

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

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Follow up 2 months  
later

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Follow up 2 months later

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RADIOLOGY



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# Periventricular Leukomalacia

# Periventricular Leukomalacia

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:
  - Cavitory 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

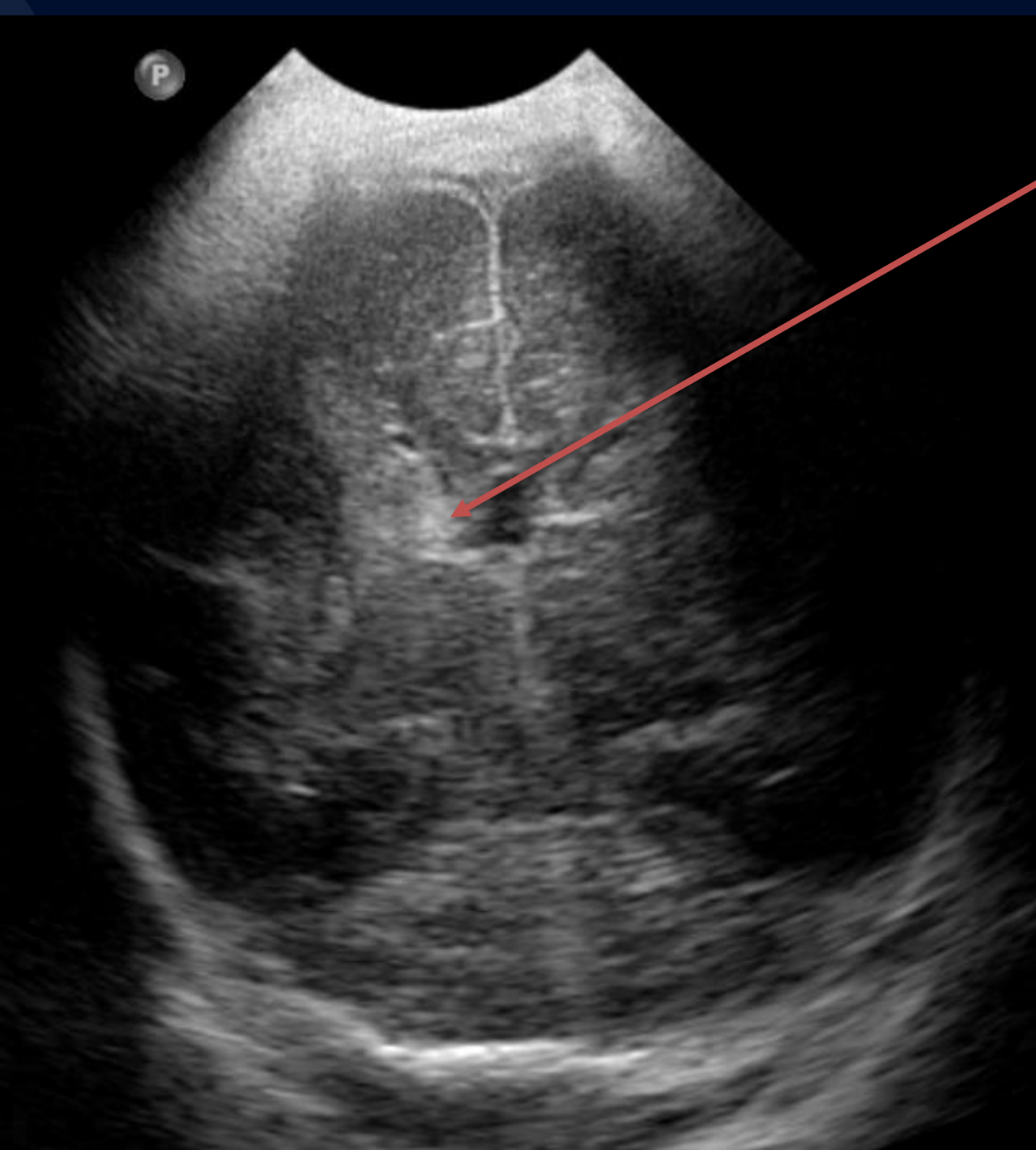
## Etiology:

