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Intracranial cavernous hemangioma in a neonate

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Abstract Cogenital intracranial hemangioma is rare, and the imaging findings have been described in very few cases. We describe a case of a huge congenital left parietal hemangioma that was diagnosed postnatally by head duplex ultrasonography. Complete surgical resection yielded an excellent outcome.

Introduction

Cavernous hemangioma (CH) is an uncommon benign intracranial vascular tumor that is rarely discovered in a newborn baby [1–3]. It usually presents with head enlargement [1, 4–8]. The imaging characteristics of this tumor have been described in only a few cases [4]. Radical surgical resection is the treatment of choice [4]. We describe a newborn male with a huge left parietal CH that was diagnosed postnatally by head duplex ultrasonography. He was further evaluated by computed tomography (CT) and magnestic resonance imaging (MRI). Complete surgical resection was performed with an excellent outcome.

Case report

The patient was a full-term male infant born to a 24-year-old woman, gravida 1. Birth weight was 3,120 g and the Apgar score was 9–10. Prenatal ultrasound had demonstrated a structurally normal fetus. On physical examination at birth, however, wide open bulging fontanels were noted with marked separation of the cranial sutures. The neurologic examination was normal.

Head duplex ultrasonography demonstrated a huge left complex parietal mass with a large cystic component and a hyperechogenic vascularized solid mass (Fig. 1).

CT and MRI demonstrated marked enhancement of the solid mass (Fig. 2). MRI demonstrated blood products within the mass compatible with old hemorrhage (Fig. 2).

Surgery was performed at the age of 1 week, and the mass was completely removed. The cystic component contained xanthochro-

