



Weill Cornell Pediatric Brain and Spine Center

Diagnosis: Deformational Plagiocephaly

BACKGROUND: Your child has been diagnosed with deformational plagiocephaly, also known as positional molding, which is a common cranial deformity of children. In fact, this is the most common cause of a misshapen skull in infants. Most cases of deformational plagiocephaly are caused by applied pressure to the back of the head while the child is sleeping on their back. Other causes include muscular torticollis and prematurity. Muscular torticollis is a condition present at birth in which one or more of the neck muscles are very tight, causing the head to tilt and/or turn to one side. When infants have this condition, they tend to favor one side while sleeping, causing consistent pressure to be applied to the same side of the head. Premature infants are also at increased risk of developing deformational plagiocephaly due to their developmental progress sometimes being delayed and subsequently spending more time on their backs. This deformity is strictly limited to only the bones of the skull. There is no involvement of the brain and no expectation of any developmental or intellectual delay.

FINDINGS: It is not uncommon for a parent to first notice the physical characteristics seen in deformational plagiocephaly. When looking at your child's head, you may notice forward displacement of the forehead with flattening on the same side of the back of the head. These two findings are the hallmarks of this process. You may also notice that the ear is displaced forward relative to the other side. There are no associated findings typical of other diseases of the bone, which are referred to as craniosynostosis conditions. The manifestations of deformational plagiocephaly are very obvious to a trained specialist and there is no need for CT scan or MRI to confirm a diagnosis.

TREATMENT: Positional molding is expected to improve spontaneously and without any treatment over the course of the child's first year of life. This self-limiting process occurs at a variable time rate, but in general will always show continued normalization over time. There is no surgery that is needed for the correction of this process. Some improvement can be accelerated with simple behavior modification by stimulating the child to spend more time on the non-flattened side of the back of the head. Positioning your child to turn toward their favorite toy, a window, or a hanging mobile are examples for behavior modification. Encouraging supervised "tummy time" with your child while they are awake and simple physiotherapy with muscle stretching exercises can also help accelerate the improvement. There has been significant emphasis on helmet therapy (dynamic orthotic devices) as a means for accelerating the rate of improvement. These devices, typically worn for the first 12 months of life for approximately 23 hours a day, require 1-2 changes during the course of treatment due to rapid head growth. While this remains a treatment alternative, it is seldom necessary and has never been proven to show a better outcome compared with continued observation and behavior modification.

FOLLOW-UP: Given that deformational plagiocephaly spontaneously improves, there is no need for continued assessments or visits to a specialist. Of course, if there remains any concern by the parents or the pediatrician of worsening, then the child should be evaluated by a trained specialist in craniofacial diseases for further treatment.