

Scoliosis

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Scoliosis is a complex abnormality of the spine which usually manifests itself in the pre-adolescent period and may worsen during adolescent growth phase. The etiology of adolescent idiopathic scoliosis is unknown although it is found in families and patients who have this disorder seem to have abnormal postural reflexes and equilibrium.

Scoliosis is a curvature of the spine greater than 10 degrees with vertebral body rotation. Other terms which must be understood include the Cobb Angle. This is an angle measured on either end of the scoliotic curve and is used to measure progression of the curve. The Risser sign is a radiographic sign determining skeletal maturation. This can be determined by an AP pelvic x-ray. A Risser of 0 or 1 indicates a skeletally immature person whereas a Risser 5 represents a patient who is completely mature.

Scoliotic curves are named according to the side and location of the convexity. These curves can be right thoracic, left lumbar, thoracolumbar, double major or right thoracic and left lumbar. Almost all idiopathic curves are right thoracic. Any child with a left thoracic curve warrants further follow up, usually with an MRI of the thoracic spine.

Whether a curve will progress or not is of chief importance to the young patient who presents to a physician's office. If we know the Cobb angle, Risser sign, chronological age, we can fairly accurately predict the risk of progression. Untreated curves in women greater than 50 degrees have a tendency to progress in adulthood at an average of 1 degree per year. Patients having curves of 60 degrees with a history of smoking may already show signs of pulmonary function studies and patients with curves greater than 90 degrees will surely show changes in their cardiopulmonary system. Untreated scoliotic curves in adults can lead to back pain, changes in pulmonary function studies, adverse psychosocial effect, early mortality, and increased curve progression.

School screening has proven to be a valuable asset in the early detection of scoliosis. The most valuable tool is the scoliometer. A Scoliometer reading of greater than 5 degrees usually warrants referral to a physician and subsequent x-ray. Other important aspects of the initial screening include a good history and physical and neurologic exam.

Recognized effective treatment for scoliosis includes observation, bracing and surgery. Bracing is indicated for skeletally immature patients who present with a first time curve of 30 degrees or more or those patients who have been followed with curves in the 20s but demonstrate progression (progression can be defined as an increase of 5 degrees over 6 months).

Bracing is effective in some children for preventing curves from progressing. Bracing in itself will not correct a curve and it is difficult to predict which child will progress despite bracing and in which the brace will be effective.

Indications for operative treatment of idiopathic scoliosis includes rapidly increasing curves in a growing child, severe deformity with curves greater than 50 degrees in an adolescent, pain uncontrolled by non operative treatment, significant thoracic lordosis and significant cosmetic deformity.

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