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Fighting Scoliosis: Seton adds vertebrae stapling to repertoire

Posted By [Jen Biundo](#) On May 18, 2011 @ 10:45 am In [Featured,Hays County](#) | [No Comments](#)

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by **JENNIFER BIUNDO**

Just five weeks after back surgery for early onset scoliosis, 11-year-old Madalyn Raymond was back to doing what she loves best – competing in a dance competition.

The Carpenter Hill Elementary School fifth grade honors student, who also counts basketball and girl scouts among her hobbies and hopes to be a doctor when she grows up, was the first person in central Texas to receive an innovative, minimally invasive scoliosis correction known as vertebral body stapling.

Matthew Geck, a spine surgeon with the Seton Spine & Scoliosis Center, a member of the Seton Family of Hospitals, performed the procedure.

The family was relieved to learn that minimally invasive surgery was an option, her father Jeffrey Raymond said.

"We went through all the research and saw things like spinal fusion," Raymond said. "Some of the treatment options were more restrictive, like bracing for 23 hours per day, which would be really challenging and limiting in and of itself. Having an alternative that fit Maddie's lifestyle was a huge, huge comfort for us."

Scoliosis is a condition that causes the spine to curve in an S or C shape. Bracing is often recommended for patients, but that is not always effective. For some patients, the curvature progresses aggressively and more invasive procedures are required.

Vertebral body stapling is a minimally invasive procedure for patients with earlier onset scoliosis. Surgeons apply metal staples to the anterior, or the side of the spine that faces forward. They are inserted between two vertebral bodies, which compress the growth plates and slow the growth of that side of the spine, allowing the scoliosis to "self correct," similar to orthodontic braces for teeth, Geck said.

The staples are made from a nickel-titanium alloy that has "shape memory." When cold, the staples remain in an "open" position for surgery. Once the surgeon implants them, they warm to the body temperature and resume their original position and clamp onto the vertebrae.

"What we're trying to do is preserve the long-term motion of the spine," Geck said. "Patient selection, however, is crucial. You have to pick the appropriate patient with the right curvature."

That makes early diagnosis all the more critical, noted Jeffrey Raymond. Madalyn was diagnosed with scoliosis three years ago during a routine pediatric checkup for Girl Scout camp.

"They had her touch her toes and noticed a slight visible difference, and said 'let's just be careful about this and get a closer look,'" Raymond recalled.

During adolescence, growth spurts can transform slight spinal curvatures into significant ones, ruling out minimally invasive procedures like the body stapling.

"Early screening gives people the maximum amount of options," Raymond said.

When she was first diagnosed with scoliosis three years ago, she didn't know much about the disease, Madalyn Raymond said.

"We did a lot of research and lots and lots of X-rays," Raymond recalled. "I kind of started to understand and grasp everything."

After the diagnosis, she wore a back brace to bed, decorated with stickers and signatures from friends, but that didn't do much to correct the curvature. When doctors told her she was a candidate for a minimally invasive procedure that would make it easier to dance and play sports, she jumped at the prospect.

On March 4, Geck performed the surgery through three small incisions, one centimeter in size. Madalyn was hospitalized for only three days, returned to her daily activities within a week and was back at gym class in about four weeks.

"I still can't do contact sports right now, but I've gotten to do a lot more and it's really helping," Raymond said. "I've already been to a dance competition. From the X-rays, the top curve has corrected nine degrees and the bottom curve has corrected 10 degrees."

The surgery came with another perk – her first iPad. But instead of rushing to fill it with games or social networking apps, Madalyn's first download was Keynote. She used the program to create a slideshow about scoliosis, which she plans to present to the Hays CISD School Board.

Her family is hopeful that the early detection and surgery will help prevent future problems.

"We're optimistic Madalyn can avoid the more invasive surgery in the future," Jeff Raymond said.



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