Skull deformations

Patient Information Series – What you should know, what you should ask.

What is a skull deformation?

A skull deformation is a change of shape of the fetal cranium identified by ultrasound during pregnancy. This is transitory in most cases due to applied mechanical compression forces.

How does a skull deformation happen?

A deformation occurs due to a force causing compression or constraint over an anatomic area, in this case, the skull. Many forces can be at play, leading to deformation. Prolonged absence of or reduction in amniotic fluid volume (oligohydramnios or anhydramnios) may be causative, as may unusual positioning of the fetus within the uterus. Maternal compression forces, such as compression of the fetal skull by large fibroids or altered internal architecture of the uterus when uterine anomalies are present, can also lead to deformation of the fetal head.

Compression of the skull during labor and delivery because of uterine contractions and passage of the fetal head through the birth canal is the most frequent cause of the change in the shape of the fetal skull (called “molding”). Still, it is transitory in nature, resolving shortly after birth. In some cases, the change in the shape of the fetal skull is not transitory but due to the premature fusion of the skull bones in fetal life. This is called craniosynostosis and has additional consequences for the baby. Your doctor will do serial ultrasounds to rule out this latter condition.

How are chromosomes relevant to a skull deformation?

There are no genetic implications for an actual transitory deformation due to a mechanical force applied to the skull, and formal genetic testing is unnecessary. All babies identified with a deformation need further evaluation to rule out other congenital defects that can affect the shape of the skull (e.g., craniosynostosis). In these latter cases, genetic counseling will be offered to consider genetic testing.

Should I have more tests done?

Serial ultrasound follow-up by qualified medical personnel is advised to assess the evolution of the skull shape throughout pregnancy and differentiate it from premature fusion of the fetal skull bones. For this latter condition, another testing may be offered, such as:

- An amniocentesis for genetic testing of the baby’s genetic material. This is done by removing a small amount of amniotic fluid surrounding the fetus.
- An MRI scan is sometimes done to provide additional information on the baby's condition.
- Medical evaluations of other specialists include geneticists, neonatologists, neurologists, and neurosurgeons.

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What does it mean for my baby after it is born?

The baby will have a complete evaluation at birth from the pediatrician to assess the shape and measurements of the head and a comprehensive anatomical assessment to rule out defects that couldn't be seen during pregnancy. The pediatrician is going to follow up on the development of the bones of the skull over time and is going to evaluate your baby's neurodevelopment. If necessary, other image tests could be offered, such as computed tomography or magnetic resonance. Most isolated skull deformations have a good prognosis and only need conservative management.

Will it happen again?

If no other genetic reason is found to explain the skull deformation, the risk depends on the cause of the deformation. If the cause (e.g., large fibroids) could be treated before the subsequent pregnancy, the exact condition won't recur.

What other questions should I ask?

- Can I meet the team that will be present during my baby's delivery?
- Who are the specialists that will examine my baby at birth?
- Is it necessary to perform any further tests after my baby is born?
- What is the required treatment for the skull deformation of my baby?
- Is my baby's neurodevelopment will be affected?

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