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

## Associations:

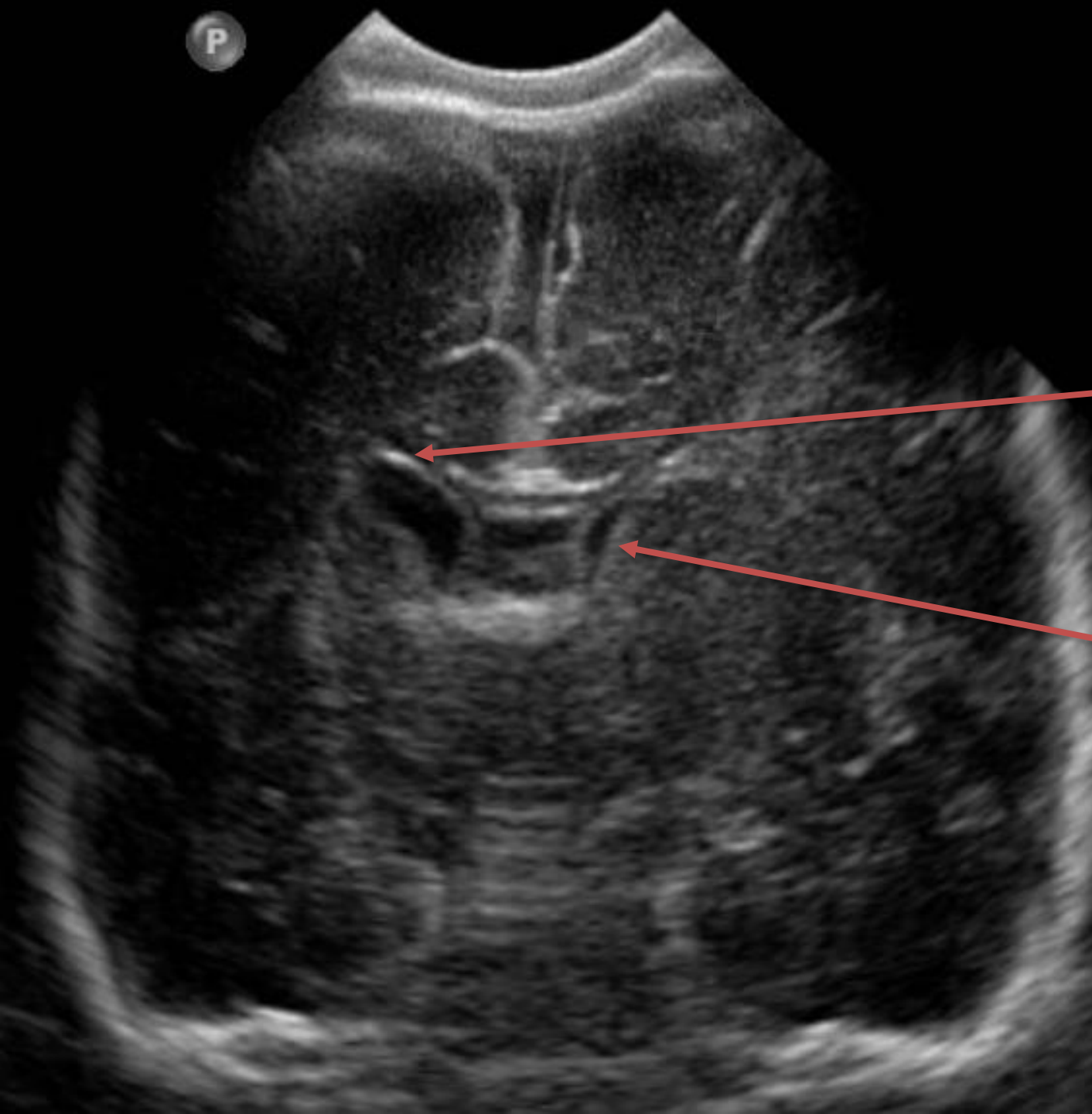
- IVH, cerebellar hemorrhage, and infarction.





Hyperechoic  
periventricular  
focus (early phase)

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Follow up 2 months later (late phase)

Ipsilateral ventriculomegaly

Normal contralateral ventricle

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Follow up 2 months later (late phase)

Ipsilateral  
ventriculomegaly

Periventricular cyst  
(encephalomalacia)

# References

- Middleton, William D. *Ultrasound - The Requisites, 2nd Edition*. Mosby, 2004.