

Exhibit 143

THE AMERICAN JOURNAL OF FORENSIC MEDICINE AND PATHOLOGY

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Please return the paper, photos and this form in the enclosed post paid envelope.

Reviewer **Dr. John E. Smialek**

Return By **January 14, 2000**

MS# **99-136**

Title **Position Paper on Fatal Abusive Head Injuries in Infants and Young Children**

RATINGS	CIRCLE THE GRADE				
	Most				Least
1. Accept as submitted					
2. Accept, suggested changes (may be noted on manuscript)	Original	1	2	3	4 5
3. Provisional acceptance. Required changes (listed on carbon packets)	Valid	1	2	3	4 5
4. I would like to see paper after revision ✓	Significant	1	2	3	4 5
5. Unacceptable, reconsider with major revision ✓	Comprehensive	1	2	3	4 5
6. Unacceptable					

Comments

see attached

This paper, authored by an Ad Hoc Committee of the National Association of Medical Examiners, purports to address "the topic of abusive head injuries in young children. The article does address this topic and reviews a considerable amount of the existing literature on this subject. However, the paper has several serious flaws.

Another major shortcoming, over which the committee had apparent little control, is the stated purpose of this manuscript. The authors refer to their original charge, apparently given to them by either the Board or the President of the National Association of Medical Examiners, "to produce a position paper on Shaken Baby Syndrome (Pg. 5)." The committee states that they interpreted this terminology to refer, generally, to the subject of abusive head injury in young children. A charge to a committee to produce a position paper on a topic, as poorly defined as this, immediately undermines any effort on the part of a committee to produce a meaningful result.

A position paper on Shaken Baby Syndrome should refer to diagnostic criteria, which must be met before the term is used. It should place this entity in a historical and scientific perspective with recommendations for resolving the "controversy" (pg. 5) surrounding this topic. This paper failed to address the nature of the controversy and never refuted literature from their own bibliography, which conflicted with their position.

Early in the introduction (pg. 5), the authors state their "intent" to inform the practicing pathologist about the proper recognition, interpretation and clinical correlation of these injuries." The body of the paper is then divided into these sections: mechanisms of injury, subdural hemorrhage, subarachnoid hemorrhage, retinal hemorrhage, diffuse brain injury, brain swelling,

timing of injuries, chronic subdural hematoma, interpretation of injury and concussion. The aforementioned intent is finally addressed on page 26 where the reader is informed that "in cases in which subdural and/or subarachnoid hemorrhage is found at autopsy, the brain must be thoroughly examined to exclude the possibility of other causes of bleeding in these spaces."

Nowhere in this paper is a recommendation made to the pathologist to carry out a thorough, objective investigation of the circumstances, under which a child sustained the injury. The lack of such a component in arriving at a determination of whether an injury is abusive or non-abusive, warrants the rejection of this paper, by the Journal, in its present form. Furthermore, it raises a serious question as to the validity of this information to an organization like the National Association of Medical Examiners, especially as a "position paper."

This paper gives the impression that it represents the position of one of the authors who in defense of his/her position, relies on his/her own personal experiences (Case M, unpublished autopsy studies). This author states that the incidence of isolated subdural/subarachnoid hemorrhage, as the only gross finding in fatal accidental head injuries in young children, is less than 2% compared to the 90-98% incidence of these hemorrhages associated with abusive head injuries. The authors further state that virtually all injured children, who have not been in a motor vehicle accident or fallen from a building are victims of abuse.

They state "the trivial home accidents that children so frequently sustain are associated with primarily translational forces and not with rotational forces necessary to develop tearing of bridging veins, which would produce subdural hemorrhage or other shearing injury." This statement represents one side of the controversy that presently exists in the forensic science

community regarding these injuries and it ignores the position of a large community of forensic scientists who believe either to the contrary or that the matter is not so clear cut.

