

Specialty Eye Exams May Not Be Necessary in All Suspected Cases of Physical Child Abuse

Thackeray JD, Scribano PV, Lindberg DM. Yield of retinal examination in suspected physical abuse with normal neuroimaging. *Pediatrics*. 2010 May;125(5):e1066-71.

Summary

It is common practice for physicians to request specialty eye exams to help confirm cases of suspected physical abuse in children, but these exams may be overused, according to a study appearing in *Pediatrics*.

Abusive head trauma (AHT) is the leading cause of inflicted traumatic death in children, especially among infants. Despite a variety of clinical tools and subspecialty consultation available to aid in the detection of AHT, the diagnosis is often missed.

Certain patterns of retinal hemorrhage, especially hemorrhages seen throughout the entire retina, are extremely uncommon in accidental injury and are rarely reported in any condition other than AHT. "Although the isolated finding of retinal hemorrhages is neither necessary nor sufficient to diagnose AHT, the role of ophthalmologic examination undeniably plays a critical role in the assessment of such cases," said Jonathan D. Thackeray, MD, clinical director of the Center for Child and Family Advocacy at Nationwide Children's Hospital and one of the study authors. To avoid a missed diagnosis of AHT, some centers have adopted the practice of undertaking specialty retinal examination in any child when there is a suspicion of physical abuse, regardless of the type of abuse. "Such practice may lead to unnecessary testing, increased costs and inappropriate use of resources," said Dr. Thackeray.

To help evaluate whether retinal examination is a valuable diagnostic tool in children suspected of having been physically abused, but who do not show evidence of traumatic brain injury, investigators at Nationwide Children's Hospital and at Brigham and Women's Hospital examined patient data from a multi-center database. They found that the yield of retinal examination of children being evaluated for physical abuse who show no evidence of traumatic brain injury, regardless of other injury, was extremely low. Less than 1 percent of the studied children had characteristic retinal hemorrhages and the presence did not seem to enhance the diagnostic determination of abuse.

"In the appropriate clinical context, retinal hemorrhages may be highly indicative of AHT; however, dedicated ophthalmology is probably unwarranted if it fails to influence the ultimate opinion of abuse likelihood," said Dr. Thackeray. "Our findings indicate that when evaluating children without traumatic brain injury, and without mental status change or head or face injury, clinicians should thoughtfully consider whether ophthalmology consultation is necessary in the assessment and diagnosis of AHT."

Abstract

OBJECTIVE: In some centers, dedicated ophthalmologic examination is performed for all children who are evaluated for potential physical abuse. Although retinal hemorrhages have been reported in rare cases of abused children with normal neuroimaging results, the

utility of ophthalmologic examination in this group is currently unknown. The objective of this study was to determine the prevalence of retinal hemorrhages in children younger than 2 years who were evaluated for physical abuse and who had no evidence of traumatic brain injury (TBI) on neuroimaging.

PATIENTS AND METHODS: We performed retrospective analysis of data obtained from 1676 children younger than 5 years who were evaluated for potential physical abuse as a part of the Using Liver Transaminases to Recognize Abuse research network. We reviewed results of dedicated ophthalmologic examination in all children younger than 2 years with no evidence of TBI on neuroimaging.

RESULTS: Among 282 children who met inclusion criteria, only 2 (0.7% [95% confidence interval: 0.1%-2.5%]) had retinal hemorrhages considered "characteristic" of abuse. Seven other children (2.5% [95% confidence interval: 1.0%-5.1%]) had a nonspecific pattern of retinal hemorrhages. Both children with characteristic retinal hemorrhages in the absence of TBI showed evidence of head or facial injury on physical examination and/or altered mental status.

CONCLUSIONS: In children younger than 2 years being evaluated for physical abuse without radiographic evidence of brain injury, retinal hemorrhages are rare. Dedicated ophthalmologic examination should not be considered mandatory in this population.

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