

Surgical Treatment of Adolescent Idiopathic Scoliosis: What to Expect

Introduction

Adolescent idiopathic scoliosis (AIS) is a curvature of the spine that can worsen around the time of peak height velocity. Early detection can ensure access to nonoperative treatments such as bracing or physical therapy. Most children are able to be treated by non-surgical means. In a small percentage of children and adolescents, surgery is recommended when either: there are current problems associated with the spinal curvature, or it is predicted that the curve will continue to worsen and cause problems in adulthood.

What happens during surgery?

For patients with AIS, our goal is to minimize the amount of surgery that is needed. Selective surgery is often performed with the expectation that the uninstrumented compensatory curve will improve once the main curve is corrected (Figure 1).

What happens in the hospital?

We have instituted an enhanced recovery protocol for our AIS patients. By utilizing a multimodal pain regimen and focusing on early ambulation, we have been able to reduce the hospital length of stay from five days down to two or three days. Patients begin ambulating the morning after surgery, which has many benefits, including decreased pain medication requirement, improve respiratory function, and faster GI system recovery. Typically, the patients ambulate four times in the hallway on postoperative days 1 and 2. Then depending on travel distance, family comfort, etc., the patients are discharged to home as early as postoperative day 2.

What should be expected in the first few weeks?

We expect patients to continue with narcotic medications for one week once they go home. We then encourage a transition to Tylenol and Motrin. The dressing is removed within one week from surgery, at which point the patient can shower. No additional dressings are necessary after the initial surgical dressing is removed. We expect that patients will walk 1 mile per day by the time they are seen in clinic for the first postoperative visit at two weeks.

When can the patients return to activities such as sports?

Patients are cleared for all activities at two months and heavy contact sports (hockey, football) by four months. Typically, no physical therapy is necessary after surgery.

What potential issues can arise after surgery?

Fortunately, major complications are extraordinarily rare following surgery for adolescent idiopathic scoliosis (<1%). With that said, there are several key items to assess when patients present to your office. First, it is important to assess the incision. It is normal for the area immediately around the incision to have a faint red appearance in the first week or so after surgery, so don't worry about that. However, progressive redness or any drainage would be concerning and should prompt you to notify us so that we can evaluate the patient. Finally, significant pain should not be expected after the two weeks following discharge to home. If a patient presents to you with substantial pain and it has been longer than two weeks since the procedure, we would recommend that you direct those patients to the orthopaedic clinic for evaluation.

