Premature newborn at 27 weeks gestational age. Evaluate for IVH.

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Follow up 2 months later
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Periventricular Leukomalacia
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White matter injury of prematurity occurring before 33 weeks gestation. Results in loss of periventricular white matter.

• Early imaging:
  – Typically subtle hyperechoic periventricular flare on US.
• Subacute:
  – Cavitary change
• Late:
  – Ipsilateral ventriculomegaly
  – “Periventricular cyst”
  – Angular ventricular morphology
  – Cortical ribbon extending down to ventricular margin
  – Focal thinning of body of corpus callosum
  – Minimal associated gliosis
Periventricular Leukomalacia

Differential:
- Normal periventricular halo – produced by normal WM tracts, peri trigonal location, less echogenic than choroid plexus
- Infection – CMV, citrobacter, neonatal herpes
- Shunted hydrocephalus
- Peroxisomal disorders

Etiology:
- Inflammatory changes in placenta and chorion produce a vasculitis, increasing risk of WM damage during perinatal hypoxia. Selectively damages immature oligodendrocytes.

Associations:
- IVH, cerebellar hemorrhage, and infarction.
Hyperechoic periventricular focus (early phase)
Follow up 2 months later (late phase)

Ipsilateral ventriculomegaly

Normal contralateral ventricle
Follow up 2 months later (late phase)

Ipsilateral ventriculomegaly

Periventricular cyst (encephalomalacia)
References