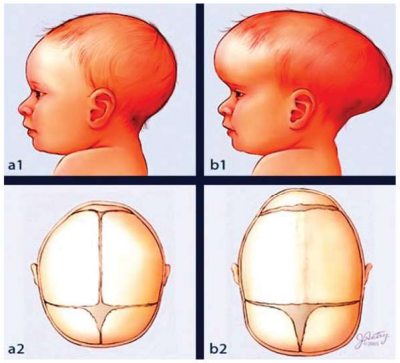
What is craniosynostosis?

Premature cranial septal deformity that causes a change in the shape of the skull, the volume of the skull, or both, is called craniosynostosis. Therefore, the criterion for premature closure is not the fontanel but the premature closure of the joint. Normally, most sutures begin to close in the third year of life and are completed at age 6-8. These sutures will become bony later.



It should be noted that at the end of the second month of life, the baby's brain increases by 50% and at the end of the first year of life will reach 2-3 times the volume and at the end of the second year will reach 3-4 times the volume at birth. From now on, brain volume does not increase much, and from the beginning of the second decade of life, the increase in brain volume and head circumference almost stops.

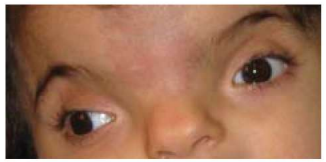
Therefore, providing skull growth in the first months and years of a child's life is essential, and if for some reason the skull cannot grow, the brain continues to grow to the point that the skull does not fit it, will cause increasing brain pressure and the possibility of brain damage due to lack of space for growing process.

What are the clinical symptoms of this disease?

Most of the symptoms of premature closure of the cranial sutures are related to the disorder in the child's skull and face.

Failure to treat and correct craniosynostosis will in some cases lead to symptoms of increased intracranial pressure, impaired brain development, and some degree of mental retardation. Very rarely, blindness can occur in cases involving multiple seams. Eye disorders such as aberrations of the eyes, approach of the eyes or increasing the distance between the eyes occur more than normal and sometimes the eyes protrude.

Protrusion of the eyes in premature closure of several sutures

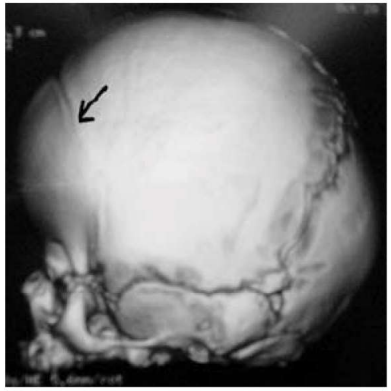


Increasing the distance and deviation of the eyes in the premature closure of the two coronal seams

How can this disease be diagnosed?

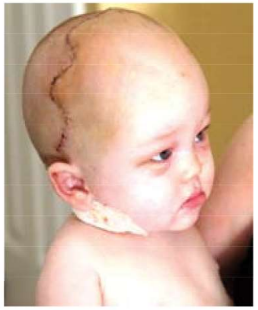
Diagnosis is based on examination and radiological examination. Most of the time, the family complains of a disorder in the shape of the skull and face of the child and refers for examination. Having a small size around the head, is a common finding in this disease.

The attention of the parents and the pediatrician play an essential role in the early diagnosis of the disease. The plain image of the skull helps in the diagnosis to some extent, but the CT scan of the skull, especially the three-dimensional CT scan, is very useful in the diagnosis and shows any closed suture.



Three-dimensional CT distinguishes closed and bony seams from open seams (arrow symbol indicates closed seams).

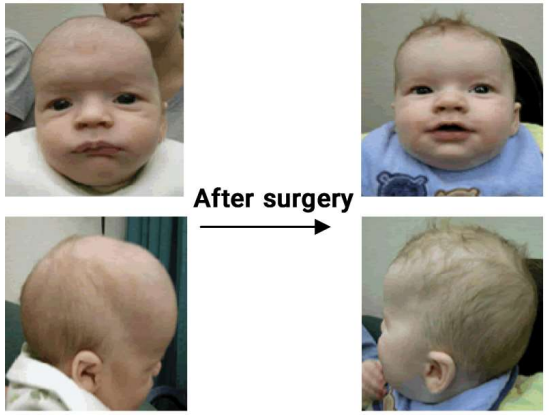
Dear parents, pay attention



An important point in craniosynostosis is the diagnosis of cases of microcephaly or small brain from craniosynostosis, which the three-dimensional CT scan differentiates the two. In a three-dimensional CT scan of a patient with craniosynostosis, a suture is detected, but in the microcephaly or small brain, the sutures are open, but due to the lack of good brain development, the skull has not grown again with the existence of the open suture.

Is there a definitive cure for this disease?

Treatment includes surgery and removal of the welded suture. During the surgery, an attempt is made to establish the proper shape of the face and skull. It should be noted that the patient with microcephaly or small brain does not benefit from surgery.



Cases of craniosynostosis with premature expansion of the cranial suture will benefit significantly from surgery, which underscores the importance of differentiating between the two diseases.The best age for surgery is before the first year of life to establish a good shape, and especially in the involvement of several sutures, that corrects the pressure on the brain. Another important point in this surgery is to reconstruct the skull and establish a shape that is close to normal for the skull, which may require screws and plates to hold the skull in place. One of the problems of this surgery is the long working time, bleeding and related risks. The child's anemia should be monitored and corrected before and after surgery.

Important postoperative care includes monitoring for neurological changes, bleeding, or infection. There is a lot of pain after extensive cranial surgery, which is controlled with painkillers in the first days.

There is a lot of bleeding due to the type of surgery, so care should be taken in the possibility of postoperative anemia.

Most children will have significant swelling of the eyelids after surgery.

Holding the head up in a semi-sitting position will help improve head and face swelling. Eye care includes gentle cleansing with a damp cotton ball. Adequate hydration is essential, full nutrition through the mouth should be started as soon as the patient regains consciousness. Most patients can be bathed from three days after surgery. Trauma to the site of operation should be avoided for several weeks after the operation so as not to cause pain and displacement of the reconstructed pieces of the skull. Some cases of craniosynostosis are complex and require surgery at several stages and even at different ages, with the help of teams composed of several specialties, including neurosurgery and plastic or maxillofacial surgery.

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Parents' guide to the disease

Craniosynostosis