



Answer to Lynøe: Interesting data about confessions and abusive head trauma, but suboptimal analysis

Matthieu Vinchon¹ · Mélodie-Anne Karnoub¹ · Nathalie Noulé² · Marie-Emilie Lampin³

Received: 16 March 2022 / Accepted: 18 March 2022 / Published online: 29 March 2022
© The Author(s), under exclusive licence to Springer-Verlag GmbH Germany, part of Springer Nature 2022

Summary

The authors of the cited paper respond to the critics formulated by a Swedish leading expert regarding methodology shortcomings of our study “Confessed versus denied inflicted head injuries in infants: similarities and differences.” They admit some methodological limitations but maintain their conclusions that the diagnosis was correct in the confession and denial groups and that the denial was more difficult in the more severe cases.

Letter to Lynøe

We thank Lynøe for his interest in our study [1]. Here we shall respond to the different questions formulated in his letter, summarize our findings, and formulate our opinions and conclusions.

Question 1A, regarding the age of included patients

Our database includes all cases of head injuries in children under the age of 24 months; among these, we selected children with a diagnosis of child abuse, only 21 (6%) of whom were older than 12 months. The median age in our paper was 3.7 months; in our paper, we indicated the mean age (with the 95% confidence interval) but not the median, because we did not want to make an already busy table even more complicated. We have recalculated with infants under 12 months only and reached the same results.

Questions 1B and 2, regarding other causes of malaise

Our study included only cases for which the diagnosis of abusive head injury was clearly documented on account of the lesions and circumstances; other possible causes of malaise were considered thoroughly and eliminated. We collected confessed violence as a binary variable, and whatever the reason alleged for shaking because we considered post hoc justifications were not relevant to the mechanism of the lesions. We think these delayed justifications are generally induced by lawyers as a defense strategy, and we have no recollection of malaise followed by shaking as a reviving method being reported at the time of diagnosis. Moreover, the stories confessed to the prosecution were often stereotyped, with the child’s unbearable cries leading a caretaker to lose his (more often than her) tempers and shake the child “like a rag doll” (English equivalent for the French “comme un prunier”). Regarding sudden infant death and near death, the pattern of lesions is clearly different from shaken baby syndrome (SBS), and our intensivists (ME Lampin and her team) have (unfortunately) a great experience of both conditions.

Question 3, regarding increased head circumference

“Benign external hydrocephalus” (preferably named arachnoidomegaly) is characterized clinically by a progressive drift in the head circumference with preserved clinical status. In our study, we were very cautious to analyze the head circumference curve, in order to make the distinction between pre-existing macrocrania as a condition, and

✉ Matthieu Vinchon
mvinchon@yahoo.fr

¹ Department of Pediatric Neurosurgery, Lille University Hospital, Lille, France

² Expert in Legal Medicine, Roubaix, France

³ Pediatric Intensive Care Unit, Lille University Hospital, Lille, France

symptomatic macrocrania indicating the subdural hematoma (SDH). As expected in this age group, some patients had SDH associated with arachnoidomegaly; however, the diagnosis of traumatic lesions was made on account of the presence of recent bleeding; other traumatic lesions; a rupture in the head circumference curve; and/or clinical deterioration. In our experience, children presenting with symptomatic macrocrania regularly had a more progressive and benign clinical course, and like all the other features of clinical benignity, macrocrania was associated with denial of abuse.

Question 4, regarding the sincerity of confession

In no case was our intention to infer that pressure is applied on defendants by the judiciary. The psychological mechanisms leading to confession escape us, however, we can hardly imagine that 39% of caretakers would falsely self-accuse. Our opinion that perpetrators confess in order to relieve their conscience is based on the fact that there is no benefit for them to do so, because, in the French judiciary system, plea-bargain does not exist. The fact that justice may be less pressing in the less severe cases can, in our mind, be explained by the overload of judicial services, which lack the manpower to pursue cases resulting in few health consequences. As a result, many cases with good outcome are dismissed to child protection services.

