CASE REPORT

Endoscopic excision of intraventricular neurocysticercosis blocking foramen of Monro bilaterally

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ABSTRACT

Neurocysticercosis (NCC) is a parasitic infestation of the central nervous system. NCC parasitic infestation can be misdiagnosed as hydatid cyst or intraventricular epidermoid cyst that can cause a diagnostic dilemma. A 23-year-old male patient presented with headache and vomiting for 3–4 days and giddiness for 4–5 days. Magnetic resonance imaging with contrast was suggestive of a rim-enhancing lesion at the level of the foramen of Monro. Endoscopic excision of the lesion was done, and the patient had relief of a headache and vomiting immediately after the procedure. He is being followed up regularly. Intraventricular NCC occluding both foramen of Monro is a rare entity. Complete endoscopic surgical excision followed by appropriate drug therapy should be given to achieve a cure.

Key words: Foramen of monro, headache, intraventricular cyst

Introduction

Neurocysticercosis (NCC) occurs when immature Taenia solium larvae migrate to the central nervous system. This usually manifests as acute seizure, epilepsy, severe progressively worsening headache or focal deficits. It can also present with intracranial hypertension, hydrocephalus, stroke or dementia.[1] The condition is common and endemic in many developing countries in Latin America, Asia, and Africa, where sanitation and meat inspection infrastructure are lacking.[2] We present an uncommon case of intraventricular cysticercosis occluding the foramen of Monro bilaterally.

Case Report

A 23-year-old male presented with high-grade fever for which he was treated empirically. After the fever subsided, he was discharged. Eleven days later the patient developed headache, vomiting, and giddiness, not associated with convulsion, unconsciousness or any ear discharge. Neurologically and hemodynamically, the patient remained stable and routine blood investigations were within normal limits. There were no visual abnormalities and fundus examination was normal. A contrast magnetic resonance imaging (MRI) [Figure 1] showed evidence of well-defined altered signal intensity lesion involving foramen of Monro of which appeared hyperintense on T1-weight images, T2-weigth images and short tau inversion recovery images. The lesion did not show restriction of on diffusion weighted imaging. There was mild perilesional edema seen on fluid attenuation inversion recovery images. The lesion caused obstruction of the foramen of Monro bilaterally resulting in hydrocephalus. Postcontrast study revealed peripheral rim enhancement of the lesion. A differential diagnosis of either Colloid cyst or NCC was made.

After preanesthetic evaluation, the patient was planned for endoscopic excision of the lesion. Through a precoronal right frontal burr hole, an endoscope was introduced to assist excision of the lesion. The whole degenerative lesion was excised except small islands of the capsule that was strongly

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adherent to the ventricular wall [Figure 2]. The lesion was pale, fluffy, avascular and was blocking both foramen of Monro. Considering that ventricular cysticerci may induce a local inflammatory reaction, and fluffy part of the lesion may migrate toward the third ventricle leading to aqueduct blockage, endoscopic third ventriculostomy was done in the same setting. On the 5th postoperative day, patient developed signs of raised intracranial hypertension as well as deterioration in level of consciousness which was treated with emergency ventriculostomy followed by endoscopic visualization of foramen of Monro and third ventriculostomy opening which was found to be patent. On inspection, it was observed that there was an inflammatory reaction throughout the ventricular system due to ruptured degenerated cysts causing ependymitis and basal arachnoiditis. The condition was treated with ventriculoperitonial shunt and steroid therapy. Albendazole was started for 4 weeks after the histopathological report was conclusive for NCC. The postoperative period was uneventful, and the patient remained symptoms free for 1 year follow-up. Postoperative MRI images are shown in Figure 3.

Histopathological report [Figure 4] revealed reactive glial tissue with abscess formation. There was well-defined parasitic structure consisting of microvilli having a corrugated wall with wavy eosinophilic membrane suggestive of cysticercosis.

