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HEALTH

TO YOUR HEALTH

A 12-year-old had one-sixth of his brain removed. He feels ‘perfectly normal.’

BY LINDSEY BEVER

It was a solution no parent wants to hear: To get rid of a brain tumor and stop their young son’s seizures, surgeons would need to cut out one-sixth of his brain.

But for Tanner Collins, it was the best option.

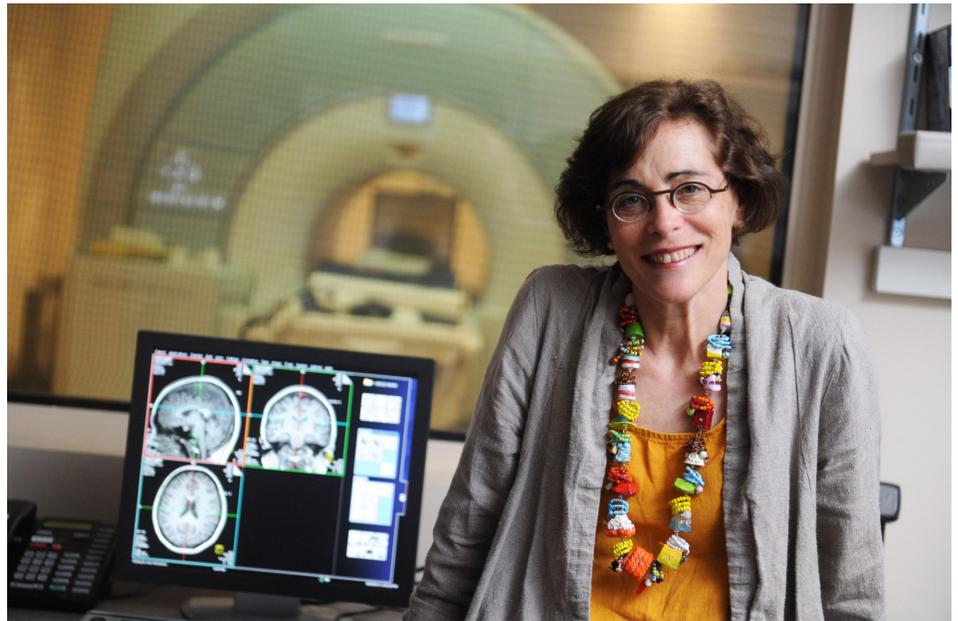
A slow-growing tumor was causing sometimes-daily seizures, and medications commonly used to treat them did not seem to be working, his father said. But removing a portion of his brain was no doubt risky. That region — the right occipital and posterior temporal lobes — is important for facial recognition, and, without it, Tanner’s parents wondered if he would recognize them.

Tanner, who was 6 at the time, underwent surgery at the University of Pittsburgh Medical Center’s Children’s Hospital. Although his brain has had to work to adapt since then, he’s had no major problems.

Other than some visual impairment, Tanner, now 12, said he’s “perfectly fine.”

“As far as I’m concerned, I’m a perfectly normal 12-year-old boy,” Tanner said. Tanner’s case was published Tuesday in the scientific journal *Cell Reports*, explaining how the 12-year-old’s brain learned to adapt after a part largely responsible for visual processing was taken out.

Marlene Behrmann, a cognitive neuroscientist and lead author of the paper, said Tanner was one of the first pediatric patients studied over the past several



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Marlene Behrmann, a professor of psychology and cognitive neuroscientist at Carnegie Mellon, was the lead author of a paper on the remarkable case of Tanner Collins.

years in her laboratory at Carnegie Mellon University to determine the extent to which a child’s brain can reorganize itself after certain sections are surgically removed. In Tanner’s case, she said, surgeons took out his right occipital and posterior temporal lobes, which made up about one-third of the right hemisphere of his brain.

Behrmann, a psychology professor at Carnegie Mellon, said that once that section of Tanner’s brain was surgically

removed, there was a risk that he would have trouble recognizing the faces of those around him, including his own parents. But, Behrmann said, Tanner’s brain ultimately found a solution — the part of the brain that assists with visual processing in the left hemisphere took on the task.

“Today he is a bright, curious, introspective 12-year-old who does pretty much everything that other 12-year-olds do,” Behrmann said, noting that his case illustrates the “plasticity” of children’s brains.

However, Behrmann noted that because Tanner is missing part of the right side of his brain responsible for visual processing, he has a large blind spot on the corresponding left side of his universe. She said he can compensate by moving his eyes to stitch images together but because of that issue, he will not be able to drive when he reaches adulthood.

Tanner's parents first noticed something was wrong when he was 4.

He had a grand mal seizure and was diagnosed with a brain tumor on the right side of his brain. It was later identified as a benign and slow-growing tumor called adysembryoplastic neuroepithelial tumor, Behrmann said.

Tanner's parents, Carl and Nicole Collins, both nurses from New Stanton, Pa., chose to watch and wait, but as the tumor kept growing and the seizures kept occurring, they opted for surgery.

Following extensive tests to determine exactly where the seizures were originating and the minimum amount of brain tissue they needed to remove to make

them stop, surgeons removed the tumor and surrounding area, Tanner's father, Carl Collins, said. Collins said that he and his wife's main concern was for their young son — "that he would be able to lead a normal life" — but they also worried he wouldn't recognize them.

"That was a fairly large part of his brain, and for him to have only some subtle changes without it, that almost seemed unrealistic," the father said.

Collins said that when Tanner woke up from surgery, he was looking around the hospital room, and they could tell he was having trouble with his vision. Tanner said he knew who his parents were but he remembers not being able to match their faces with their names, so, for a time, he said he would poke them when he wanted their attention.

Collins said it took his son months to recover from surgery.

Although Tanner has great vision, his father said, he has blind spots — including the prominent one on the left side. Tanner said one way he notices his visual

impairment is when he tries to look at 3-D art on a 2-D surface such as a piece of paper, but "I just see lines and stuff." His father said Tanner engages in visual and occupational therapies but that he does very well otherwise.

Tanner, who reportedly does well in school, will be entering the seventh grade. He said he's not allowed to play contact sports, but he enjoys swimming, volleyball and tennis. "I also like chess," he said.

He said he already knows what he wants to be when he grows up.

"A neurosurgeon," the 12-year-old announced. "I like the concept of helping people's lives, especially people who have situations similar to mine."

Behrmann, with Carnegie Mellon, said Tanner's case is significant because it shows not only the potential for the reorganization of the visual system in children's brains but also how that reorganization takes place.

"There is much to be discovered, but I think this is the step in right direction," she said.