

# CHILD ABUSE:

## A REVIEW OF OCULAR FINDINGS & ROLE OF THE OPTOMETRIST IN IDENTIFICATION & REPORTING

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### Abstract

*Child abuse has been present since the beginning of recorded history and, unfortunately, has reached epidemic proportions over the past decade. Not only does abuse and neglect lead to physical, emotional and psychological harm to the child, but it can also lead to death; reported fatalities have increased 49% between 1985 and 1992. Retinal hemorrhages are often seen in cases of abuse, and these commonly occur in shaken baby syndrome. Optometrists can often form the vanguard in the identification and reporting of suspected abuse. It is a moral and legal responsibility to report suspected cases of child abuse.*

### Key Words

*Child abuse and neglect, shaken baby syndrome, optometry, retinal hemorrhages, intraocular hemorrhages*

**C**hild abuse in the United States has reached epidemic proportions. Reported fatalities due to child abuse have increased 49% between 1985 and 1992.<sup>1</sup> The National Committee for Prevention of Child Abuse estimates that there were 2,694,000 reported cases in 1990-1991 alone.<sup>2</sup> This figure is even more startling considering it is based on data from only 43 states, and yet it still represents a 6.2% increase from 1990 to 1991.<sup>2</sup> In 1992, reports of suspected abuse and neglect rose to 2.9 million cases; and more than 1,000 children a year die as a result of this abuse and neglect.<sup>3</sup>

Child abuse, also known as non-accidental injury, can be defined as the behavior of a caretaker that results in the intentional affliction of injury to the child, such as hitting, beating, kicking or burning. However, injury to the child is not limited to physical abuse; abuse can also take the form of physical neglect (more common than abuse), emotional abuse, and sexual abuse. When physical abuse does occur, it does so within a broad spectrum, including injury to the eyes and orbit, facial structures, and to the head in general. Indeed, Smith has reported ocular complications in approximately 40% of physically abused children, and estimates have been reported to be as high as 61%.<sup>2,4</sup> For this reason alone, optometrists should play a leading role in the identification and reporting of child abuse.

The purpose of this review is twofold. First, it will explore the current literature on the ocular signs and symptoms of abuse; and, second, it will discuss the optometrist's role in the identification and reporting of suspected abuse.

Just as child abuse has undoubtedly occurred for centuries, so has the reporting of it; in fact, records of abuse can be traced to the time of Caesar.<sup>2</sup> Over the past 200 years, professors and physicians, such as Tardieu (1860), Aikman (1928), Caffey (1946), and Silverman (1953), have furthered the cause for awareness of child abuse.<sup>2</sup> It was not until 1964, however, that the first documentation of ocular findings associated with child abuse was published in the ophthalmic literature.<sup>2</sup> Since that time, terms such as "battered child syndrome" and "shaken baby syndrome" have been coined to describe the physical findings of child abuse and the minimal or absent signs of external injury to a child, respectively.

### Discussion

Shaken baby syndrome is a unique form of child abuse and one in which optometrists may be the first to observe its sequelae. By definition, it is a form of child abuse characterized by minimal or absent signs of external injury or direct head trauma, subdural hemorrhages with or without subarachnoid hemorrhages, and retinal hemorrhages, all caused by severe shaking of the infant by the extremities or shoulders.<sup>5,6</sup> In addition to hemorrhages located in the subdural space in the optic nerve, the vitreous, and all layers of the retina, peculiar circinate perimacular folds have also been described.<sup>5</sup> Clinically these lesions are seen to be elevated, ring-shaped, white retinal ridges surrounding the macula.<sup>5</sup> Massicotte et al. concluded that the folds result from the lateral displacement of the neurosensory retina by vitreous traction, attributable to a violent shaking episode. Although

physical abuse is not the only etiology of retinal folds, taken in the absence of other conditions and findings, they are pathognomonic of the shaken baby syndrome, AKA child abuse.<sup>7</sup>

Head trauma is the leading cause of death in alleged child abuse and as such, retinal folds are not the only sign of this abusive syndrome.<sup>8-10</sup> Some anterior signs of shaken baby syndrome include acute hyphema, dislocated lenses, traumatic cataracts, direct trauma, and traumatic mydriasis.<sup>8</sup> Other reported posterior ocular findings in this syndrome include detached retina, retinal hemorrhage, traumatic retinoschisis, and optic nerve damage.<sup>2</sup> Table 1 shows a complete listing of not only the findings in shaken baby syndrome, but of all ocular signs found in child abuse.

