

GLIOPENDYMAL CYST- A RARE CASE REPORT

Parth Avinash Vaishnav¹, Irranna Mallappa Hittalaman², Siddaling Basavaraj Mindoll³, Sachin Shivaji Kapse⁴, Namit Narinder Garg⁵

¹Resident, Department of Radiodiagnosis, Shri B. M. Patil Medical College and Research Hospital, Vijayapura.

²Resident, Department of Radiodiagnosis, Shri B. M. Patil Medical College and Research Hospital, Vijayapura.

³Resident, Department of Radiodiagnosis, Shri B. M. Patil Medical College and Research Hospital, Vijayapura.

⁴Resident, Department of Pathology, Shri B. M. Patil Medical College and Research Hospital, Vijayapura.

⁵Resident, Department of Radiodiagnosis, Shri B. M. Patil Medical College and Research Hospital, Vijayapura.

HOW TO CITE THIS ARTICLE: Vaishnav PA, Hittalamani IM, Mindolli SB, et al. Gliependymal cyst- A rare case report. J. Evid. Based Med. Healthc. 2017; 4(88), 5218-5220. DOI: 10.18410/jebmh/2017/1042

PRESENTATION OF CASE

A 42 years male presented to our hospital with an acute onset of severe headache and whole body spasms for 2 hours. There was no fever or any significant medical history. The patient was normotensive and nondiabetic. No other significant family history was found. Physical examination and laboratory tests were normal on presentation. Electroencephalograms showed sharp waves centrally to the left and there was no lateralisation of seizure pattern.

The patient was subjected to Magnetic Resonance Imaging (MRI). MRI showed evidence of a well-defined 45 x 54 x 25 mm (SI x TR x AP) sized well-defined oval intra-axial lesion is noted in the right frontal lobe. The intensity of the lesion was similar and mildly higher than CSF intensity on all sequences (Figures 1-4). It was causing mass effect over surrounding neuroparenchyma over frontal horn of right lateral ventricle and over the body of corpus callosum. No evidence of communication with subarachnoid space or ventricles was noted. There was no evidence of signal abnormalities surrounding the cyst. No evidence of blooming or restriction noted within the lesion. The imaging findings suggested possibility of a gliependymal cyst.

The differential diagnoses are arachnoid cysts, porencephalic cysts, enlarged periventricular cysts, cerebral hydatid cysts, ependymal cysts and epidermoid cysts. Porencephalic cysts usually communicate with lateral ventricle and may show associated gliosis. Arachnoid cysts are typically extra-axial and sometimes may require histopathological correlation to differentiate it from gliependymal cyst. Cerebral hydatid cysts are usually spherical and maybe indistinguishable on imaging. Epidermoid cysts show restriction on DWI imaging, whereas gliependymal cysts do not.

Financial or Other, Competing Interest: None.
Submission 16-10-2017, Peer Review 18-10-2017,
Acceptance 01-11-2017, Published 06-11-2017.

Corresponding Author:

Dr. Parth Avinash Vaishnav,
No. A-304, Girnar Darshan,
Shastri Nagar, Vasai Road - West,
District Thane - 401202, Maharashtra.
E-mail: vaishnavparth007@gmail.com
DOI: 10.18410/jebmh/2017/1042

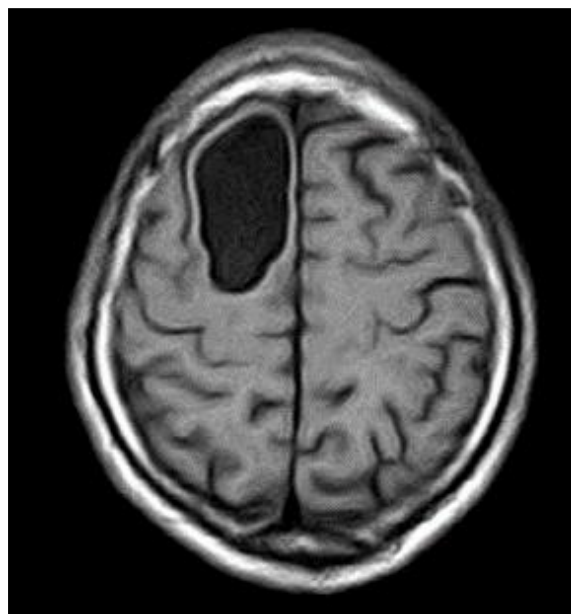


Figure 1. T1 Axial Section of Brain Shows Well-Defined Homogenous Hypointense Lesion Similar to CSF Intensity Noted in Right Frontal Lobe

