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Research Article

A Variation in Newborn Head Shape

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Abstract

There are many variations in newborn head shape after delivery, some of which are suggestive of underlying abnormalities warranting further evaluation while others are normal variations that will resolve with time. It is imperative that clinicians can distinguish among physical exam findings of the newborn head to guide management and decision making. The focus of this paper is to discuss a rare, but benign, variant of the newborn head shape known as bathrocephaly.

Keywords: Newborn; Head shape; Bathrocephaly

Introduction

In the first 24 hours of life, a newborn physical exam is of utmost importance to assess for the general well-being and health of the newborn baby. During the exam, special attention should be made to look for any abnormal physical exam findings that could suggest injury, illness, or anomaly. Assessing newborn head shape is a fundamental component of a thorough newborn exam as there can be numerous clinically relevant findings. The newborn head shape can vary greatly from one newborn infant to another. Certain findings can suggest concerning underlying pathology while others can be normal variations. One such normal variation is that of bathrocephaly. Bathrocephaly is a unique head shape finding caused by the bulging of the intraparietal portion of the occipital bone and elevation of the occipital squama over the parietal bones in such a way that there is an obvious occipital protuberance on the newborns head [1]. To be able to distinguish concerning head findings from those that are normal variations like that of bathrocephaly, it is important for each clinician to familiarize themselves with the many different head shapes to better aid in caring for the newborn infant.

Case Presentation

A term gestation female infant is born at 38 weeks via cesarean section due to breech presentation. Maternal history is significant for chronic hypertension. The infant does well at delivery with APGARS of 8 and 9 at 1 and 5 minutes, respectively. Birthweight is 2.92 kilograms (24th percentile); length is 48 centimeters (26th percentile), and head circumference is 35 centimeters (82nd percentile). She is admitted to couplet care with her mother. On day of life (DOL) 1, the infant is noted to have a "hard, non-fluctuant, non-erythematous" prominence on the posterior occipital scalp. Her head exam is otherwise normal with an open, flat, and soft fontanelle and approximated sutures. The infant is well appearing and has no other notable prominences. She has a normal neurologic exam. A skull X-RAY is obtained (Figure 1) and reveals, "flattening of the inferior occiput with posterior protrusion." These findings are consistent with bathrocephaly. The infant continues to do well and is discharged home on DOL 2 with close primary care provider (PCP) follow-up; her parents are counseled on the benign nature of her head shape variation and continue to follow with her PCP.

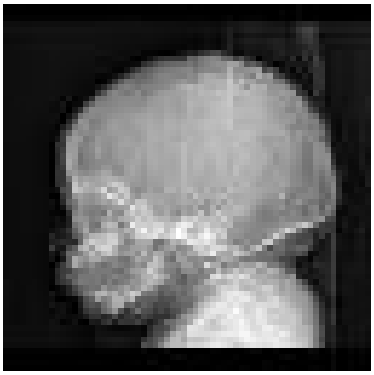

Figure 1: X-RAY of a Variation in Newborn Head Shape.

Discussion

Bathrocephaly is a deformity of the occipital bone, which results from failure of fusion of the mendosal suture [2]. The mendosal suture separates the interparietal bone from the supraoccipital bone in utero and typically closes prior to delivery or within the first couple of days of life [3]. If it fails to fuse, the result is an outward convex bulge of the occipital bone that produces the characteristic head shape of bathrocephaly [4]. Bathrocephaly is most commonly a benign isolated finding and is not associated with any underlying skull or brain pathology; however, there are few case reports suggesting its association with other forms of craniosynostosis [2].

Bathrocephaly is not the only head shape abnormality that can be encountered on a newborn physical exam and the differential should be kept broad when a clinician encounters an abnormal newborn head shape. Trauma during delivery can lead to bleeding and edema resulting in caput succedaneum, cephalohematoma, or even a Subgaleal hemorrhage. Cephalohematoma and subgaleal hemorrhages are associated with increased risks of bleeding, anemia, and hyperbilirubinemia so continued monitoring is critical [5]. Additionally, premature fusion of skull bones and sutures can lead to craniosynostosis that requires surgical correction [5].

Finally, infants can have standard head molding from delivery that resolves on its own over the first few days of life. Thus, there are many physical exam findings that can be encountered during a routine newborn physical. Bathrocephaly, as discussed in this case report, is one such benign physical exam finding. The natural course of bathrocephaly is that it will spontaneously resolve on its own over time; thus, it requires no surgical or medical intervention [2].

Author Disclosure

There are no financial disclosures to be made or conflicts of interest pertaining to this manuscript. This manuscript does not contain a discussion of an unapproved/investigative use of a commercial product/device.

Consent

Parental consent obtained to use images as submitted.

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