

Adolescent Idiopathic Scoliosis



FAST FACTS

>10 degrees

lateral curvature of spine indicating AIS in otherwise healthy children age 10+

2%

incidence in general population

2/3

of AIS patients have a positive family history of AIS

10–15%

of curves progress

Adolescent Idiopathic Scoliosis (AIS) is a lateral curvature of the spine >10 degrees as measured on standing PA X-ray. AIS is found in children >10 years of age without underlying conditions and is more common in girls than boys. Children at risk of progression have curves >20 degrees and significant growth remaining (premenarchal girls and skeletally immature boys). Right thoracic curves are most common. Small and moderate sized curves are not associated with long-term problems. Large curves can cause significant pulmonary issues later in life.

ASSESSMENT

Perform a standard history and physical examination with probing questions around family history of AIS, patient menstrual status, and pain. Pain is uncommon but does occur.

Examine patient from behind in a standing position and in forward bend. Signs of AIS include asymmetry of the shoulders, scapula and waist, but rotation on Adams forward bend test is the hallmark sign. Rotation >5 degrees on a scoliometer is associated with 90% chance of the presence of a curve. Examine skin for unusual markings or hairy patches. Perform quick neurologic exam to assess reflexes and Babinski sign. If you suspect a curve, obtain standing PA and lateral full-length spine film.

HPE (HISTORY AND PHYSICAL EXAM) RED FLAGS

- **Left thoracic curve**—may be associated with intraspinal pathology (Chiari, syrinx, tethered cord)
- **Asymmetric reflexes, positive Babinski sign**—may be associated with intraspinal pathology as above
- **Sacral dimple, hairy patch on back**—may correlate with intraspinal findings
- **Severe back pain**

MANAGEMENT/TREATMENT

- Most curves less <20–25 degrees can be followed with standing PA X-rays every 6 months. End surveillance X-rays one year after menarche in girls, or Tanner 4 in boys.
- Moderate curve sizes (25–30 degrees) in children with significant growth remaining (girls who are premenarchal or with 1 year of menses, or boy who are skeletally immature) are good candidates for bracing.
- Curves >50 degrees are candidates for surgical treatment, particularly Posterior Spinal Instrumentation and Fusion. Vertebral Body Tethering (VBT) is a newer technique that may provide correction without spinal fusion in children with significant growth left.

WHEN TO REFER

Refer to Cincinnati Children's Orthopedics for further evaluation and management if:

- Curve is greater than 20 degrees
- Unsure, referral is better course of action

If you have clinical questions about patients with AIS, email orthopedics@cchmc.org

If you would like additional copies of this tool, or would like more information, please contact the Physician Outreach and Engagement team at Cincinnati Children's.

Adolescent Idiopathic Scoliosis

Inclusion Criteria

- Child 10+ years of age
- Asymmetry of trunk
- Rotation on forward bend

Patient Presents

Standard Workup

Situational History

- Pain

Family History

- AIS in family

Physical Exam

- Check for asymmetry of shoulders, scapula, waist
- Check rotation on Adams forward bend test, >5 degrees on scoliometer
- Unusual markings on skin or hairy patches
- Assess reflexes and Babinski sign
- Obtain standing PA and lateral full-length spine films

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