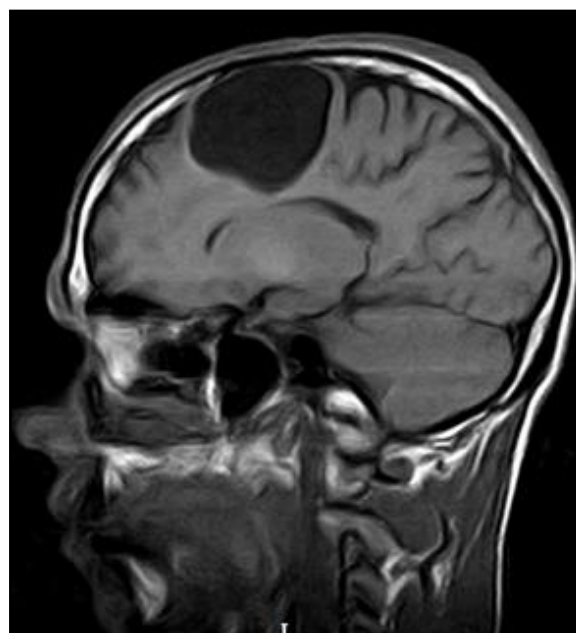


Figure 2. T1 Sagittal Section of Brain Shows Well-Defined Homogenous Hypointense Lesion Similar to CSF Intensity Noted in Right Frontal Lobe, Which is Seen Compressing Over the Body of Corpus Callosum



Figure 3. T2 Coronal Section of Brain Shows Well-Defined Homogeneously Hyperintense Lesion Similar to CSF Intensity Noted in Right Frontal Lobe

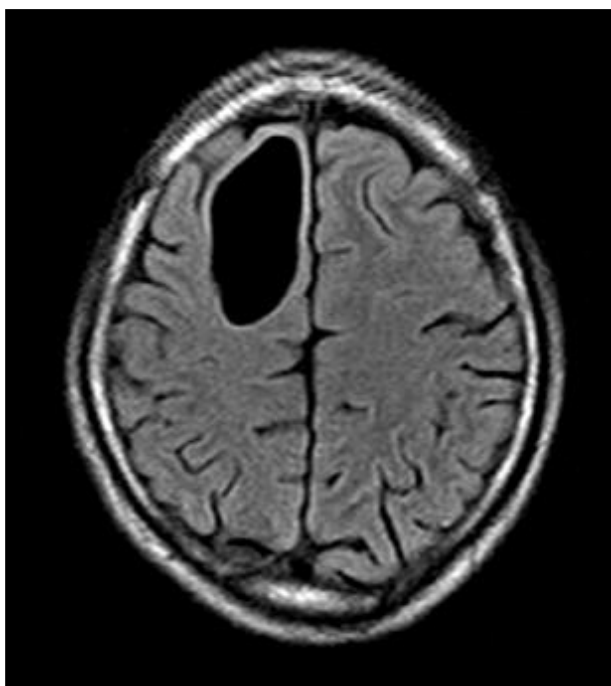


Figure 4. Flair Axial Section of Brain Shows Suppression of Signal within the Lesion

CLINICAL DIAGNOSIS

The case was referred for headache and spastic seizures under evaluation.

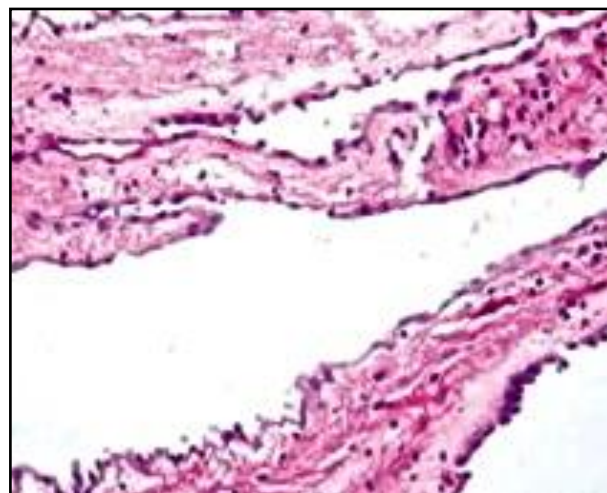


Figure 5. Cyst Wall Lined by Flattened Epithelium (H and E Stain, 400x)