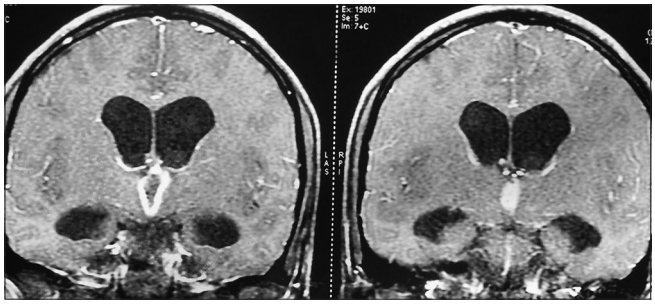

Figure 1: Magnetic resonance imaging brain (preoperative)

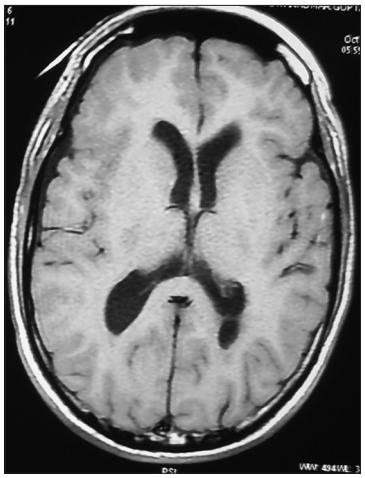

Figure 3: Postoperative magnetic resonance imaging no contrast enhancement at site of lesion with decreased ventricle size

Discussion

NCC commonly affects the brain parenchyma. Intraventricular NCC occurs in 7–30% of patients with NCC;[3,4] the forth ventricle and lateral ventricle being common sites while third ventricle involvement is uncommon. The prognosis of intraventricular NCC is poorer than that of parenchymal NCC and, therefore, prompt diagnosis and treatment is of paramount importance.[3]

Intraventricular cysticercal lesions may mimic more common intraventricular masses, including colloid cysts, hydatid cyst or intraventricular epidermoid. The most common presentation of intraventricular NCC is symptoms of increased intracranial pressure. A degenerating cyst in the ventricles can result in an inflammatory reaction throughout the ventricular system leading to granular ependymitis. When this occurs the cyst capsule becomes fixed to the ventricular wall due to adhesions and fibrosis.[5] Occlusions of the cerebrospinal fluid (CSF) pathways from an intraventricular cyst, ependymitis, or basilar arachnoiditis are responsible for elevation in intracranial

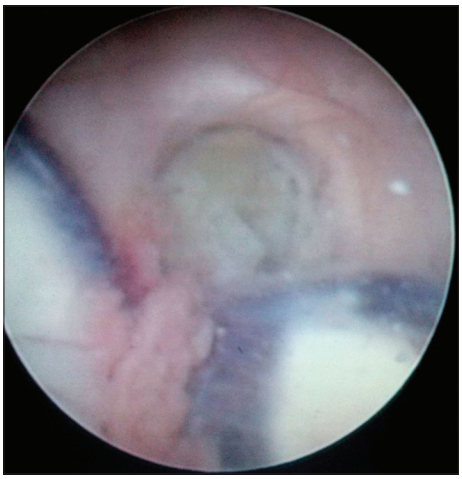

Figure 2: Endoscopic view

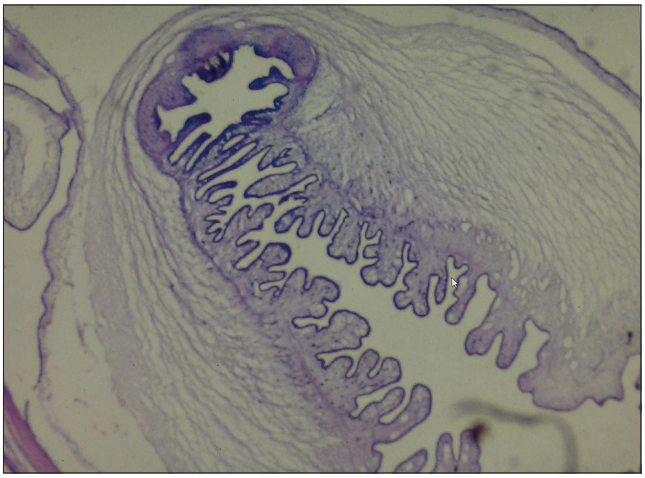

Figure 4: Histopathology evaluation image

pressure.[6,7] Patients with lateral or anterior third ventricular cyst tend to have a more chronic course than those with cysts in the fourth ventricle.

