Definition: Scoliosis from The Macquarie Dictionary

1. abnormal lateral curvature of the spine, more common in females than males, and developing at any age but often accelerating in puberty in periods of growth spurts.

Etymology: New Latin, from Greek skoliasis a bending

Summary Article: Scoliosis from Encyclopedia of Global Health

Scoliosis is a skeletal defect characterized by abnormal curvature of the spinal column away from the midline. Neuromuscular disease and congenital malformations can cause scoliosis, but most cases are idiopathic, or without a known cause. Cases often present in adolescence and are more common in females.

Congenital scoliosis is a birth defect related to problems in formation of the vertebrae during development. Cases progress rapidly and may be associated with malformations in other organs, such as the heart and kidneys. Neuromuscular scoliosis arises from muscle weakness or paralysis from underlying diseases, such as cerebral palsy and muscular dystrophy. Scoliosis in adults may also be caused by degenerative joint conditions, such as spine arthritis. These causes are rare, however; 80 percent of scoliosis cases are idiopathic.

The condition runs in families, but researchers are still searching for the genes responsible for idiopathic scoliosis. The primary risk factor for a worsening scoliotic curvature is growth, so adolescents are most commonly affected. A larger angle of spinal curvature, especially in the upper spine, also portends a higher risk of progression.

SYMPTOMS AND DIAGNOSIS

Physical examination reveals apparent anatomical asymmetries in scoliosis. Patients may lean to one side and may have uneven shoulders or hips. Ribs may project farther on one side, and one shoulder blade may be more prominent than the other. Patients can experience back pain and fatigue after prolonged sitting, and some have breathing difficulties.

Given that scoliosis develops gradually and is often painless, early detection is essential. Many schools now offer scoliosis screening, and physicians identify scoliotic children using physical examination and family history information. X-rays can help assess severity using the angle, shape, and location of curvature.

Nerve impingement pain can be evaluated using magnetic resonance imaging (MRI). Most scoliosis cases do not progress, but patients should be monitored with clinical examination and X-rays every three to six months for worsening of the spinal curvature.

COMPLICATIONS

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Long-term complications of scoliosis include spinal cord or nerve damage, chronic back pain, and arthritis. In severe cases, injury to the heart and lungs can cause breathing difficulty, respiratory infections, and heart compromise. The physical deformity often affects children psychologically, so physicians should look for signs of depression.

TREATMENT

Treatment of scoliosis is based on the angle of spinal curvature, age, and other risk factors. Most children with scoliosis have curvatures less than 20 degrees and require no treatment. Children with 25 to 40 degrees of spinal curvature typically receive braces to prevent further scoliotic progression. Several types of braces are available, from low-profile underarm devices that fit around the ribs to the full-torso Milwaukee brace for upper spine scoliosis. These devices are useful for idiopathic cases and are typically not used for congenital or neuromuscular scoliosis. A surgery known as spinal fusion is recommended if the spinal curvature reaches greater than 40 degrees. Vertebrae are permanently connected together with pieces of bone graft and supported with metal rods, screws, and wires. Such procedures can correct up to 50 percent of the deformity; however, they can be associated with several surgical complications, such as infection and arthritis.

It is also important to help adolescents cope with the psychosocial obstacles associated with physical deformity. Children should be involved in supportive peer groups and confidence building activities.

SEE ALSO:
National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS); Neuromuscular Disorders; Orthopedist; Osteogenesis Imperfecta; Pediatrics.

BIBLIOGRAPHY


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