Scoliosis

Scoliosis is an S-shaped lateral spinal rotation that is characterized by unequal shoulder and scapula height. While bending forward, the patient with scoliosis will have a hump-shaped back. Since scoliosis affects balance and mobility, the patient may demonstrate uneven gait. Rib asymmetry related to spinal rotation may cause impaired oxygenation. Scoliosis is screened during adolescence and treatment is promptly initiated. Interventions include body braces and corrective surgery.



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Assessment

S ShapedLateral Curvature of Spine
Scoliosis is characterized by an S-shaped lateral rotation of the thoracic and lumbar spine. The curvature of the thoracic spine causes rib asymmetry.

Unequal Shoulder and Scapula Height
Unequal Shoulder and Scapula
The S-shaped lateral curvature of the thoracic and lumbar spine affects proper posture. From the back, the patient with scoliosis often presents with unequal shoulder and scapula height. The patient may have asymmetric shoulders, scapulae, and iliac crests.

Uneven Gait
Uneven Gate
The S-shaped lateral curvature of the thoracic and lumbar spine affects balance and mobility. The patient with scoliosis may ambulate with an uneven gait caused by an uneven skeletal structure.

Impaired Oxygenation
Broken O2-tank
Spinal curvature may affect the structure of the chest wall and cause rib asymmetry. Scoliosis may affect the patient's ability to breathe and lead to impaired oxygenation.

Hump when Bending Forward
Hump when Bending Forward
Assessment of the patient's spine is critical for diagnosing scoliosis. To determine scoliosis, have the child hook their thumbs together and bend forward while assessing the thoracic and lumbar spine. Scoliosis is present if the patient exhibits a thoracic rib or vertebral muscle hump.

Interventions

Body Braces
Body Brace
Since they do not correct the spinal curve, body braces are indicated to prevent worsening spinal curve progression. The use of braces is reserved for children who are still growing and are not effective for curves greater than 45 degrees. The Boston Brace is a thoraco-lumbo-sacral orthosis (TLSO) indicated to treat curves in the mid- and lower back. The Boston Brace is a customized trunk and pelvic girdle that may be hidden by clothing. The Wilmington Brace is a customized orthosis made out of a lightweight plastic material and worn for the majority of the day. The Milwaukee Brace is a cervico-thoracic-lumbo-sacral orthosis that treats curves in the upper back. The Milwaukee Brace consists of a metal structure extending to the neck and cannot be hidden by clothing. If the patient stops wearing the brace, any spinal correction is lost as the curve returns to its original shape.

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Worn 23 Hours/Day

23 Hour-sign

The body brace is most effective for managing scoliosis when worn 23 hours each day. Although the brace may cause skin irritation or discomfort, failure to wear the brace for the prescribed amount of time may allow the spinal curvature to worsen.

Surgery

Surgeon

Surgery is reserved for patients with lateral spinal curvature beyond 40 degrees. Although surgery may not completely straighten the spine, the procedure helps ensure the curve does not worsen. Metal implants are used to correct the curvature by holding the spine in a straightened position. Surgery often involves spinal fusion, which permanently joins the vertebrae together.

Considerations

Adolescent Screening

Adolescent-kids and Screen-door

Screening for scoliosis is recommended during adolescence. Shoulder asymmetry and lateral spinal curvature are more apparent during puberty because of growth spurts. Girls should be evaluated between 10-12 years, while boys should be evaluated between 13-14 years.

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