It is important to note that while retinal hemorrhage is the most common form of eye damage due to child abuse, it is not pathognomonic of child abuse and can be seen after head trauma from other causes as well.<sup>11</sup> However, as with the finding of retinal folds in the absence of other external trauma, the finding of retinal hemorrhage is consistent with suspected child abuse. Buys et al. and Eisenbry agree with this assessment in stating that retinal hemorrhages rarely occur in children younger than 36 months of age after severe head trauma and not at all after even moderate or mild head trauma.<sup>12,13</sup>

Also, there exists a tendency for more severe retinopathy in younger abused patients; this may be explained by the fact that intraocular hemorrhage may occur from abrupt elevation in retinal venous pressure secondary to an acute, rapid rise in intracranial pressure.<sup>6</sup> Younger children weigh less, have greater head size relative to body size, and have less developed neck musculature; therefore, these children are most susceptible to the "whiplash effect." This has important implications for future neurologic sequelae, since Wilkinson et al. report that the severity of intraocular hemorrhage correlates with the severity of acute neurologic injury.<sup>6</sup> Table 2 shows a differential diagnosis of retinal and other intraocular hemorrhages.

### Role of the Optometrist

Because all 50 states have laws mandating that optometrists and other health professionals identify and report suspected cases of child abuse, it is impera-

tive that abuse is detected, reported, and therapeutic intervention is promptly undertaken. The literature and reality itself shows this not to be the case. According to Warner and Hansen, the identification and reporting process can be divided into four stages: (1) Assessment and evaluation, (2) Identification, (3) Reporting, and (4) Validation.<sup>15</sup> Unfortunately, this process can break down at any one of these four stages for a variety of reasons. Some of these reasons include "professional variables" which refer to the individual optometrist, such as gender, view on child discipline, rating of discipline acceptability, ratings of diagnostic accuracy, training related to child development,

clinical experience with pediatric patients, and the consequences of reporting (financial costs).<sup>15</sup> Therefore, it must first be understood that the identification and reporting of child abuse by the optometrist revolves around many factors.

If child abuse is suspected, the optometrist should look for further signs to substantiate his or her suspicion. Some of these non-ocular signs are: fear in the child's eyes as he pulls away from a parent rather than shying away from the unfamiliar doctor; bruises of various colors, varying from the yellow of a healed bruise to the purple of a fresh one; when the history or extent of the injury is not consistent with the physical findings or the age and developmental level of the child; and when the children and parents insist on the child not removing his/her coat.<sup>16-18</sup> The optometrist should also be aware of some myths about child abuse, such as:

1. Children lie about the abuse
2. Most child abuse is violent
3. Abuse occurs only in certain socio-economic levels, races and religions.<sup>18</sup>

Through his own experience, Demoss<sup>19</sup> offers the following mnemonic to help doctors identify victims of child abuse:

**Table 1. Ocular Findings in Suspected Child Abuse<sup>2,8,10</sup>**

<b>Oculomotor</b>	Shallow anterior chamber
Strabismus	Glaucoma
Disconjugate eye movements	Inflammation
	Iridocyclitis
<b>Adnexa</b>	Cyclodialysis
Lid lacerations	Dislocated or subluxated lens
Orbital or periorbital edema with or without ecchymosis	Cataracts
Conjunctival or subconjunctival hemorrhages	<b>Posterior Segment</b>
Conjunctivitis	Endophthalmitis
	Vitreous hemorrhage
<b>Anterior Segment</b>	Preretinal hemorrhage
Proptosis	Retinal hemorrhage
Ruptured globe	Vitreous detachment
Corneal scars	Retinal detachment
Corneal opacities	Chorioretinal atrophy
Corneal edema	Chorioretinal scars
Enlarged cornea	Retinal/perimacular folds
Descemet's tears	Retinal dialysis
Anisocoria	Macular scars
Pupillary anomalies	Retinoschisis
Hypopyon	Papilledema
Hyphema	Optic atrophy
Angle recession	<b>Neuro-ophthalmic</b>
Iris synechiae	Ptosis
Iris dialysis	Nystagmus
Iris sphincter & dilator tears	Cortical blindness

**Table 2. Differential diagnosis of intraocular hemorrhages.<sup>2</sup>**

Head trauma  
Cerebral vascular accident  
Coagulopathies  
Embolic disorders  
Vasculitides  
Hypertension  
Diabetes  
Strangulation

- A. There is a history of abuse or alcohol (or other substance abuse) in the caretaker.
- B. The child has behavior problems (continual crying, irritability).
- U. The parents have unrealistic expectations of the child.
- S. There are physical signs of abuse.
- E. The history obtained from the parents is usually evasive.

### Conclusion

Since optometrists are the primary eye care professionals, we have both a moral and a legal obligation to report cases of suspected child abuse. As evidence to optometrists' importance in this matter, in approximately 6% of the reported abuse cases an optometrist may be the one responsible for detecting the abuse.<sup>2,10</sup> In-

deed, it is the legal responsibility of optometrists to report the suspected abuse to their State Department of Social Services; failure to do so is a misdemeanor crime punishable by a \$1,000 fine and up to one year in jail.<sup>2,18</sup> Across the country, persons who report abuse are granted immunity from criminal and civil liability if the report is given in good faith.<sup>2</sup> There is even a National Child Abuse Hotline at 1-800-4-A-CHILD, which runs a 24-hour-a-day service. This is a good resource not only for optometrists and other health care providers, but for parents, teachers, and anyone who suspects abuse or neglect of a child.

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