

CASE REPORT

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Adolescent Idiopathic Scoliosis: When to Ask for a Magnetic Resonance?

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ABSTRACT

Adolescent idiopathic scoliosis (AIS) is defined by lateral curvature of the spine with Cobb angle greater than 10 degrees, age of onset older than 10 years, and no underlying etiology. The evaluation of this pathology focuses on looking for an underlying etiology, evaluating the magnitude of the curve, and determining the risk of progression. In this article we present a case of rapidly evolving scoliosis that makes us question when MRI is indicated.

ARTICLE HISTORY

Received December 12, 2021

Accepted December 15, 2021

Published December 20, 2021

Keywords: Scoliosis, Adolescent, Back Pain.

Introduction

Scoliosis consists of a lateral deviation of the structural spinal column that occurs from various causes. The progression of this curve in periods of rapid growth can lead to a large final deformity that can be accompanied by cardio-vascular compromise. The study by magnetic resonance (MRI) is not routinely indicated in AIS.

Objectives

To determine by reviewing the literature what are the study criteria by MRI in idiopathic scoliosis in childhood.

Material and Methodology

We present a clinical case of a 10-year-old girl, with no relevant history, who consulted for cervical-dorsal pain of two months of evolution. The last pediatric check-up took place 6 months ago, including a nondescript spinal examination. On this occasion, a right convex dorsal scoliosis that it is not accompanied by neurological deficit in the lower extremities is striking. At simple radiological study shows right D5-L2 scoliosis with a Cobb angle of 38°.

Given the rapid progression of the deformity, an MRI study was performed, which appreciated dorsolumbar scoliosis of right dorsal convexity accompanied by an expansive intramedullary and intradural lesion in the lower dorsal region with the presence of a solid pole and superior cysts that capture contrast as well as more distal syringomyelia in the cervical region, considering intramedullary astrocytoma, ganglioglioma and ependymoma possible (Figure 1).



Figure 1: Expansive intramedullary and intradural lesion in the lower dorsal region.

Discussion

The etiology of AIS is unclear. A genetic contribution is supported by twin and family history studies. Proposed but unproven factors in the pathogenesis of AIS include abnormalities in growth hormone secretion, connective tissue structure, paraspinal musculature, vestibular function (which affects axial posture), melatonin secretion (which affects growth), and platelet microstructure (which has a contractile system similar to that of skeletal muscle) [1,2].

The prevalence of AIS with a Cobb angle >10° is approximately 3 percent, but only 10 percent of adolescents with AIS require treatment. Patients with AIS usually come to medical attention as a result of truncal asymmetry noted by the patient or caregivers, as well as an incidental finding during physical examination or on chest radiograph or other imaging study [3,4]

The Clinical History and the physical examination are essential. Measurement of the patient's height and patient's arm span, assessment of Tanner stage, examination of the skin and a full neurologic examination should be performed. Radiographs are required to confirm the diagnosis of scoliosis, evaluate the etiology (congenital, neuromuscular, idiopathic), determine the curve pattern and measure the magnitude (Cobb angle), and to evaluate skeletal maturity (to determine the risk for progression) [5, 6].

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The MRI is not always necessary and cost-effective, the indications include:

- Presence of neurological signs or symptoms.
- Significant pain that limits the child's daily life or wakes him up at night.
- The progression of the Cobb angle greater than 10 ° during the last year.
- In children under 10 years old if the curve is greater than 20 ° or in cases of thoracic hyperkyphosis, due to the risk of neurological abnormalities being associated such as syringomyelia and Arnold-Chiari malformation.
- Midline skin abnormalities that may associate neural tube defects.
- We must also complete the study in light of the finding in plain radiology of signs suggestive of congenital scoliosis (hemivertebra) and of intramedullary pathology

(radiolucency of the vertebral body, erosion of the pedicles or widening of the space between them) [7,8,9].

Conclusion

It is essential to know the indications for MRI in idiopathic scoliosis to rule out potentially serious pathology. In the clinical case presented above, the rapid evolution of the deformity constitutes the main alarm sign for a more exhaustive study.

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