Unusual Accessory Cranial Sutures in Pediatric Head Trauma
—Case Report—

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Abstract

A one-year, 9-month-old boy presented with pediatric head trauma associated with unusual accessory cranial sutures. Radiography demonstrated unusual bilateral longitudinal linear bone defects extending from the foramen magnum to the mendosal sutures, and bilateral transverse linear bone defects around the foramen magnum. No swelling or soreness were found in the occipital area, and there was no past history of head trauma. Therefore, the bone defects were considered to be accessory cranial sutures. Complex developmental patterns of the occipital bone and the considerable normal variation of sutures may simulate fractures around the foramen magnum. The present case of accessory cranial sutures is another example.

Key words: head trauma, accessory cranial suture, skull fracture, occipital bone

Introduction

Radiographical identification of skull fractures in children is often difficult because of the numerous accessory sutures. Normal variation in sutures may simulate fractures around the foramen magnum, an area unusually rich in accessory sutures and osseous. Overlooking a fracture of the pediatric skull is quite a serious situation, but to mistake normal variation for a fracture may cause emotional and legal complications. Here we report a case of pediatric head trauma presenting with unusual accessory cranial sutures in the occipital bone which simulated fractures.

Case Report

A one-year, 9-month-old boy was admitted to our institute because of head trauma on June 28, 2001. According to his mother, he had fallen from the rear seat of her bicycle and suffered a contusion in the occipital area one hour before admission. He suffered neither loss of consciousness nor seizure after the trauma.

On admission, neurological examination revealed no abnormal findings. No swelling or soreness was found in the occipital area. There was no past history of head injury. Radiography using Towne’s view showed persistence of the bilateral mendosal sutures and unusual longitudinal linear bone defects of approximately 6 cm length extending to the foramen magnum on both sides as well as unusual transverse linear bone defects around the foramen magnum (Fig. 1). Computed tomography showed no abnormal findings.

Based on the absence of swelling or soreness in the occipital region, we informed his family that the bone defects were possibly not fracture lines but rather unusual cranial sutures. He was examined several times as an outpatient but no further symptoms developed.

Discussion

There are no clear points of differentiation between fracture lines and suture lines observed in the skull and the differential diagnosis may be difficult, especially if linear defects are present within the occipital bone. Complex developmental patterns in this site may result in several residual linear defects.
Accessory Cranial Sutures in Infant

Fig. 1 Cranial radiograph, Towne's projection, showing unusual longitudinal linear bone defects (arrows) and unfamiliar transverse linear bone defects (thick arrows), as well as persistence of the mendosal sutures (arrowheads).

Fig. 2 Schematic diagram of the development of the occipital bone showing the six ossification centers (after Chasler).

there was no past history of head injury, and the known occurrence of unusual rich accessory sutures and ossicles around the foramen magnum. The location of the longitudinal linear bone defects in the present case appeared similar to that described earlier for lateral fissures. However, the length of approximately 6 cm was greater than that of typical fissures. The embryology of the occipital bone is quite well known, but cranial sutures similar to our case are unknown. However, based on the six ossification centers of the occipital bone, the cranial sutures probably originated in the development of the supraoccipital bone.

References


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