Intraosseous Hematoma in a Newborn with Factor VIII Deficiency

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Summary: We present an unusual case of an intraosseous hematoma in a newborn with a known bleeding disorder. This cephalohematoma was diagnosed shortly after birth, was entirely within the bony skull, and was in fact determined to be an intraosseous hematoma. The initial CT scans showed the unusual appearance and location of the lesion; later scans showed a significant amount of remodeling, with resolution of the hematoma. Although the coagulopathic diagnosis was independent of this finding, a bleeding disorder might be considered in other patients with similar CT findings.

Cephalohematomas in the newborn are well described and are most often related to vaginal birth trauma. Hematomas may occur in the subcutaneous, subaponeurotic, or subperiosteal spaces (1). We present a case of an intraosseous hematoma as a presenting sign of factor VIII deficiency in a newborn. This case is unique because of the unusual appearance and location of the hematoma and the remarkable amount of subsequent bone remodeling. We thought that the bone remodeling was related to the expansile nature of this lesion, which suggested repetitive in utero hemorrhage.

Case Report

A 2-month-old white male patient was initially seen in a general pediatric clinic for evaluation of bruised and swollen hands. The child was born by uncomplicated spontaneous vaginal delivery after an uneventful pregnancy. At the time of delivery, the infant had a right parietal skull mass that was presumed to be a cephalohematoma. The infant was also circumcised at birth and had a significant amount of bleeding from the incision, requiring a return trip to the emergency department.

Blood coagulation parameters drawn at the initial outpatient evaluation showed a prolonged activated partial thromboplastin time, which corrected when mixed 1:1 with normal plasma. This test suggested the presence of a factor deficiency, and a subsequent check of the factor VIII level revealed activity of less than 1%. This placed the infant in the "severe" range for factor VIII deficiency. Cephalohematomas related solely to vaginal birth trauma in normal infants usually do not occur until several hours after birth (3). Second, the appearance is different from that of a typical cephalohematoma. This lesion was very expansile in nature, involving both the outer and inner tables of the skull. Subsequently, there was extensive bone remodeling of both tables as well. Again, this pattern was suggestive of repetitive in utero bleeding events.

Several reports of interosseous hematomas have been described, although none that occurred in a pediatric patient with coagulopathy. Yuasa et al (4) described a case of an interosseous hematoma that developed after a remote head injury. Similarly, Palatinsky et al (5) also described a case of chronic subperiosteal hematoma in a patient who had sustained a head injury 40 years previously. Both of these cases showed calcification radiographically and required surgical intervention for resolution of the hematoma.

Generally, risk factors such as hemophilia or other coagulation disorders, such as thrombopathies or anticoagulant therapy, will place a patient...
FIG 1. Images from the case of a 2-month-old white male patient who was initially seen in a general pediatric clinic for evaluation of bruised and swollen hands.

A, CT scan of the skull shows a large lytic lesion of the right parietal bone, with expansion and scalloping of the bony margins. The patient had a known factor VIII deficiency, and a cephalohematoma was present at birth.

B, T1-weighted MR image of the lytic lesion present on the CT scan shows a bright signal, characteristic for methemoglobin. This indicated that the mass lesion in the skull was secondary to hemorrhage rather than an intraosseous tumor.

C, CT scan obtained 15 weeks after the initial CT scans shows significant bone remodeling and near resolution of the intraosseous hematoma.

at risk for chronic hematomas, particularly subdural hematomas (6). Also, patients with severe hemophilia, as seen in our patient, will often experience small muscular hematomas (as evidenced by hand bruising in our patient) and may have hematuria or intracranial bleeding as well (2). Not described, though, is isolated, intraosseous bleeding within the skull present at parturition. Therefore, we suggest that the diagnosis of a bleeding disorder might be considered in a newborn infant with such an unusual skull lesion that is present at birth.

References