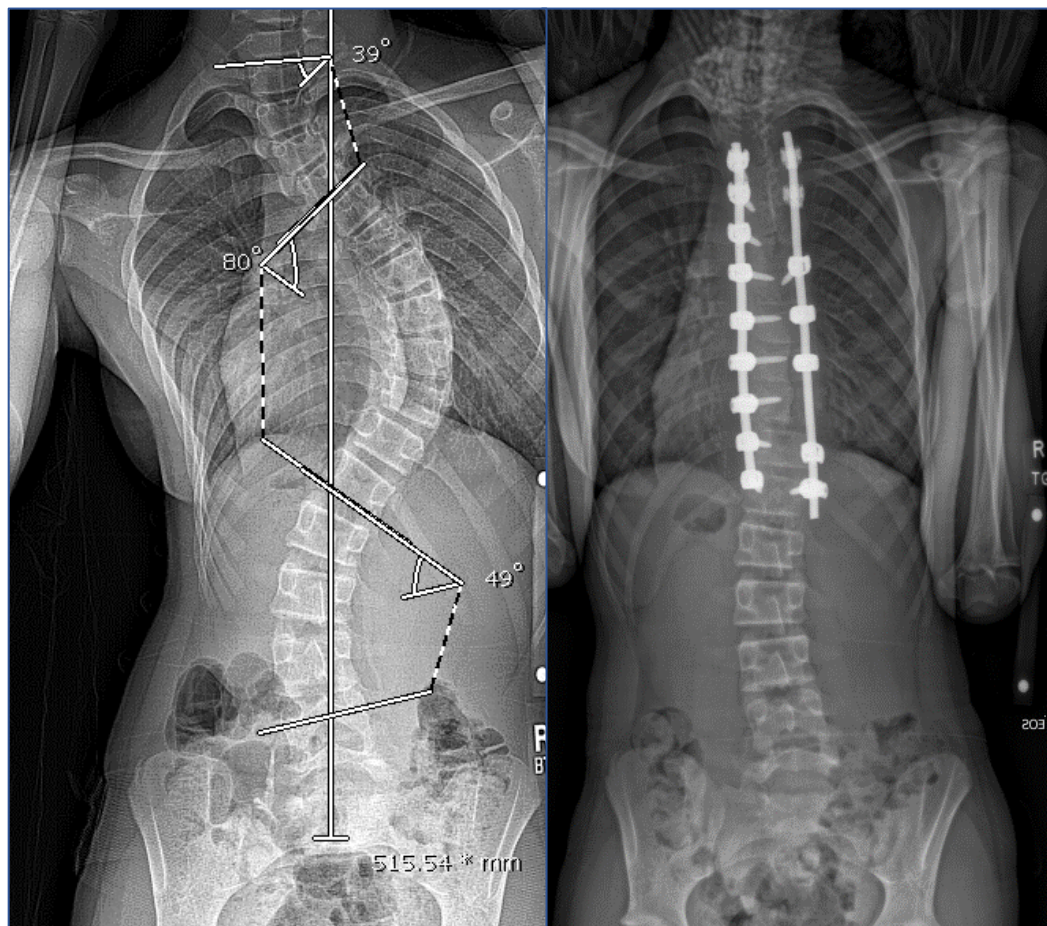


Figure 1: Pre-op and post-op images of AIS patient

The Spine Program at Children's Hospital Los Angeles

While our surgeons play an important role, the magic at Children's Hospital Los Angeles is the personalized, well-integrated Spine Program, which involves an entire team. From the initial visit, our doctors and nurses work to create a customized plan for each patient that often starts with bracing or therapy. For patients who require surgery, we offer a regularly scheduled and well-attended "spine class." During these sessions, our nurses walk the patients and their families through the patient experience during the hospital stay, postoperative expectations, and even fun facts about spine anatomy and function. Families have easy access to our team for any questions or concerns that arise throughout the entire process of their child's care. We pride ourselves in providing unmatched patient care by way of a patient-centered and child-friendly team.

Practice Tip of the Month



Michael J. Heffernan, MD

Attending Surgeon, Division of Orthopaedic Surgery,
Children's Orthopaedic Center, Children's Hospital
Los Angeles

Associate Professor of Clinical Orthopaedic Surgery,
Keck School of Medicine of USC

Children's Orthopaedic Center

4650 Sunset Blvd. #69, Los Angeles, CA 90027

Phone: 323-361-2142

Fax: 323-361-1310

CHLA.org/ortho

Referrals:

Phone: 888-631-2452

Fax: 323-361-8988

Email: md1@chla.usc.edu

myCHLA Provider Portal: <https://myCHLA.CHLA.org>

References:

1. Flynn JM, Striano BM, Muhly WT et al. A dedicated pediatric spine deformity team significantly reduces surgical time and cost. *J Bone Joint Surg Am.* 2018 Sep 19; 100(18):1574-1580.
2. Song BM, Kadhim M, Shanmugam JP, King AG, Heffernan MJ. Enhanced recovery after pediatric scoliosis surgery: key components and current practice. *Orthopedics.* 2020 Sep 1; 43(5): e338-344.
3. Hartline J, Nolan V, Kelly DM, Sheffer BW, Spense DD, Pereiras L, Warner WC, Sawyer JR. Operating room personnel determine efficiency of pediatric spinal fusions for scoliosis. *Spine Deformity.* 2019 Sep 7 (5): 702-708.
4. Shah SA, Guidry R, Kumar A, White T, King AG, Heffernan MJ. Current trends in pediatric spine deformity surgery: multimodal pain management and rapid recovery. *Global Spine J.* 2020 May; 10(3): 346-352.
5. Larson AN, Fletcher ND, Daniel C, Richards BS. Lumbar curve is stable after selective thoracic fusion for adolescent idiopathic scoliosis: a 20-year follow-up. *Spine* 2012 May 1;37(10): 833-839.
6. Kwan KYH, Koh HY, Blanke KM & Cheung KM. Complications following surgery for adolescent idiopathic scoliosis over a 13 year period. *Bone Joint J* 2020; 102-B: 519-523.
7. Gebrelul A, Karam AM, Poppino K, Chan-Hee J, Richards BS. Spinal Balance and lumbar curve stability after selective thoracic fusion in idiopathic scoliosis. *Spine Deformity.* 2021 Mar; 9(2): 471-480.