Unusual Cranial Sonographic Findings in the Newborn: Lenticulostriate Vasculopathy

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Brief Report:

Stripes of high echogenicity in the basal ganglia and thalamus of newborn infants have been rarely observed on cerebral ultrasound. Of newborn infants who undergo cranial ultrasonography, 0.27 to 0.42% exhibit hiperechogenic lesions in the basal ganglia and thalamus (1,2). These lesions, which appear to be due to a non-calcific vasculopathy, are caused by fetal head injury at birth, neonatal hypoxia and ischemia, TORCH infections, neonatal hypoglycemia, trisomi 13 and 21, encephalitis, syphilis, neonatal lupus, twin-twin transfusion, intrauterine cocaine exposure, and

Figure 1. The typical sonographic pattern of lenticulostriate vasculopathy in an infant having hypoglycemia.

A, Coronal view, gray scale. There is bright linear echogenicity (→, ←) lateral to the thalami, bilaterally.
B, Parasagittal view, gray scale. Bright linear echogenicity with ramifications radiating in basal gangliae.
fetal alcohol syndrome, in the majority of cases (3). The
echogenic foci follow the distribution of the lenticulostriate
arteries. The exact cause is unknown, but histopathologic
studies have shown deposits of amorphous basophilic
material within the vessel walls. The clinical significance in
terms of the neurodevelopmental outcome of this
radiological abnormality is unknown. One study has shown
no significant difference between the average Developmental
Quotient of the target population and the normal population
in regard to developmental status (4). When associated with
etiologies such as TORCH infections, asphyxia,
chromosomal abnormalities, such lesions are probably
followed by a poor developmental outcome. Although non-
specific, these findings should alert the physician to the
possibility of congenital infection or chromosomal
abnormality. These patients warrant complete screening for
possible in utero infection and perhaps also chromosomal
analysis.

We describe this finding (Figure 1) in 9 infants, in 3 with
microcephaly, in 1 premature birth (34 weeks’ gestation),
and 5 having hypoglycemia. We suggest that sonographic
lenticulostriate vasculopathy is a nonspecific marker of a
previous insult to the brain.

References
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