

# Teaching NeuroImages: Confirmation of prenatal periventricular venous infarction with susceptibility- weighted MRI

A. Kirton, MD, MSc,  
FRCPC  
X. Wei, MD

Address correspondence and  
reprint requests to Dr. Adam  
Kirton, Division of Neurology,  
Alberta Children's Hospital, 2888  
Shaganappi Trail NW, Calgary,  
AB, Canada T3B 6A8  
adam.kirton@albertahealthservices.ca

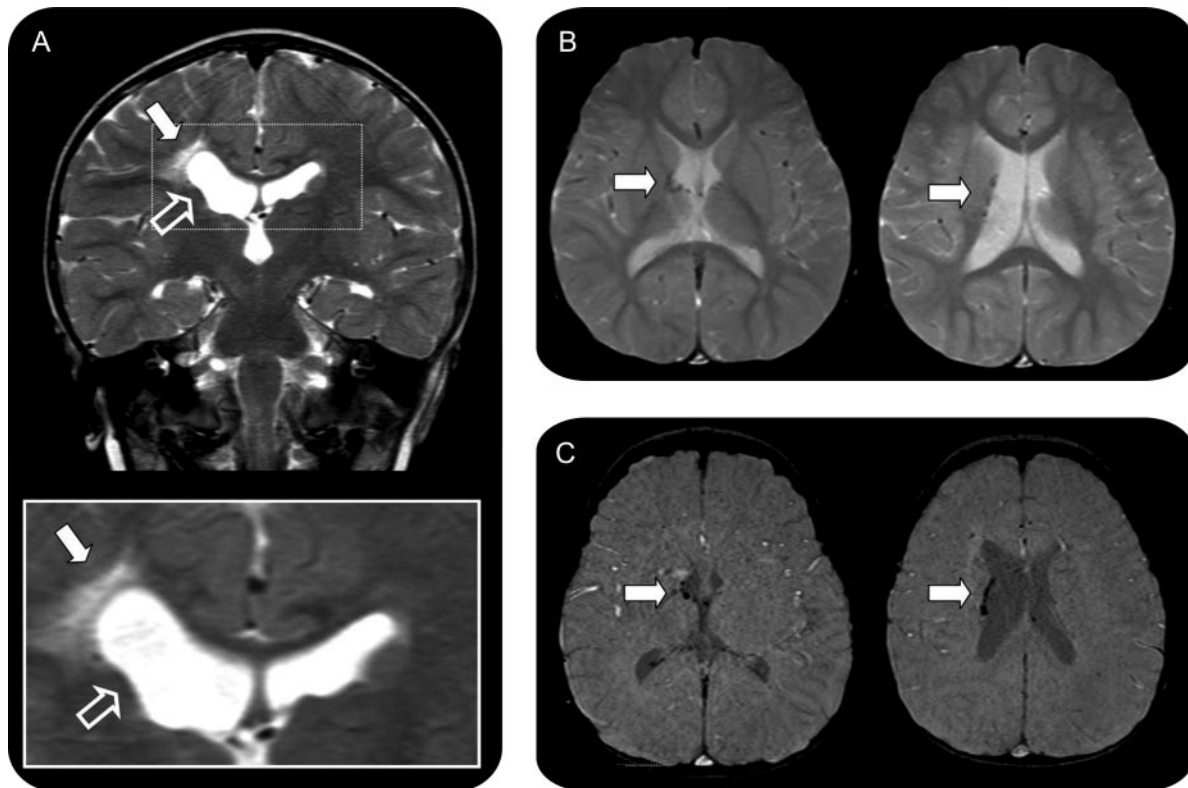
Parents of a healthy child with an unremarkable perinatal history noted a right-hand preference at 4 months and left hemiparesis by 6 months. MRI was not completed until 27 months (figure), confirming periventricular venous infarction (PVI). Stroke causes most term-born hemiplegic cerebral palsy (CP). Many are arterial ischemic strokes but PVI has emerged as a common and unique cause. Preterm, in utero germinal matrix hemorrhage results in medullary venous infarction.<sup>1,2</sup> Of unique PVI imaging features, confirmation of this remote hemorrhage

provides the strongest evidence. Increased sensitivity of susceptibility-weighted imaging to detect this suggests it should be standard in CP imaging.

## REFERENCES

1. Takanashi J, Barkovich AJ, Ferriero DM, Suzuki H, Kohno Y. Widening spectrum of congenital hemiplegia: periventricular venous infarction in term neonates. *Neurology* 2003;61:531–533.
2. Kirton A, deVeber G, Pontigon AM, MacGregor D, Shroff M. Presumed perinatal ischemic stroke: vascular classification predicts outcomes. *Ann Neurol* 2008;63:436–443.

Figure Periventricular venous infarction



Coronal T2 (A, inset) demonstrates a focal periventricular white matter lesion, sparing cortex and basal ganglia, with subependymal linear hypointensity (open arrow) and ex vacuo ventricular dilatation suggesting periventricular venous infarction (PVI). Gradient-echo T2\*-weighted caudothalamic and subependymal hypointensities (B) are more evident on susceptibility-weighted imaging (C) due to blooming artifact.

From the Departments of Pediatrics and Clinical Neurosciences (A.K.) and Department of Radiology (X.W.), Faculty of Medicine, University of Calgary, Calgary, AB, Canada.

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A. Kirton and X. Wei

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