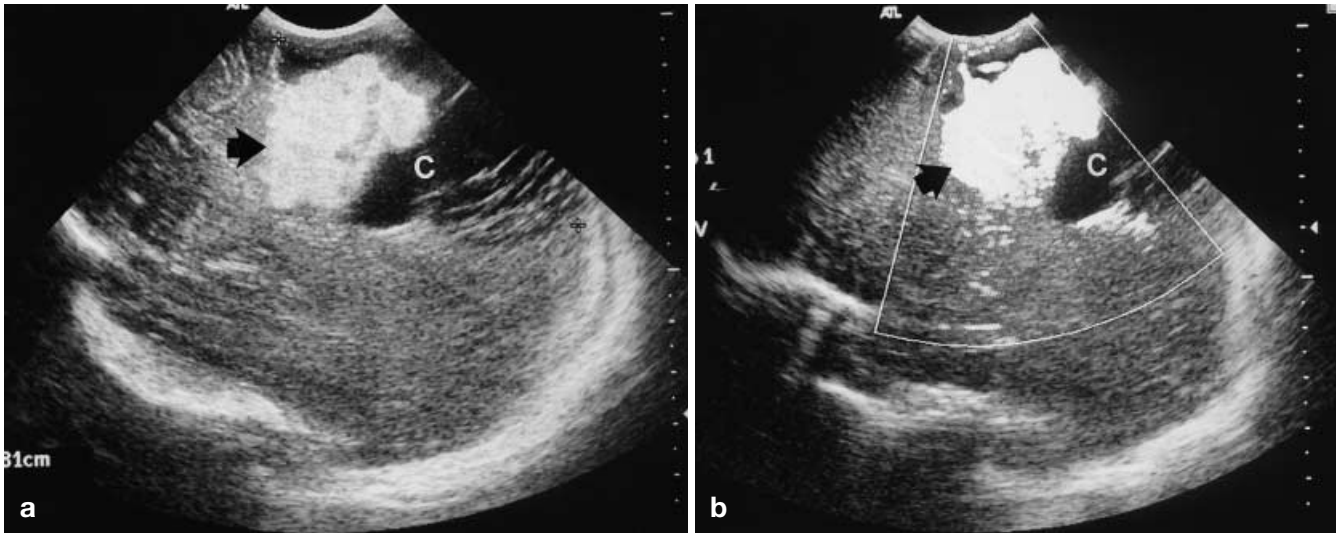


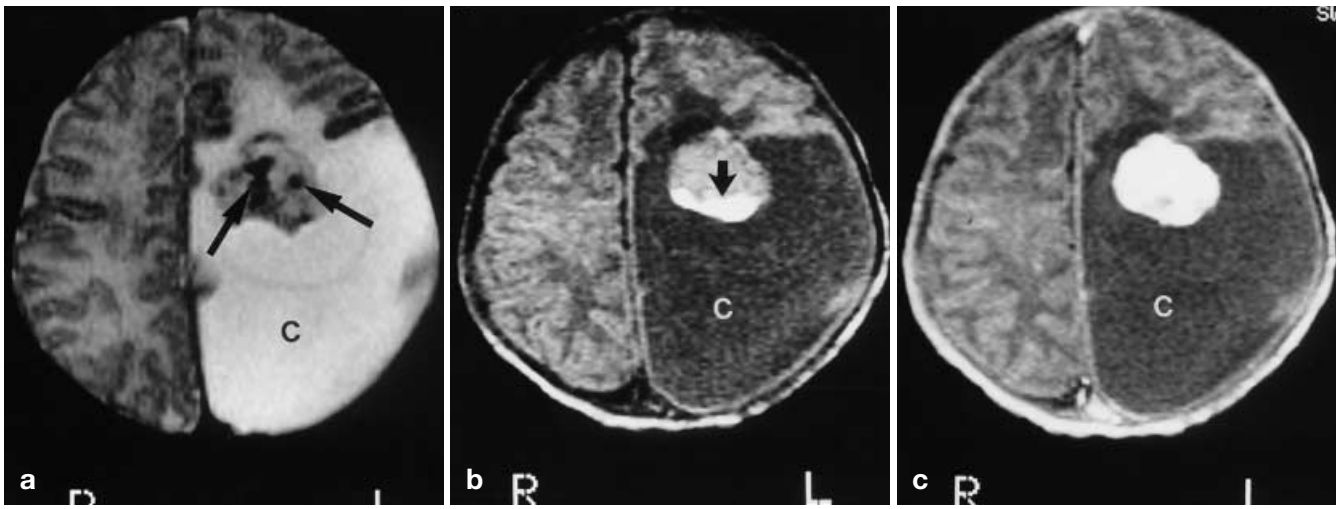
Fig. 1a, b Head sonography at 2 days of life. **a** Right parasagittal view showing echogenic mass (*arrow*) and adjacent cystic encephalomalcia (*C*). **b** Duplex sonography in the same view showing marked flow in the mass (*arrow*)

mic fluid. The pathologic examination was compatible with CH (Fig. 3). The postoperative course was uneventful, and the neurological examination at discharge was normal.

Discussion

The most common neonatal brain tumors include teratoma, hypothalamic astrocytoma, choroid plexus papilloma and carcinoma, and primitive neuroectodermal tumor [1–3]. Cavernous hemangioma (CH), a benign low-flow vascular tumor composed of clusters of endothelial-lined spaces, is rare in this age group, and only a few cases have been reported [1, 4–9]. As opposed to older children, neonates with CH usually present clinically with head enlargement caused by the mass effect of the tumor, as was evident in our case [1, 4–8]. The site of CH is usually extra-axial, such as the dura mater [4, 5] ventricles [6, 7] and tentorium

Fig. 2a–c Head MRI at 6 days of life. **a** Axial T2-weighted (TR 4000, TE 80) sequence showing areas of marked hypointensity (*arrows*) within the mass compatible with hemosiderin (*C* cystic encephalomalcia). **b** Axial T1 weighted (TR 590, TE 20) sequence showing an area of high intensity (*arrow*) within the mass compatible with methemoglobin. C-cystic encephalomalcia. **c** Post-contrast axial T1-weighted sequence at the same level showing marked enhancement of the mass



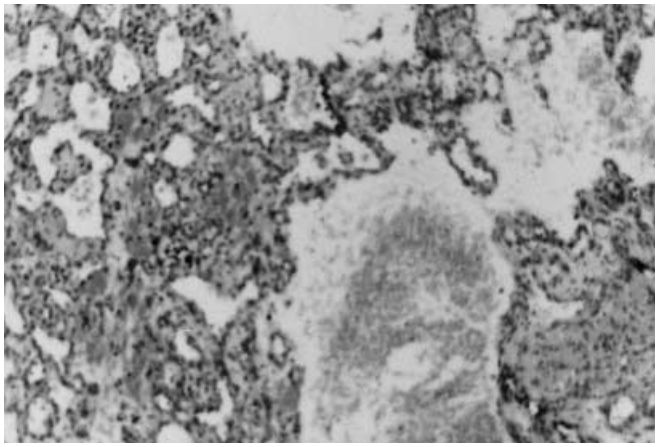


Fig. 3 Photomicrograph of the mass, demonstrating multiple vascular channels with papillary proliferation lined by endothelial cells (H&E, × 100)

[8]. Intra-axial CH, as seen in our case, is extremely rare [1].

Head ultrasonography in infants with CH demonstrates a well-circumscribed echogenic mass [4]. In our patient, head duplex ultrasonography demonstrated an echogenic solid vascularized mass. Adjacent to the solid mass was a large cyst. On MRI there was evidence of blood products within the solid mass. On surgery the cystic fluid was xanthochromic. Indeed, CH may bleed with devastating results [7]. The cystic area therefore is most likely a result of an intrauterine event of intracranial bleeding.

Radical surgical removal is the treatment of choice, as performed in four earlier cases of CH [4]. Our patient underwent complete resection of the CH with excellent results.

In conclusion, we present an unusual case of intracranial cavernous hemangioma in a neonate, and the tumor was completely resected.

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