



When is Back Pain a Problem in our Youth?

B. Stephens "Steve" Richards, M.D.

A summary of a presentation at Coffee, Kids and Sports Medicine, a free monthly education series at Scottish Rite for Children Orthopedic and Sports Medicine Center, Frisco, Texas.

With a strong interest on caring for spine conditions in children and teens, Richards described that the rate of presentation of back pain in his clinic has dramatically increased over the years. Though the complaint is common, fortunately, it is rarely of a serious nature. However, a provider must always be on the lookout for less frequent diagnoses which may be concerning. For example, recently, a 12-year-old girl presented with a complaint of mild girl presented with a complaint of mid thoracic back pain after a traumatic fall on her shoulder during cheerleading. Following a normal examination except for thoracic discomfort during neck flexion, X-rays were taken and were suggestive of a mild compression fracture of the sixth thoracic vertebra. An MRI was obtained and demonstrated a flattened sixth thoracic vertebra with retropulsion into the spinal canal, mild contact on the spinal cord and a secondary syrinx immediately above. All this despite a mild physical examination finding. She is now scheduled for a decompression of this area.

Remember - every patient with back pain deserves a thorough history, physical examination and likely radiographic evaluation before concluding that the back pain is simply musculoskeletal strain.

Chief Complaints – Getting the Full History

Listen to every child who has a complaint of back pain. Listen to the stories behind the complaints. Richards recommends these conversation starters before diving into the history of the chief complaint.

Why are you here today?

What are you hoping to find out today?

History of Back Pain

- Onset - insidious or traumatic?
- What aggravates/alleviates the pain?
- Localized or radiating?
- Neurological changes?
- Intensity – awakens at night?
- Fever, appetite, weight loss, lethargy. "Is he sick?"

Physical Exam

Ensure proper use of a gown. Observation of posture in normal clothing does not provide sufficient evaluation. Observe asymmetric and atypical contours in static posture and with movement. In particular, keep these in mind:

- Kyphosis
- Scoliosis
- Stiff movements

Sensory and neurological exam will help to identify neurological causes of pain. **Strength testing and range of motion** provide more clarity of the patient's physical status. **Waddell's signs**, designed to discriminate physical pain and non-physical complaints, can be helpful during the assessment of chronic back pain in the adolescent.

What's Next in the Work-Up?

X-rays are the first step when considering imaging of the spine during the work-up. MRI or CT scan should not be the first imaging study obtained. Labs may be the next step, especially if there are inflammatory signs or systemic symptoms. Moving to advanced imaging, such as MRI or CT scan, may ultimately be necessary.

Common Causes, Treatment and Prevention for Most Back Pain

The most common cause of back pain is muscular strain presenting as low back pain. It's generally related to overuse in the adolescent athlete or may be the result of new increased activity in the sedentary adolescent.

How Do we treat back pain?

Richards recommends core exercises to strengthen the abdominal and paraspinal musculature. Hamstring stretching and a gradual return to activity are also valuable. This is probably most reliably undertaken with a formal physical therapy program (two times per week for six weeks). A simple home exercise program may be provided but, without supervision, would likely be undertaken by only the most motivated adolescent patient. Yoga or Pilates programs in the community can be effective, and would be more enjoyable for the adolescent. Symptomatic teens need to learn how to use their core to protect their back in normal activity and sports. Exercise is crucial, as education by itself is ineffective at preventing back pain.

Can we Avoid Back Pain?

There are some tips for using common sense with backpacks to reduce the risk of pain. Many patients ask him, and Richards says, "The evidence suggests that backpacks that are too heavy can lead to back pain, but do not contribute to spine deformity such

as scoliosis.” Limiting a backpack to 15-20% of the child’s body weight is a good rule to follow.

FOR YOUR PATIENTS: <https://orthoinfo.aaos.org/en/staying-healthy/backpack-safety>

There is very little in the medical literature regarding back pain prevention, however, we understand that any kind of activity or exercise can be of help.

Spine Conditions you Should Refer to A Pediatric Orthopedic Spine Specialist

Spondylolysis

Typically, this occurs at the fifth lumbar vertebra. It becomes painful when the injured area (pars interarticularis) is inflamed because of stress from repetitive hyperextension and rotation. Richards says, “There is an excellent chance of doing well clinically with rest, anti-inflammatories and physical therapy, and rarely is there a need for surgery.” Younger patients at presentation may need additional follow-up, but adolescents may need to be seen only if symptoms recur. The condition is seen more commonly in boys and, based on early radiographic studies, is presumed to occur in approximately 5% of the general population.

Spondylolisthesis

Girls are more likely to progress from spondylolysis to spondylolisthesis, a condition which represents a slippage of the fifth lumbar vertebra forward on the sacrum. This is seen in athletes who participate in sports which lead to repetitive hyperextension and rotation of the lumbar spine, such as diving, wrestling and gymnastics. Though suspected cases may be recognized on an oblique lumbar spine X-ray, a CT scan provides a better image for definitive diagnosis.

“Taking a break from the offending activity can be particularly hard for high level gymnasts, but rest and possibly an anti-lordotic lumbar brace for six months or more are necessary for clinical improvement and a return to sports.” Though some patients may ultimately require surgery for relief, those with unilateral presentation and early recognition may have better spontaneous healing rates.

Scoliosis

Adolescent idiopathic scoliosis (the most common form of scoliosis) generally is not the cause of back pain, as this population does not have a higher incidence of back pain than the normal adolescent population. However, if excessive discomfort is present, or neurological abnormality is detected, then an individual with scoliosis may need to be evaluated with an MRI. On occasion, a syrinx or other spinal abnormality may be detected with MRI, and may be the source of the discomfort.

Less common conditions include:

- Disc bulge and herniation
- Apophyseal Ring Avulsion fracture
- Bertolotti's Syndrome
- Baastrup's Phenomenon

Summary

"Listen to every child and adolescent with back pain complaints. They are most likely not going to have a serious condition, but it is important not to miss the few that do," says Richards.

A few "take home messages" from Richards and his partners at Scottish Rite for Children:

- Back pain in children is ubiquitous – conservative management and no immediate specialist referral if:
 - » It is localized to back and posterior thighs
 - » It does not get worse with activity
 - » It does not awaken the child at night or limit the child's activities
- Back pain is more common in athletes than the general population, and this is due to overuse.
- The most common diagnosis with back pain is muscle strain.
- When imaging the spine, always begin with X-rays. Consider waiting for four weeks to see if spontaneous improvement occurs before getting imaging if there are not neurological signs or systemic symptoms.
- Advanced imaging or referral with a strong suspicion of spondylolysis or positive neurological findings.

About the Speaker

B. STEPHENS "STEVE" RICHARDS, M.D., chief medical officer and pediatric orthopedic surgeon at Scottish Rite for Children sees patients at our Dallas and Frisco campuses. His contribution to pediatric orthopedics goes beyond patient care and include academic and many publications on clubfoot, scoliosis and other spine conditions.

See the full presentation and many others on our YouTube playlist "RITE Connection."