The authors cite nine scientific articles that agree with this statement, but in doing so, choose to ignore information produced by authors included in their own bibliography that conflict with this opinion. For example, they cite in reference #53, Lindenberg and Freytag, while ignoring other observations made by the same authors who state, "the degree of acceleration does not depend on the height of the fall. It may be greater and produce more damage in a fall from a sitting position than from a standing position." (Reference 1)

Certain key elements of the paper, such as the mechanism of injury involving rotational forces being responsible for abusive head injuries, imply that rotational forces do not occur with non-abusive head injuries. For example, in accidental falls, (Page 10) "the trivial falls that children sustained in falling from furniture and even downstairs, primarily involve translational forces. Really?? Although such falls may occasional result in a skull fracture, these incidents are generally benign (just a skull fracture!) and do not result in loss of consciousness, neurological deficit, or death." In other words, falls from furniture or downstairs don't involve rotational forces, according to the authors. How can one know this without having familiarized himself with the information gathered in the investigation of the circumstances and scene of the death. On the other hand, the authors firmly believe that "shaking" consistently does produce rotational force of a nature that would cause subdural/subarachnoid hemorrhage, as well as retinal hemorrhages with diffuse axonal injury.

The authors use of critical terms like "shearing injury" is confusing to the reader. On page 10, reference is made to shearing injury, which "implies the distortion of brain

shape...creating a soft consistency" What does that mean? Several paragraphs later, the authors describe, in more detail, shearing injury which results from strains which "occur at the junctures between cortex and subcortical white matter, white matter and deep gray matter, and lateral extension across the midline of the brain..." (No photos - no references)?

In one of many examples of fuzzy thinking, they refer to motor vehicle accidents and state that after the age of 4 or 5 years, the most common cause of diffuse axonal injury (DAI) is the motor vehicle crash, (no citation) page 12. How is DAI produced? The author's state, on page 2, "rotational movement of the brain damages the nervous system by creating shearing forces, which causes DAI with disruption of axons and tearing of bridging veins which causes subdural and subarachnoid hemorrhages and is very commonly associated with retinal schisis and hemorrhages." Then on page 16, "in children with very severe accidental head injury, (eg. car accident), an occasional instance of retinal hemorrhage is found." Why only occasional if the MVA is the most common cause of DAI and DAI is very commonly associated with such hemorrhages?

The author's state that "small amounts of interhemispheric blood, which are able to be detected by CT scan, may not be appreciated at autopsy", page 14. Furthermore, at autopsy "the subdural hemorrhage may consist only of 2-3 ml of blood and may not be observed if the prosector does not personally inspect the subdural space as the calvarium is being removed. The writers sound like radiologists lecturing to medical students, rather than forensic pathologists addressing their peers. The reader is referred to figure 3. It is unclear in their poor quality photograph what is being portrayed. I was left with the impression that a good CT scan was better than a forensic autopsy.

The authors spend considerable time on the challenging topic of DAI. However, after being informed that these axonal disruptions may be visible by light microscopy after 18 to 24 hours. I was eagerly anticipating learning how often the members of the committee identified such evidence of diffuse brain injury, associated with subdural hemorrhage and retinal hemorrhages in their experience. No such luck! While they caution that "many of these children died too soon after their injury before these pathological changes have become established," there are certainly numerous examples of infants surviving beyond this time period, where opportunities to conduct studies for diffuse axonal injury could have been conducted. These unsupported and controversial comments are inappropriate in this kind of paper.

I found use of the term "brain swelling" unscientific. Why not use a more appropriate term as cerebral edema, or are we talking about some other condition other than cerebral edema?

One of the most credible statements in this paper was (page 15), the authors' description of retinal hemorrhages as "observed in 70 to 85% of young children with severe rotational brain injuries. Currently, their pathogenesis is not precisely understood." This characterization fits much of the content of this article.

If the authors' felt it necessary to include photographs to support their position, the photographs should add to the paper. The photographs here were consistently poor and of little value.

Summary

I recommend that this manuscript be returned to the committee with a request that they obtain a more clearly, defined set of instructions or expectations from the National Association

of Medical Examiners for what they are attempting to do as well as researching their topic more extensively. This would help ensure that members of their organization obtain a professional and scientifically credible recommendation(s) on which to carry out investigations into these very difficult cases of fatal childhood injuries.

Reference

1. Spitz & Fisher, *Medicolegal Investigation of Death*, 3rd edition, Charles C. Thomas Publishers, page 616.