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CASE REPORT

Epidermal Inclusion Cyst Presenting as 4th Ventricle Space Occupying Lesion: A Rare Case Report

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ABSTRACT

Background: Epidermal inclusion (epidermoid) cysts are rare benign intracranial lesions that account for less than 1% of all intracranial tumors. Their occurrence within the fourth ventricle is exceptionally uncommon and may lead to significant mass-effect symptoms.

Case Presentation: A 45-year-old female presented with a one-year history of intermittent headache with recent worsening, followed by progressive vertigo and projectile vomiting. Neuroimaging (CT and MRI) demonstrated a well-circumscribed cystic lesion occupying the fourth ventricle with extension into the bilateral cerebellar hemispheres and foramina of Luschka and Magendie, producing marked compression of the pons, medulla, and cerebellar hemispheres. The lesion was surgically excised. Histopathological examination revealed a cyst lined by stratified squamous epithelium containing abundant keratin flakes, confirming the diagnosis of an epidermal inclusion cyst. The postoperative period was uneventful, and the patient experienced complete resolution of symptoms.

Conclusion: Fourth ventricular epidermal inclusion cysts are rare lesions that may mimic other posterior fossa tumors. Radiological features combined with histopathological evaluation are essential for accurate diagnosis. Surgical excision remains the treatment of choice and is associated with favourable outcomes when critical neurovascular structures are preserved.

KEYWORDS

• Epidermal inclusion cyst • Epidermoid cyst • Fourth ventricle • Posterior fossa lesion • Intracranial cyst

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INTRODUCTION

Epidermoid cyst or epidermal inclusion cyst is a benign slow growing neoplasm which arises from epidermal elements and contain keratin. They constitutes <1% intracranial neoplasms.[1] It can involve any part of body usually occur in the head, face and upper torso of young men, and a small number of cysts can occur in the injured region or in deep tissues and organs, such as the cranium, abdominal cavity, mammary gland, *etc*.[2] These cysts are twice more common in men as compared to women. They can affect a wide age group but most commonly presents in 3rd and 4th decade of life.[3]

CASE REPORT

A 45 years old female patient presented to neurosurgery out patient department with complaints of headache which was on and off since1 year with increased frequency since2 months. She also complained of projectile vertigo since 1 month and projectile vomiting since 10 days. There was no history of fever, gait disturbances, difficulty in vision or speech. There was no history of trauma or any similar complaints in the past. Family history was not significant.

On clinical examination all the higher functions were normal. No abnormality was seen in any cranial nerve functions. Patient vitals were stable and Computed tomography and magnetic resonance imaging were performed.

Computed tomography showed a well-defined hypodense cystic lesion with internal septa and eccentric hyperdense soft tissue component centred in 4th ventricle extending into bilateral cerebellar hemispheres and into bilateral foramen of Luschka. Possibilities of ependymoma and epidermoid cyst were suggested.

Magnetic resonance imaging showed a large well defined cystic lesion in 4th ventricle insinuating in bilateral foramen of Luschka and foramen of Magendie causing their widening and extension into left cerebellopontine angle and cistern. Size of lesion was approximately 4.4x5.5x3.8cm. The lesion showed mass effect in the form of abutment with indentation and anterior displacement of pons and medulla and was causing compression of bilateral cerebral hemispheres.

Lesion was excised and sent for histopathological examination which showed a cyst lined by squamous epithelium with abundant keratin flakes and lining of normal ventricle was also seen in the sections examined. There were no atypical or malignant cells seen.

On the basis of history, clinical, radiological and histopathological examination final diagnosis of epidermal inclusion cyst was made.

DISCUSSION

Intracranial epidermoid cyst is benign and rare neoplasm which arises from aberrant migration of ectodermal elements during embryogenesis due to which cutaneous epithelial tissue is trapped within neural tissue forming ectodermal inclusion cyst.[4] Most of them are cerebellopontine angle and parasellar region. Other common locations are middle cranial fossa, the dipole and spinal canal.[5] It is a slow growing neoplasm with symptoms depending on the structures being compressed.[6] Complications include hydrocephalus, intracranial haemorrhage, cerebral edema and vascular events like dissection of basilar artery.[7]

Microscopically they are identified by lining of stratified squamous epithelium which grows as a result of desquamation of epithelium, later breaking down into keratin and cholesterol. They are also pronounced by names as pearly tumors as they are white and glistening on outer aspect.[8] main principle of treatment depends on simple aspiration and total or subtotal excision. Main approach is conservative preserving nervous and vascular structures as the lesion is histologically benign.[9] Many perioperative and postoperative complications are associated with the epidermal inclusion cyst as meningitis, nerve damage, hydrocephalus, cerebral edema etc.[10]

In our patient also excision was performed and patient was followed up after surgery. She was doing fine on monthly follow up with relief of complaints of headache, vertigo and vomiting. There was no nerve damage or any other higher function deficit was seen.

