

Subdural Hemorrhage in Pediatric Patients with Enlargement of the Subarachnoid Spaces

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OBJECT: Enlargement of the subarachnoid spaces has been theorized as a risk factor for the development of subdural hemorrhage (SDH). As the finding of unexplained SDH in children often raises suspicion for nonaccidental trauma, the possibility of increased risk of SDH in children with enlargement of the subarachnoid spaces has important clinical, social, and legal implications. Therefore, the authors evaluated the frequency of SDH in a cohort of children with enlargement of the subarachnoid spaces.

METHODS: The authors identified children younger than 2 years of age who were diagnosed with enlargement of the subarachnoid spaces on MRI or CT scanning in a large primary care network between July 2001 and January 2008. The authors excluded children who had enlargement of the subarachnoid spaces diagnosed on imaging performed for trauma or developmental delay, as well as children with a history of prematurity, diagnosis of intracranial pathology, or metabolic or genetic disorders. Chart review recovered the following data: patient demographics, head circumference, history of head trauma, and head imaging results. For the subset of children with SDH, information regarding evaluation for other injuries, including skeletal survey, ophthalmological examination, and child protection team evaluation, was abstracted.

RESULTS: There were 177 children with enlargement of the subarachnoid spaces who met the inclusion criteria. Subdural hemorrhage was identified in 4 (2.3%) of the 177 children. All of the children with SDH underwent evaluations for suspected nonaccidental trauma, which included consultation by the child protection team, skeletal survey, and ophthalmological examination. Additional injuries (healing rib fractures) were identified in 1 of 4 patients. None of the 4 children had retinal hemorrhages. Only the child with rib fractures was reported to child protective services due to concerns for abuse.

CONCLUSIONS: Only a small minority of the patients with enlargement of the subarachnoid spaces had SDH. Evidence of additional injuries concerning for physical abuse were identified in a quarter of the children with enlargement of the subarachnoid spaces and SDH, suggesting that an evaluation for suspected nonaccidental trauma including occult injury screening should be performed in cases of SDH with enlargement of the subarachnoid spaces. In the absence of additional injuries, however, the presence of an unexplained SDH in the setting of enlargement of the subarachnoid spaces may be insufficient to support a diagnosis of nonaccidental trauma.

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Authors:

McKeag H, Christian CW, Rubin DM, Daymont C, Pollock AN, Wood J

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