

Surgical Partnership Improves Management, Outcomes for Craniosynostosis

A unique collaboration between Cincinnati Children's neurosurgeons and plastic surgeons is providing reassurance to parents and exceptional outcomes for babies who need reconstructive surgery for the birth defect craniosynostosis.

Neurosurgeons and plastic surgeons have joined forces in the hospital's Craniosynostosis and Cranial Reconstruction Center (CCRC), where they see about 60 children with craniosynostosis each year, says neurosurgeon Jesse Skoch, MD. The condition causes the fibrous joints, or sutures, between the bones in the skull to grow together too early. This can cause deformities in skull growth and problems with brain development.

Communication Builds Trust

"The neurosurgeon and plastic surgeon examine the patients and talk with the families together in the CCRC," says Skoch. "We discuss our thought process and treatment plan so everything is out in the open. Parents tell us they appreciate the collaborative effort."

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For most children with craniosynostosis, correcting the fused suture is a relatively simple procedure that can be done endoscopically, Skoch says. "The key is to identify the problem early. We want to get kids in preferably around 2 to 3 months of age, certainly before 6 months, so we can do a minimally invasive procedure." With just a small incision, Skoch says, he removes a small strip of bone. A few days after the procedure, the child is fitted with a helmet that reshapes the head within a matter of months. "It's an elegant and natural way to treat the condition," Skoch says, "but it works best for kids with single suture disease, and only if you catch them early."

Virtual surgical planning has optimized the surgical correction of craniosynostosis for families and surgeons.

VSP - A Peek at What to Expect

When more extensive surgery is needed, Skoch teams with a plastic surgeon on a process known as virtual surgical planning (VSP). The doctors use CT scans to visualize on a computer screen how they will cut and reassemble the skull for best results. It allows much more predictable results, and doctors can show parents what the child's skull will look like afterward. Skoch says VSP works so well, they've begun using it routinely.

"We've come to realize there is quite a lot of nuance - how far along each child is with the deformity, how early it started in their development. By using VSP we can get the optimal head shape and provide room for brain growth. It optimizes both."

And most important, Skoch says, he and his plastic surgery colleagues achieve the best possible outcomes.

"The vast majority of these kids end up with normal brain development," says Skoch. "And we are able to take a frightening physical problem and turn it into something that looks like it never happened. Families get very enthusiastic about that."