no restricted diffusion noted in DWI. No soft tissue mass lesions. No intracerebral blood degradation products. Normal brainstem and cerebellum. Findings are impressive of congenital diffuse brain atrophic changes associated with significant left sided porencephalic cystic changes as described above.

DISCUSSION

Porencephaly is an extremely rare disorder involving encephalomalacia [1]. It has been classified as congenital

Figure 1: Magnetic resonance imaging of brain. Axial images of porencephalic cyst on left frontoparietal region connected with the ipsilateral lateral ventricle (A) FLAIR image, (B) T2-weighted image, (C) Apparent diffusion coefficient image, and (D) Restricted diffusions image.

or acquired. The congenital form is due to localized agenesis of the cortical mantle resulting in the formation of a cavity or a lateral slit through which the lateral ventricle communicates with the convexity of the brain. The cavity is lined by ependyma and laterally by a thin pia-ependymal layer. The acquired type is secondary to any type of cerebral destructive process, ranging from trauma to infection. Sometimes called false porencephalic cyst [2].

Mugtaba Alghazali¹, Ikhlas Abdelaziz², Hatim Zain Alabdeen³

Affiliations: ¹MSc, Diagnostic Radiology, Alzaytouna Specialist Hospital; ²Associate professor Diagnostic Radiology, Sudan University of science and technology, Sudan; ³MSc, MD Clinical Radiologist, Alzaytouna Specialist Hospital.

Corresponding Author: Ikhlas Abdelaziz, Associate professor Diagnostic Radiology, Sudan University of science and technology, Sudan; Email: ikhlas_abdelaziz@yahoo.com

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Patients with severe cases of porencephaly suffer epileptic seizures and developmental delays, whereas patients with a mild case of porencephaly display little to no seizures and healthy neurodevelopment. Infants with extensive defects show symptoms of the disorder shortly after birth [3].

Porencephalic diagnosis by magnetic resonance imaging, ultrasound and computed tomography scans. Magnetic resonance imaging scan of brain is the most sensitive and specific of the imaging techniques in children and adults. Because its sensitivity to distinguish porencephaly from open lipped schizencephaly, by absent of grey matter and associated with a small amount of adjacent FLAIR hyperintensity [4]. Porencephalic cyst should be differentiated from the neuroglial cyst, arachnoid cyst, interhemispheric cyst and holoprosencephaly. Neuroglial cyst is not communicating with the ventricles or subarachnoid space. Arachnoid cyst is extra axial in location and underlying grey-white matter is normal. Holoprosencephaly is due to normal neuronal separation, where fused thalami and monoventricles seen [5]. As of now, there is no definite cure for porencephaly. Research is still ongoing as to the causes of it and how to treat it. As of now, treatment is mainly supportive and consists: medications in the form of anticonvulsants are given to control the seizures. For infants with hydrocephalus due to porencephaly, use of a ventriculoperitoneal (VP) shunt is advised to remove excess fluid from the brain. The porencephaly patient can also undergo surgery for complete removal of the cyst from the cerebral hemisphere [6].

CONCLUSION

Magnetic resonance imaging scan of brain play important role to distinguish porencephalic cyst from other intracranial cyst.

Keywords: Porencephalic cyst, Magnetic resonance imaging, Schizencephalic cyst

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Mugtaba Alghazali – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Ikhlas Abdelaziz – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Hatim Zain Alabdeen – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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