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Image of the Month

A transient lesion occupying the entire corpus callosum associated with neonatal hypoglycemia

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A one-year-old girl, the product of an uncomplicated vaginal delivery presented on day 3 of life with complaints of poor sucking. She was hypotonic on examination and ultimately developed seizures. Laboratory examination revealed marked hypoglycemia (2 mg/dL). Rest of the investigations including serum electrolytes was normal but serum osmolality was not done at that time. Her symptoms resolved with glucose loading. The etiology of her hypoglycemia was unclear. Computerized tomography of the brain demonstrated bilateral low-density lesions in the occipital lobes on the 4th postnatal day. On postnatal day 17, diffusion weighted magnetic resonance imaging (MRI) of the brain disclosed a high intensity lesion occupying the entire corpus callosum (Fig. 1), with an accompanying lesion in the occipital lobe present on a T2-weighted MRI (Fig. 2). The corpus callosum lesion resolved at three months of age. Presently the patient only has mild motor and intellectual developmental delay.

Reversible lesions occupying the entire corpus callosum or the splenium, characterized by reduced diffusion have been associated with many conditions, such as mild encephalitis or secondary to the medical management of epilepsy [1]. These lesions may result from intramyelinic edema; however, no myelination of the corpus callosum is present in neonates. In neonates, a transient splenial lesion with reduced diffusion has been reported in a 12-day-old neonate with mild asphyxia [2]. The authors speculated that the reduced diffusion in the splenium may have resulted from inflammation. Although an occipital cerebral injury is often associated with neonatal hypoglycemia, a reversible corpus callosum lesion is not and the mechanism behind this finding remains obscure [3]. We, pediatricians, should keep in mind that transient corpus callosum as well as occipital lesions may occur in neonatal hypoglycemia.

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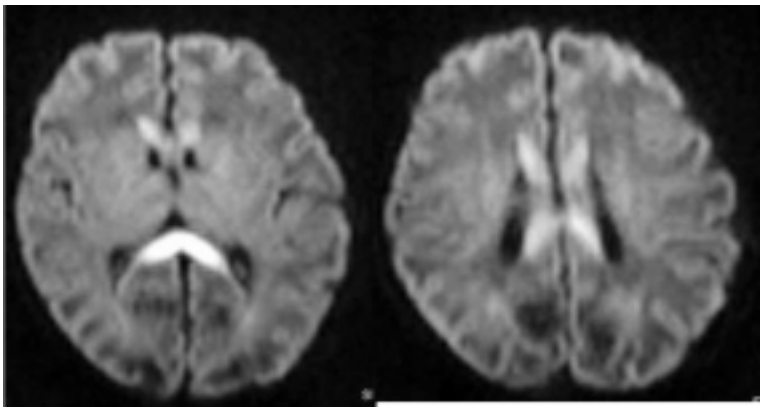

Fig. 1. Diffusion-weighted magnetic resonance imaging on postnatal day 17 disclosing a high intensity lesion occupying the entire corpus callosum.

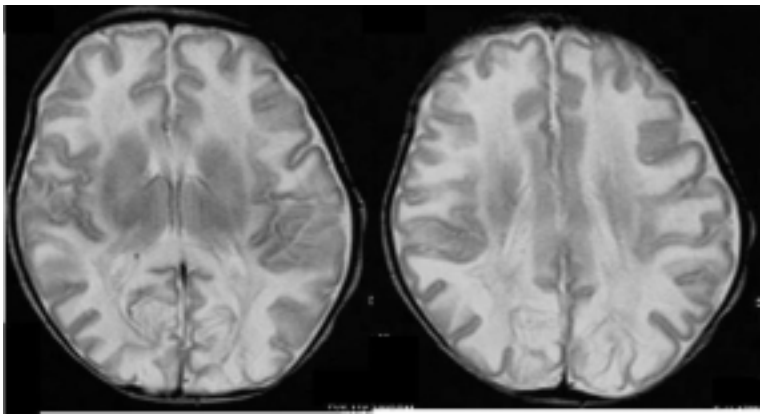

Fig. 2. T2-weighted magnetic resonance imaging on postnatal day 17 showing an accompanying lesion in the occipital lobe.