Definitions

cerebellar tonsils - portion of the cerebellum located at the bottom, so named because of their shape

cerebellum - part of the brain located at the bottom of the skull, near the opening to the spinal area; important for muscle control, movement, and balance

cerebrospinal fluid (CSF) - clear liquid which surrounds, and protects, the brain and spinal cord

cervical - the upper part of the spine; the neck area

Chiari malformation - condition where the cerebellar tonsils are displaced out of the skull area into the spinal area, causing compression of brain tissue and disruption of CSF flow

decompression surgery - common term for any of several variations of a surgical procedure to alleviate a Chiari malformation

laminectomy - surgical removal of part (the bony arch) of one or more vertebrae

magnetic resonance imaging (MRI) - diagnostic test which uses a large magnet to create images of internal body parts

scoliosis - abnormal curvature of the spine, measure in degrees

syringomyelia (SM) - neurological condition where a fluid filled cyst forms in the spinal cord

syrinx - fluid filled cyst in the spinal cord

vertebra - segment of the spinal column (see Spinal Anatomy)

Dramatic Improvement In Scoliosis

Case Studies is a feature designed to highlight interesting patient cases reported in the research. Given the lack of knowledge about CM/SM, much of the published research comes in the form of case studies - doctors describing one or two patients they have seen and treated - as opposed to rigorous scientific studies. While this type of publication doesn't advance the scientific cause as much, it does give us a window into some of the issues surrounding CM/SM, including lasting side effects and related conditions. And hopefully, some of our readers will say, "Hey, that's just like me!" and know they are not alone in what they are going through.

Significant Scoliosis Regression Following Syringomyelia Decompression

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Journal: Iowa Orthopedics Journal

Introduction: The link between scoliosis and Chiari/SM has been well established, including guidelines for when an MRI should be performed for idiopathic scoliosis. In addition, research has shown that when both Chiari/SM and scoliosis are present, the Chiari should be treated first. This case supports that approach in dramatic fashion.

Patient: A five year boy with scoliosis. Pediatric orthopedic surgeon discovered neurological findings as well, including a weak gag reflex and abnormal knee reflexes. X-rays showed the scoliosis was quite significant with one curve at 54 degrees and another at 42 degrees. MRI revealed a Chiari I malformation and a syrinx which extended the length of the spine.

Treatment: Decompression surgery, including partial C1 laminectomy.

Outcome: The boy slowly recovered and the scoliosis got better. Six months after surgery the curve was already down to 33 degrees. Seven years later, when the boy was 12, the curve was only 4 degrees. At the age of 17, the boy had no deformity or back pain and was the starting running back on his school's varsity football team.

Author's Discussion: The authors report that in their experience with patients similar to this (8 children with scoliosis plus Chiari treated with decompression), the scoliosis resolved in 2, improved in 5, and stabilized in 1. They do note, that this case is the most dramatic improvement they have seen. They also stress that research has shown that early age is critical in arresting and reversing scoliosis related to Chiari. Studies have shown that children treated under the age of 10 have much better outcomes in terms of scoliosis improvement than older children.

Editor's Discussion: Scoliosis related to Chiari/SM is one of the few areas with a significant amount of research, including guidelines for MRI's and the importance of surgically treating the Chiari before any type of scoliosis surgery. Additionally, research has shown that swallowing problems - and other problems involving the mouth/throat area - and scoliosis are two of the more common symptoms in children.

--Rick Labuda