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Excerpta Abstract
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Cerebellar Endometriosis: When Gynecology Meets Neurosurgery.

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Clinical History

A 14-year-old female with no prior medical history presented with recurrent, intermittent, and cyclic headaches that worsened over the preceding week. The headaches were throbbing in nature, predominantly frontal and occipital, and associated with photophobia, phonophobia, nausea, and dizziness. No history of trauma or focal neurological deficits. Outpatient non-contrast CT revealed a large posterior fossa cystic lesion exerting mass effect, prompting urgent neurosurgical referral. Suboccipital craniectomy achieved complete excision of a dark-blue cystic lesion. Postoperative recovery was uneventful. Histopathology demonstrated organized hemorrhage with hemosiderin-laden macrophages and focal benign epithelium, consistent with cerebellar endometriosis. Gynecologic evaluation revealed normal menstrual cycles and pelvic ultrasound.

Imaging Findings

Non-contrast CT of the brain demonstrated a well-circumscribed hyperdense lesion within the posterior aspect of the right cerebellar hemisphere, with an excentric hypodense nodular component lateral to the vermis. This lesion was partially compressing the fourth ventricle and resulting in mild supratentorial ventriculomegaly.

MRI revealed a large, well-defined, multiloculated cystic lesion projected in the posterior aspect of the right cerebellum. The dominant component was T1W hyperintense, with hypointense signal on T2W, FLAIR, SWI and DWI sequences, demonstrating the classic “T2 shading” sign, which strongly mirrors ovarian endometrioma. There was also an additional excentric heterogeneous and mildly enhancing nodule, projected posteromedial to the cyst, lateral to the vermis. This lesion caused mass effect to adjacent structures, resulting in mild tonsillar herniation and mild supratentorial ventriculomegaly.

Discussion

Endometriosis is a gynecologic disorder characterized by ectopic endometrial glands and stroma outside the uterus, causing cyclic hemorrhage, inflammation, and fibrosis.

While common in pelvic sites, CNS involvement is exceedingly rare; cerebellar localization is exceptional, with few reported cases (Sarma et al., 2004; Meggyesy et al., 2020). Proposed mechanisms include hematogenous or lymphatic spread, meningeal metaplasia, and perineural migration (Siquiara de Sousa et al., 2015).

MRI features often resemble ovarian endometriomas: T1W hyperintensity, T2W hypointensity (“T2-shading”), and chronic hemorrhage. Our case demonstrated these hallmark features.

Absence of pelvic disease does not exclude diagnosis; up to one-third of neuro-endometriosis cases lack peritoneal involvement (Siquiara de Sousa et al., 2015). Histopathologic confirmation may be challenging, as chronic hemorrhage and fibrosis obscure endometrial stroma (Van Buren et al., Radiology 2024).

Teaching Point

Cerebellar endometriosis, though exceedingly rare, should be considered in the differential diagnosis of hemorrhagic posterior fossa cysts in young females. Characteristic MRI findings can mimic neoplastic or vascular lesions. Awareness of this entity and its imaging parallels with ovarian endometriomas is essential for accurate preoperative assessment and multidisciplinary planning.

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Figures

None