

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

Ryan P. Joyce, MD





Follow up 2 months
later

P

Follow up 2 months later

UConn
HEALTH

RADIOLOGY



?

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:

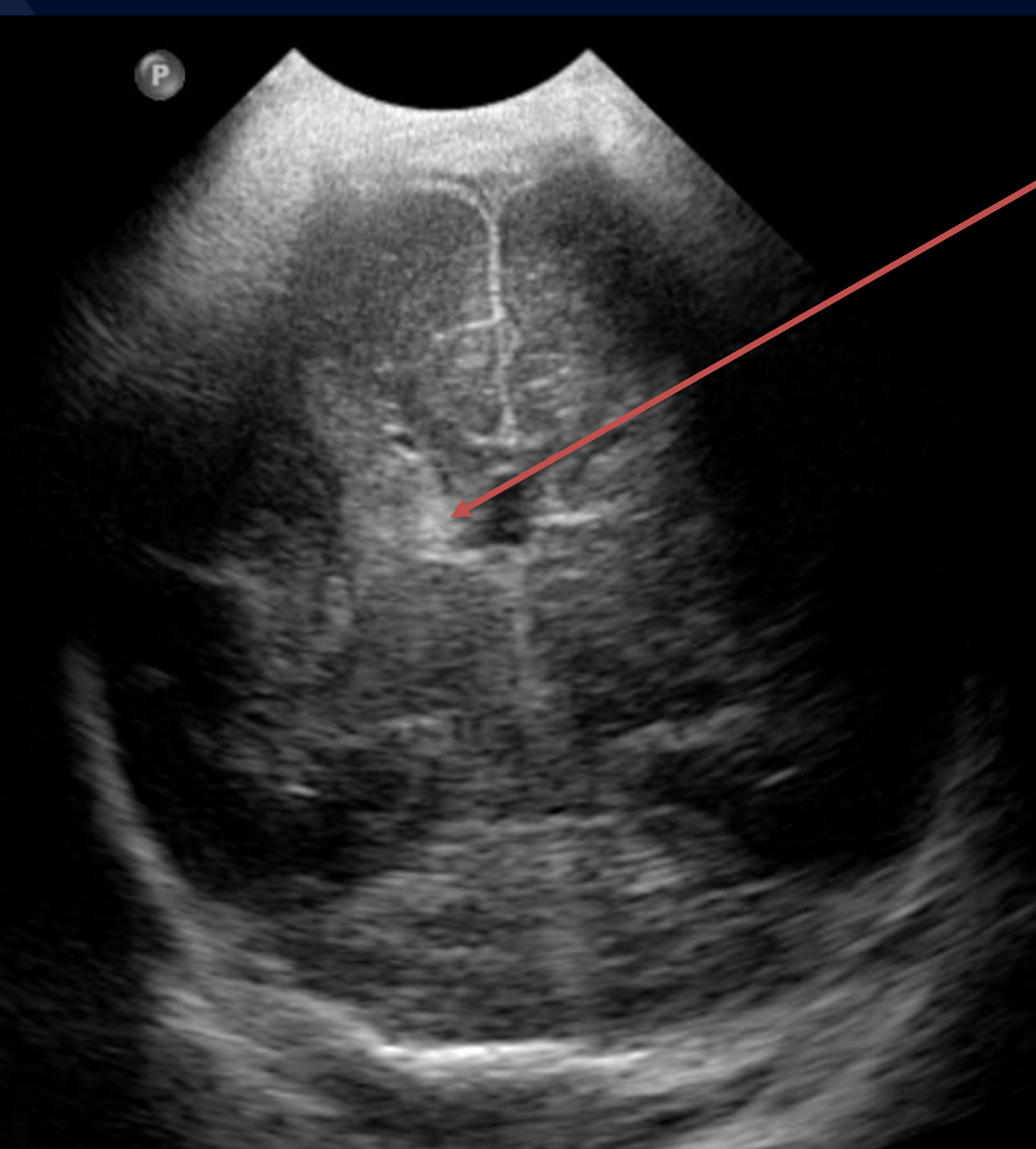
- Normal periventricular halo – produced by normal WM tracts, peri trigonal location, less echogenic than choroid plexus
- Infection – CMV, citrobacter, neonatal herpes
- Shunted hydrocephalus
- Peroxisomal disorders

Etiology:

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

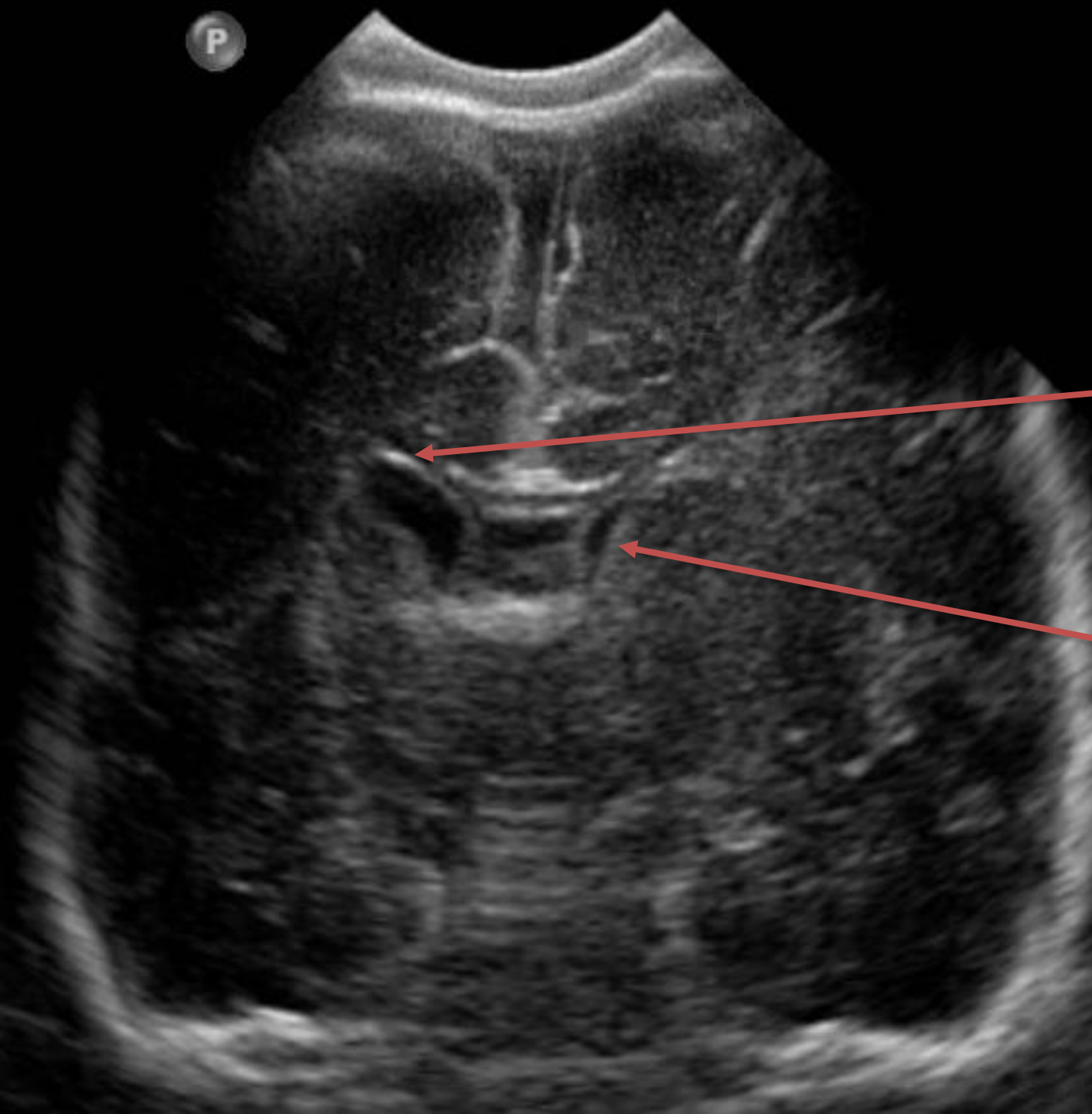
Associations:

- IVH, cerebellar hemorrhage, and infarction.



Hyperechoic
periventricular
focus (early phase)

P



Follow up 2 months later (late phase)

Ipsilateral ventriculomegaly

Normal contralateral ventricle

P

Follow up 2 months later (late phase)

Ipsilateral
ventriculomegaly

Periventricular cyst
(encephalomalacia)

References

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