Question 5, regarding our citation of your work

In your paper [2], cited in our manuscript as reference 15, we read among the listed criteria for the diagnosis of SBS, “Cases in which someone is convicted”; from your question, we realize that you do not endorse these criteria and we misread your paper. We apologize for this mistake, and we totally agree with your remarks on circular reasoning and mistaken assimilation of the judicial decision and the medical diagnosis. Conversely, it is all too often that lawyers, media, and the general public amalgamate the absence of conviction with wrong diagnosis; we want to assert that a judicial decision cannot rule on a medical diagnosis and that law cannot influence science.

Conclusions

Our study found no difference between the confessed and the denied groups regarding the background of the child as well as his caretakers and the pattern of lesions, suggesting that our diagnosis was correct in both groups. By contrast, the severity of the lesions and their outcome were very significantly worse in the confessed group, suggesting that the more severe the assault, the less easily it could be denied. Our study was

based on a prospective registry with retrospective analysis and thus does not reach the level of class 1 evidence. The Swedish group thoroughly analyzed the available literature regarding SBS and set a very high scientific standard; they concluded: “there is limited scientific evidence that the triad and therefore its components can be associated with traumatic shaking” [2]. We strongly disagree with this conclusion, because all available data: animal experiment [3], computer models [4], radiology [5] and autopsy findings [6], confessions from perpetrators in 39% of cases [1], as well as the clinical experience gained worldwide over the last five decades, all point to the same direction. We think that dismissing all this evidence and denying the very existence of SBS is wrong, and dangerous because it undermines any prevention measures for this severe, avoidable and thus unacceptable condition; in addition, it bars access to reparation measures for the victims. Because direct evidence (i.e., video recording) is scarce and not available, we have to renounce the holy grail of grade 1 proof in this domain and have to content ourselves with grade 2 or grade 3 evidence. After all, no grade 1 study has ever proven that jumping from a plane is safer with a parachute than without.

Declarations

Conflict of interest The authors declare no competing interest.

References

1. Vinchon M, Karnoub MA, Noulé N, Lampin ME (2022) Confessed versus denied inflicted head injuries in infants: similarities and differences. *Childs Nerv Syst* 38(1):147–152. <https://doi.org/10.1007/s00381-021-05381-8> (Epub 2021 Oct 4 PMID: 34608530)
2. Lynøe N, Elinder G, Hallberg B, Rosén M, Sundgren P, Eriksson A (2017) Insufficient evidence for ‘shaken baby syndrome’ - a systematic review. *Acta Paediatr* 106:1021–1027. <https://doi.org/10.1111/apa.13760> (Epub 2017 Mar 1 PMID: 28130787)
3. Finnie JW, Blumbergs PC, Manavis J, Turner RJ, Helps S, Vink R, Byard RW, Chidlow G, Sandoz B, Dutschke J, Anderson RW (2012) Neuropathological changes in a lamb model of non-accidental head injury (the shaken baby syndrome). *J Clin Neurosci* 19(8):1159–1164. <https://doi.org/10.1016/j.jocn.2011.12.019> (Epub 2012 Jun 15 PMID: 22705132)
4. Roth S, Raul JS, Ludes B, Willinger R (2007) Finite element analysis of impact and shaking inflicted to a child. *Int J Legal Med* 121(3):223–228. <https://doi.org/10.1007/s00414-006-0129-3> (Epub 2006 Nov 8 PMID: 17091312)
5. Adamsbaum C, Rambaud C (2012) Abusive head trauma: don't overlook bridging vein thrombosis. *Pediatr Radiol* 42(11):1298–1300. <https://doi.org/10.1007/s00247-012-2434-y> (Epub 2012 Aug 12 PMID: 22885602)
6. Rambaud C (2015) Bridging veins and autopsy findings in abusive head trauma. *Pediatr Radiol* 45(8):1126–1131. <https://doi.org/10.1007/s00247-015-3285-0> (Epub 2015 Feb 20 PMID: 25698365)

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.