Reply to Sinzig regarding postnatal follow-up of RICH involving the skull

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Sir,

We appreciate Dr. Sinzig's interest in our report of the imaging findings of a rapidly involuting congenital hemangioma [1]. Dr. Sinzig's questions raise several interesting points about the role of the pediatric radiologist in the clinical care of patients, the understanding of the risks of ionizing radiation and the influence of hindsight bias on scientific analysis.

The initial evaluation with CT in this case was performed because CT provides the best evaluation of the effect of the tumor on the adjacent osseous structures, as well as the highest resolution of vascular features short of catheter angiography. Subsequent CT studies were performed in response to what were perceived to be potentially ominous clinical findings; these exams were performed as emergency studies. None of the CT studies was performed to document expected involution of the lesion. Indeed, there was considerable debate regarding the diagnosis of RICH until the involution became apparent to all. All subsequent evaluations have been with MR imaging. For all but the first CT, a pediatric radiologist was not consulted about what modality should or should not be used to urgently evaluate this child with a known hemorrhagic intracranial mass.

Dr. Sinzig's questions reflect the perspective of one who is aware of the eventual benign evolution of this lesion. This is a classic demonstration of hindsight bias [2], in which

having knowledge of future events (the eventual benign outcome) shapes one's perspective of past decision-making. The clinicians who ordered the exams in this case were not at all confident of the eventual involution of this large hemorrhagic tumor in this small child's brain. Any criticism of their decisions needs to recognize this fact.

Finally, Dr. Sinzig refers to the "continuously better-known side effects of ionizing radiation, especially in infants and children" in her letter, citing recent publications [3, 4] that document the estimated risk of radiation exposure on populations. It is important that we all recognize the difference between estimated risk as it applies to populations, and known side effects as they apply to individuals. Increased incidence of cancer in populations is not a side effect of performing CT in any one individual. Rather, it is a theoretical concern based upon what we know of the ionizing effects of radiation exposure. It is our responsibility to recognize this concern and do what we can to minimize the theoretical risk. We also have a responsibility to educate ourselves and our patients and their families as to the relative risks of performing or not performing diagnostic studies, so that our decisions can be seen as justifiable and in the best interests of our patients, even in retrospect.

References

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