



G116 Parietal Pseudofracture in Children Suggesting Non-Accidental Trauma: A Report of Two Cases and Review of the Literature

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After attending this presentation, attendees will learn the characteristics of variation in sutures of the pediatric skull that may make it difficult to distinguish from real fractures based on imaging criteria alone.

This presentation will impact the forensic science community by emphasizing the legal complications caused by mistaking normal variation of the pediatric skull for fracture and by aiding in better understanding of these pseudofractures of the skull in infants.

Introduction: Two cases of infants who died at home are reported. Both were previously healthy and had no history of trauma according to the parents. As in all suspected cases of SIDS, a complete autopsy was performed. For both cases, radiographic or computed tomography (CT) scan findings were initially interpreted as parietal fractures and raised the possibility of non accidental trauma.

Case reports: The first case was a 3-month-old female child who was found dead at home by her mother. An autopsy was performed the same day. A skeletal radiographic survey showed two linear radiolucencies in the parietal region mimicking a fracture of the right parietal bone. At autopsy there was an H-shaped abnormality of the right parietal bone with no associated soft tissue swelling. The brain was normal. There were severe pulmonary lesions and a test for the respiratory syncytial viral antigen was positive. Histological sections of the parietal bone showed two vertically unossified membranous strips linked by a horizontal membranous strip. Death was attributed to pulmonary infection. The second case was a 6-month-old male child who was found dead at home by his mother. An autopsy was performed. A bone window CT scan showed a linear defect in the left parietal bone. At autopsy, no scalp swelling or bruising was noted. The rest of the autopsy was normal. Microscopic sections of the decalcified parietal bone demonstrated neither inflammatory infiltrate nor periosteal reaction. The findings were consistent with an unossified membranous strip. Cause of death was not identified.

Discussion: According to the literature, the parietal bone is the most common fracture site in children, in both accidental and non-accidental trauma. However, an extensive study of the embryogenesis of the parietal bone was made by an author who discovered a variety of anomalous parietal suture, described as failure of ossification of a strip of membranous parietal tissue. These normal variations or pseudofractures are rare and may simulate skull fractures, especially in live infants when histological examination is not available. Overlooking

a fracture of the pediatric skull is a serious situation, but to mistake normal variation for a skull fracture may cause legal complications as well. Awareness of differential diagnosis such as vascular markings, sutures, and artifacts that may masquerade radiographically as skull fractures in infants is essential for the forensic pathologist. **Membranous Unossified Strip, Skull Fracture, Non-Accidental Trauma**