

Key Points

1. Scoliosis is an abnormal curve of the spine
2. A subset of people with scoliosis have no other symptoms, but do have Chiari, SM, and/or tethered cord
3. Research found that an unusual curve pattern, the left thoracic curve is a strong indicator of an underlying neurological problem
4. Specifically, found that more than half of patients with left thoracic curve showed a neural axis problem on MRI
5. Also found that males were more likely than females to have a neurological problem
6. Severe curve was also an indicator for CM, SM, or tethered cord

Definitions

asymptomatic - not having any symptoms

Cobb angle - measure, in degrees, of the severity of a scoliosis curve

idiopathic - of unknown origin

neural axis - refers to the brain and spinal cord

scoliosis - an abnormal curvature of the spine

tethered cord - condition where the tissue of the spinal cord is abnormally attached to the bony spine

thoracic - the middle part of the spine, the chest area

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

cerebrospinal fluid (CSF) - clear liquid in the brain and spinal cord, acts as a shock absorber

syringomyelia - condition where a fluid filled cyst forms in the spinal cord

Left Thoracic Curve Strong Indicator Of Neurological Problem

January 31st, 2010 -- A group of Chinese researchers have found that more than 50% of people with a specific type of scoliosis curve have an underlying neural axis problem, such as Chiari and/or syringomyelia. Scoliosis, an abnormal curve of the spine, is a fairly common problem among teenagers. In many cases, there are no other symptoms and no readily apparent cause of the abnormal curve; these cases are called idiopathic.

If the scoliosis is severe enough, or keeps progressing, corrective spinal surgery may be required. However, if there is an underlying neurological problem, it is better, and safer, to treat that before any spine surgery. Because of this, understanding what types of scoliosis warrant further investigation with an MRI is important.

With this in mind, the Chinese researchers decided to focus on a specific curve pattern, the left thoracic curve, that for reasons which are not clear, is less common than a right thoracic curve pattern. Between 1997-2006, they identified 68 consecutive idiopathic scoliosis patients with a left thoracic curve. There were 34 males and 34 females with an average age of 15 years. All patients were asymptomatic except for the scoliosis, meaning there was no pain, numbness, or weakness in the legs. The severity of the scoliosis, as measured by the Cobb angle, ranged from 15 to 108 degrees, with an average curve of 53 degrees. All of the patients underwent a whole spine MRI to look for neural axis problems.

The researchers found that a surprising 54% of the left thoracic curve patients did indeed have an underlying neurological problem such as Chiari, syringomyelia, or tethered cord (Table 1). The most common finding was Chiari (15 patients), followed by Chiari and syringomyelia (10), followed by syringomyelia alone (8). This means that more than half of the cases studied had a neurological problem which needed to be addressed. This is in very stark contrast to right thoracic curves, where research has found the incidence of neurological problems to be around 2%.

Table 1: Neurological Findings in 68 Left Thoracic Curve Idiopathic Scoliosis Patients

Chiari	15
Chiari & Syringomyelia	10
Chiari, Syringo, Tethered Cord	1
Syringomyelia	8
Syringomyelia & Tethered Cord	1
Other	2
Total	37

The group also found that males were significantly more likely to have a neurological problem than females. Specifically, 25 males and 12 females showed a neurological issue on MRI, versus 9 males and 22 females whose MRIs showed nothing. Another strong indicator of an underlying neurological problem was curve severity. The average curve among those with a neurological issue was 67 degrees, versus only 36 degrees on average for those whose MRIs showed nothing.

Interestingly, it is not at all clear how Chiari and SM are linked to left thoracic curves, but it is clear that such a curve, especially for males and if its severe, warrant an MRI for further investigation.

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Source

The left thoracic curve pattern: a strong predictor for neural axis abnormalities in patients with "idiopathic" scoliosis. Wu L, Qiu Y, Wang B, Zhu ZZ, Ma WW. Spine (Phila Pa 1976). 2010 Jan 15;35(2):182-5.

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