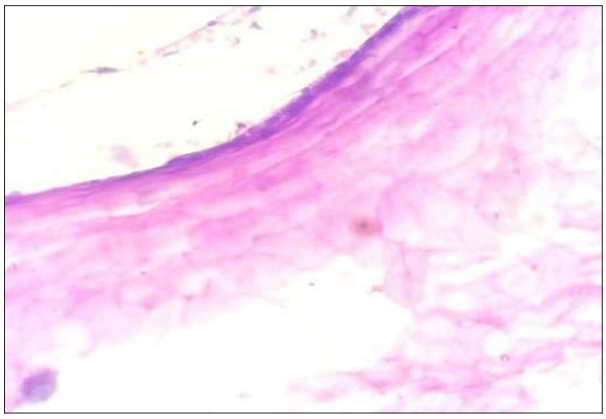

Figure 1: Normal lining of ependymal cells

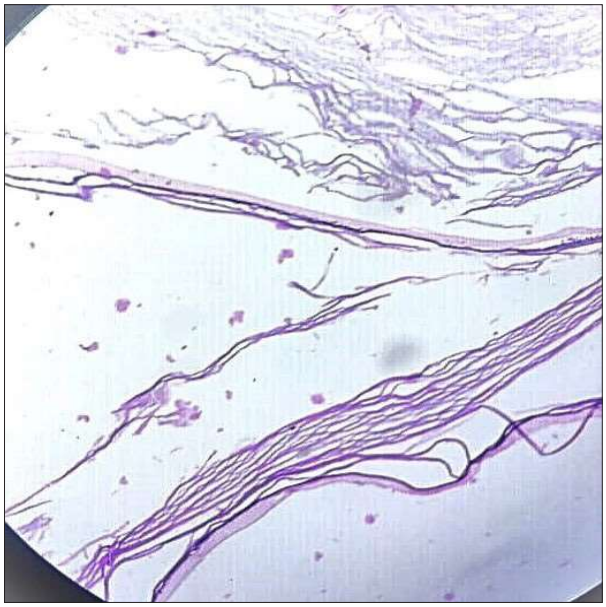

Figure 2: Abundant keratinous flakes

CONCLUSION

Epidermal inclusion cysts involving the fourth ventricle are extremely rare and often present with non-specific symptoms related to posterior fossa compression. This case highlights the diagnostic challenge posed by such lesions, which can resemble other fourth-ventricular tumors on imaging. Definitive diagnosis relies on histopathological confirmation. Surgical excision, while requiring meticulous technique to protect adjacent neurovascular structures, offers excellent prognosis with minimal complications when performed promptly. Early recognition of this entity is therefore essential for optimal patient outcomes.

REFERENCES

1. Mohan A., Unni C., Kannoth P., Parambil R.M. A Rare Case of Giant Intradiploeic Epidermal Cyst of the Frontal Bone with Intracranial Extension. Asian J Neurosurg. 2020; 15: 670-3.
2. Wei Y., Chen P., Wu H. Gigantic occipital epidermal cyst in a 56-year-old female: A case report. World J Clin Cases. 2024; 12: 1169-73.
3. Ali A.A., Tahir S.M., Memon A.S., Dahri A.A. Epidermoid inclusion cyst of the perineum: A rare case report in a 50 years old male. *J Ayub Med Coll Abbottabad*. 2009; 21: 179–80.
4. Solanki S.P., Maccormac O., Dow G.R., Smith S. Malignant transformation of residual posterior fossa epidermoid cyst to squamous cell carcinoma. *Br J Neurosurg*. 2017; 31: 497–8.
5. Netsky M.G. Epidermoid tumors. Review of the literature. *Surg Neurol*. 1988;29:477–83.
6. Patibandla M., Yerramneni V., Mudumba V., Manisha N., Addagada G. Brainstem epidermoid cyst: an update. *Asian J Neurosurg*. 2016; 11: 194–200.
7. Pikis S., Cohen J.E., Margolin E. Basilar artery dissection: a rare complication of posterior fossa epidermoid cyst resection, and evaluation of the possible effects of cerebrospinal fluid drainage on disease progression. *J Clin Neurosci*. 2016; 32: 141–143.
8. McLendon R.E., Rosenblum M.K., Bigner D.D. *Russell and Rubinstein's Pathology of Tumors of the Nervous System 7Ed*. Hodder Arnold; 2006:583–90.
9. Mortini P., Bailo M., Spina A., Acerno S., Boari N., Gagliardi F. Cyst-cisternal shunting for cystic multirecurrent brainstem epidermoid: case report and literature review. *Acta Neurochir (Wien)*. 2016; 158: 1197–1201.
10. 10-Akar Z., Tanriover N., Tuzgen S., Kafadar A.M., Kuday C. Surgical treatment of intracranial epidermoid tumors. *Neurol Med Chir (Tokyo)*. 2003; 43: 275–80.