Surgical approaches to intraventricular NCC include endoscopic as well as open craniotomy.[8] While treating a patient with intraventricular NCC surgically, one should consider some important factors well-described by BS Sharma and Sarat Chandra P.[9] These factors include the presence of associated ependymitis requiring a shunt, presence of ventricular entrapment, the potential of cyst migration, the potential for an increase in the size of the cyst with local mass effect, potential for rapid clinical deterioration and or sudden death and feasibility of endoscopic excision/aspiration in the lateral and third ventricle.

We performed CSF shunt procedure after observing severe inflammatory lesions within the ventricular system and basal cisterns during the second endoscopic procedure. Antihelminthic and steroid therapy may be indicated after intraoperative cysticercal rupture[10] although it remains controversial.

Conclusion

We report the successful management of a rare case of intraventricular NCC occluding both foramen of Monro. Endoscopic excision of the lesion along with CSF shunt procedure and medical therapy were successful in managing this patient and craniotomy could be avoided. Complications of ruptured NCC contents can lead to inflammatory reaction in ventricles requiring further interventions.

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Conflicts of interest

There are no conflicts of interest.

References

1. Sinha S, Sharma BS. Neurocysticercosis: A review of current status and management. J Clin Neurosci 2009;16:867-76.
2. Jivan K, Mochan A, Modi G. Intraventricular neurocysticercosis causing acute unilateral hydrocephalus. Afr J Psychiatry (Johannesbg) 2010;13:315-7.
3. Husain M, Jha DK, Rastogi M, Husain N, Gupta RK. Neuro-endoscopic management of intraventricular neurocysticercosis (NCC). Acta Neurochir (Wien) 2007;149:341-6.
4. Suri A, Goel RK, Ahmad FU, Vellimana AK, Sharma BS, Mahapatra AK. Transventricular, transaqueductal scope-in-scope endoscopic excision of fourth ventricular neurocysticercosis: A series of 13 cases and a review. J Neurosurg Pediatr 2008;1:35-9.
5. Cuetter AC, Andrews RJ. Intraventricular neurocysticercosis: 18 consecutive patients and review of the literature. Neurosurg Focus 2002;12:e5.
6. Cuetter AC, Garcia-Bobadilla J, Guerra LG, Martinez FM, Kaim B. Neurocysticercosis: Focus on intraventricular disease. Clin Infect Dis 1997;24:157-64.
7. Khandelwal S, Sakhi P, Sharma GL, Saxena UD. Intraventricular cysticercus. Indian J Radio Imaging 2002;12:329-32.
8. Vaz-Guimarães Filho FA, Ramalho CO, Suriano ÍC, Zymberg ST, Cavalheiro S. Neuroendoscopic surgery for unilateral hydrocephalus due to inflammatory obstruction of the Monro foramen. Arq Neuropsiquiatr 2011;69:227-31.
9. Sharma BS, Sarat Chandra P. Cysticercosis. In: Tandon PN, Ramamurthi R, editors. Textbook of Neurosurgery: 3rd ed., Vol. 2, Ch. 68. New Delhi, India: Jaypee Brothers Medical Publisher Ltd; 2012 p. 789.
10. Jiménez-Vázquez OH, Nagore N. Endoscopic evidence of ventricular and cisternal inflammatory changes after intraoperative cysticercal rupture during endoscopic third-ventriculostomy removal. Br J Neurosurg 2013;27:137-8.