



Positional Plagiocephaly

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November/December 2011

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CASE STUDY:

Luke is a 9 month old male who was born at 35 weeks gestation. Ultrasound performed in the second trimester revealed early descent into the maternal pelvis and intrauterine crowding due to twin gestation. At birth Luke had a head tilt. At 8 weeks he was diagnosed with positional plagiocephaly and referred to

Neurosurgery, where he was also diagnosed with left sided torticollis. He was referred to physical therapy for the torticollis and parents were educated about the aggressive positional changes necessary to help correct the plagiocephaly. At 4 months there was significant improvement with the torticollis but little improvement in the head

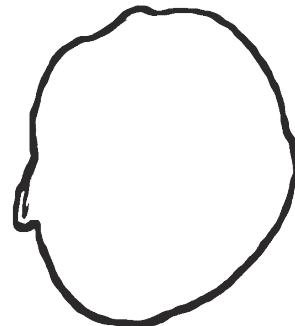
shape. Luke was placed in a cranial remolding helmet and continued to receive physical therapy for the torticollis. At 7 months, Luke had successfully completed helmet therapy with excellent cosmetic outcome and the torticollis had completely resolved.

CASE DISCUSSION

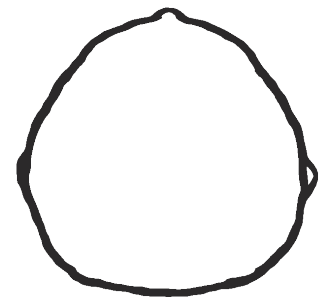
Definition: Positional plagiocephaly can be defined as positional flattening or molding of the malleable infant's skull due to prolonged contact with external surfaces.

Clinical features: Infants with occipital plagiocephaly have a head shape resembling a parallelogram with anterior displacement of the ear, frontal bossing and zygomatic prominence on the same side as the flattened occiput. Infants with flattening across the entire occiput have a form of plagiocephaly described as brachycephaly.

Differential diagnosis: Plagiocephaly is a non surgical deformity and should not be confused with craniosynostosis which is premature fusion of one or more cranial sutures which also results in a misshaped head. The genetic blueprint for craniosynostosis is located in the dura, the leather-like covering over the brain and it results in ridging or piling up of bone along one or more of the cranial sutures. Infants with lambdoid craniosynostosis have a head shape that resembles that of a trapezoid and the ear is displaced inferiorly and posteriorly. If the practitioner is unsure of the diagnosis, a skull x-ray can be obtained. If the clinical exam and skull films are suspicious for craniosynostosis, a referral is made to a neurosurgeon.



Right occipital plagiocephaly



Brachycephaly

Images courtesy of cranialtech.com

Risk Factors: The following factors can contribute to plagiocephaly: prematurity, male gender, first born, early descent into the pelvis, multiparity, prolonged labor, vacuum extraction or forceps delivery, cephalohematoma, developmental delay, torticollis and prolonged supine positioning.

History: In 1992, the 'Back to Sleep' guidelines were recommended by the American Academy of Pediatrics in an effort to decrease the incidence of Sudden Infant Death Syndrome (SIDS). Since the implementation of the guidelines, the rate of SIDS in the U.S. has declined by more than 40 percent. Prior to 1992, the incidence of plagiocephaly was 1 in 300 infants. The number of infants diagnosed with plagiocephaly is now estimated

to be as high as 1 or 2 infants out of 10. In the early 90's, infant car seats were redesigned so that they doubled also as an infant carrier or could be used in a stroller. The use of the multifunction infant seats were found to be a risk factor for the development of plagiocephaly as the infant no longer required repositioning and remained in the same position for prolonged periods of time during the day.

Surveillance: Flattening of the head often becomes apparent when the infant is two or three months of age. A thorough examination by the practitioner can identify plagiocephaly early on. Assessing for torticollis is equally important, especially if the parent reports that the infant has developed a

Continued from the front.

preference of head positioning towards one side. Infants with plagiocephaly have an increased risk for mandibular dysmorphology including facial scoliosis, visual field development problems, mild gross motor delays and eustachian tube dysfunction.

Referral: Early referral to a Neurosurgeon for evaluation and treatment of positional plagiocephaly is imperative as the most rapid head growth occurs between birth and six months with the second most rapid head growth occurring from six and twelve months. If torticollis is identified then a referral to Physical Therapy should be made. Aggressive positional changes result in a better cosmetic outcome if started at the earliest signs of flattening. Helmet therapy is often reserved for moderate to severe cases and not usually considered useful after 12 months of age as the cranial sutures start to become sticky as the fusion process begins.

Prevention: The most important intervention that practitioners can provide for families with young infants is education that encourages families and caregivers to change head positions frequently and to provide supervised periods of tummy time during the day. This information should be reinforced at each visit throughout the first year.

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