PATHOLOGICAL DISCUSSION

Glioependymal cysts are rare, epithelial lined, nonneoplastic cysts of the central nervous system.¹ They can be noted anywhere along the neural axis, however, when present, they are almost always seen in the frontal lobe.¹ They are essentially congenital cystic lesions, which are a result of the sequestration of the fluid-filled embryonic neural tube elements in the white matter.² Glioependymal cysts accounts for less than 1% of all intracranial cysts.¹ Maximum cases reported till now are found in neonates and children and the origin of these cysts is controversial.³⁻⁸ They are usually congenital lesions that develop a sequestration of neural tube embryonic elements that develop into a glial cell lined fluid-filled cavity located within the white matter. In our case, the cyst maybe considered as a result of neuroglial heterotopia. They may even have formed due to improper displacement of normal ventricular epithelium in different period of embryogenesis. It may even be due to perinatal insult and its sequelae. The growth pattern of cyst is dependent on the ependymal secretory activity.⁸ The cyst probably did not grow from the period of embryogenesis to its onset with probably recent quick growth causing the clinical presentation.

Glioependymal cysts mostly are asymptomatic. They may clinically present due to mass effect and compression over surrounding neuroparenchyma. The cysts may even affect the CSF circulation system and may even cause hydrocephalus if located within the ventricular system.³ Depending on the site of cyst the patient presents clinically. If located within the intramedullary cavity, the presentation is of increased micturition.⁴ If located near cerebellopontine angle, the presentation maybe in the form of compression over cranial nerves.⁹ Imaging modalities used to diagnose are CT scan and MRI. MRI shows well-defined T1 hypointense, T2 hyperintense lesion with suppression seen on FLAIR images. The signal is homogenous with sometimes the signal being slightly higher than CSF perhaps due to higher protein content in these cysts. Likewise, our case presented with these typical features of glioependymal cyst.

The ideal treatment for these cysts is complete excision.¹⁰ Fenestration may sometimes result into

recurrence. Cystoperitoneal shunt may also be performed. However, it requires monitoring.¹¹

DISCUSSION OF MANAGEMENT

The patient was further referred to a higher centre where a craniotomy was done followed by fenestration of cortices and cyst wall was performed. Resection of most of the wall was performed. Postoperative course was uneventful.

FINAL DIAGNOSIS

Well-defined intra-axial cystic lesion appearing hypointense on T1 and hyperintense on T2 with suppression of signal on FLAIR; no restricted diffusion, foci of calcification or haemorrhage noted within. These imaging features suggested the lesion to be a gliependymal cyst. The microscopic examination of H and E stained section revealed cyst wall lined by flattened to cuboidal epithelium (Figure 5). Subepithelium showed loose connective tissue and neuroglial tissue. The histopathological features suggested the lesion to be a gliependymal cyst.

REFERENCES

- [1] Osborn AG, Preece MT. Intracranial cysts: radiologic-pathologic correlation and imaging approach. *Radiology* 2006;239(3):650-664.
- [2] Osborn AG. Neuroglial cyst. In: *Diagnostic imaging: brain*. Salt Lake City, Utah: Amirsys 2004:I-7-20.
- [3] Muhler MR, Hartmann C, Werner W, et al. Fetal MRI demonstrates gliependymal cyst in a case of sonographic unilateral ventriculomegaly. *Pediatr Radiol* 2007;37(4):391-395.
- [4] Balasubramaniam C, Balasubramaniam V, Santosh V. Intramedullary gliependymal cyst and tethered cord in an infant. *Childs Nerv Syst* 2004;20(7):496-498.
- [5] Tange Y, Aoki A, Mori K, et al. Interhemispheric gliependymal cyst associated with agenesis of the corpus callosum. *Neurol Med Chir (Tokyo)* 2000;40(10):536-542.
- [6] Pelkey TJ, Ferguson JE II, Veille JC, et al. Giant gliependymal cyst resembling holoprosencephaly on prenatal ultrasound: case report and review of literature. *Ultrasound Obstet Gynecol* 1997;9(3):200-203.
- [7] Morigaki R, Shinno K, Pooh KH, et al. Giant gliependymal cyst in an infant. *J Neurosurg Pediatr* 2011;7(2):175-178.
- [8] Hassan J, Sepulveda W, Teixeira J, et al. Gliependymal and arachnoid cyst: unusual cause of early ventriculomegaly in utero. *Prenat Diagn* 1996;16(8):729-733.
- [9] Ho KL, Chason JL. A gliependymal cyst of the cerebellopontine angle. *Acta Neuropathol* 1987;74(4):382-388.
- [10] Utsunomiya H, Hayashi T, Honda E, et al. A case of interhemispheric gliependymal cyst in a newborn infant. *No Shinkei Geka* 1987;15(7):771-776.
- [11] Alvord EC, Marcuse PM. Intracranial cerebellar meningoencephalocele (posterior fossa cyst) causing hydrocephalus by compression at the incisura tentorii. *J Neuropathol Exp Neurol* 1962;21:50-69.