

Juvenile Kyphosis

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Editor's note: This issue's column on "Kids Need Chiropractic Too!" has a guest writer, Dr. Greg Plaughter, associate professor at Palmer College of Chiropractic West, and director of research of the Gonstead Clinical Studies Society. He presents postgraduate seminars internationally and can be reached at Palmer West at 408-944-6041. His e-mail address is plaughter_g@palmer.edu

Juvenile kyphosis (Scheuermann's disease) is an orthopedic disorder in which the child develops a rigid hyperkyphotic deformity of the thoracic spine. The etiology of the disorder is presently unknown, but trauma and hereditary predisposition are two contributing factors.¹ The prevalence for this disease is between 0.4% and 10% of school-aged children^{2,3}; male/female ratios differ in the literature because of variable inclusion criteria in different studies.¹

Scheuermann's disease can occur in both the lumbar and thoracic spine. The thoracic form is the most common, with the apex of the curve located between T7 and T9. The thoracolumbar type has the apex of the kyphosis between T10 and T12.

The lumbar form of Scheuermann's appears to be more common in males who are athletically active or hard laborers.¹ The present discussion is confined to the thoracic form of Scheuermann's.

Differential Diagnosis

The differential diagnosis for thoracic kyphosis includes asthenic (postural) kyphosis. Kyphosis due to poor posture is differentiated from Scheuermann's by the lack of rigidity of the kyphosis during extension movements.

Another important differential for this disorder is compression fracture(s). A history of hyperflexion or compression trauma may be present. The lateral thoracic radiograph will identify the fracture.

Thoracic hyperkyphosis can also be a sequelae of infection (e.g., tuberculosis).

X-ray

Several characteristic radiographic changes are noted in patients with Scheuermann's disease:¹

1. irregularity of the upper and lower vertebral end-plates;
2. an apparent loss of disc space height;
3. wedging of more than 5x at one or more vertebrae; and
4. a kyphosis greater than 40x(T1-T12).

It is important to note that the erosion of the end-plates which appear to be present is actually altered

ossification. "Normal" areas of the end-plate have accelerated growth.

Clinical Picture

The child is usually prepubescent (approx. 10 yrs) at the time of diagnosis. No radiographic signs have been reported in the literature for someone under ten years of age. Vertebral body wedging does not occur before the age of 10 because the ring apophysis has not yet ossified. The end-plate profile presents as curvilinear vs. rectilinear in the older child.¹

The rigidity of the curve is noteworthy and there is usually an increase in the kyphosis with forward bending. The patient may have contractures of the hamstrings and pectoral muscles.

The amount of pain varies with the patient's age, stage of the disease, and the site of the kyphosis. High apex curves tend to cause more interference with activities of daily living. During the growth spurt, 22% of these patients report back pain. At skeletal maturity, this rises to 60%.¹

Medical Treatment

The primary medical intervention for this disorder is extension bracing, which appears to have a slight influence on the natural history of the disease.¹ Paraparesis can occur in some patients, due to the additive effects of either a disc herniation or compression fracture. According to Ascani and La Rosa¹ only about 5% of patients will require surgical intervention. These patients usually have a kyphosis that is both large in magnitude and progressing.

Chiropractic Treatment

Subluxation correction remains paramount. The most tender area may not necessarily be the site of fixation-dysfunction. The practitioner should avoid thrusting into hypermobile segments. Stretching of the tight hamstrings and pectoral muscles may also be a part of patient management.

The patient should be advised to avoid certain activities (e.g., rowing, gymnastics, etc.) that cause excessive forward flexion or compression loading at the thoracic spine. There are no studies on the efficacy of this type of approach in children but one small-scale study on geriatric patients has revealed an improvement in thoracic kyphosis following chiropractic care.⁴ Formal studies need to be performed to assess the efficacy, with respect to both subjective (e.g., pain) and objective (e.g., magnitude of the kyphosis) outcomes, for patients with this disorder.

References

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