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Lumbar Scoliosis with Pelvic Obliquity

By Nancy Molina, DC

Case History

The patient is a 40-year-old female who was diagnosed with idiopathic scoliosis at age 20. She reportedly had undergone normal growth and development and was in good health. She had never experienced pain in her spine during her adolescent years.

She was a dental hygienist for 17 years before being placed on partial disability by her medical generalist as a result of chronic back pain. She received no medical treatment for the scoliosis, yet as an adult was medically managed with pharmaceuticals and treated with epidurals for "sciatic-type" pain. Her history was remarkable considering the presence of kidney stones without surgical intervention.

Difficulty performing activities of daily living at the time of the initial consultation included: low back pain doing household chores (making beds, doing laundry, ironing and cooking); low back pain with intermittent left posterior-lateral shooting into the buttock, thigh and left plantar foot regions was experienced with prolong walking, sitting or lifting her daughter (40 pounds). Her sleep habits were right lateral recumbent with intolerance to left-side lying. Incidental notation: This was the patient's first visit to a chiropractor.

She had moderate active range of motion in all extremities and truncal motion. There was no gross neurologic deficit. There was leg-length inequality with unequal iliac crest height and a left pronation rollover disorder with left toe out on gait analysis. Illiolumbar ligamentous shortening, lumbar trigger points in the belly of the quadratus lumborum muscle, multifidus, rotatores, and erector spinae muscles were present. Lumbar lateral and rotary fixations were present accompanied by a Left PSIS posterior and inferior. Her standing height was 68 inches; her weight 59 kg.

Lumbar weightbearing views demonstrated a left lumbar convex scoliosis from T12-L4, measuring 16 on Cobb's analysis. An asymmetry of the L5 facets was noted with some imbrication and pelvic obliquity. The

L4/5 motor unit was demonstrated as unstable in the presence of spinal bifida accompanied by moderate intravertebral foraminal narrowing seen on the left L4/5 vertebral level. A lateral view of the lumbosacral spine was essentially normal with the exception of a low lordosis and discogenic endplate changes from L3-L5.

Management strategies included:

1. appropriate diagnosis, clinical correlation and lumbar MRI;
2. orthotic bracing of the involved motor units;
3. chiropractic adjustments directed to specific joints;
4. chiropractic rehabilitation to address altered patterns of muscle recruitment.

Lumbar Scoliosis: Discussion

An MRI of the lumbosacral spine revealed moderate neural foraminal narrowing on the left at L4-5 and L5-S1. The contralateral region displayed similar findings, but to a lesser extent, secondary to disc protrusions. Moderate spinal stenosis at L4-5 with discogenic edema and disc desiccation consistent with degenerative disc disease was discovered. This 40-year-old patient is at the end of her growth and the curvature is unlikely to progress. Her curvature, most likely compensatory in response to her stenosis, disc protrusions and antalgic bearing, cannot be improved by a scoliosis brace, but does require chiropractic correction.

One of the goals in chiropractic is to maintain spinal flexibility. The goal of the orthotic bracing of the inflamed motor unit is not to derotate or straighten the spine, but in the prevention of re-injury of the involved segments. Orthotic brace treatment for pain differs from that directed to stabilizing or correcting spinal curvature. Bracing is used in pain treatment to reduce pain by limiting motion of the injured part and allowing the reparative process of inflammation to continue unhampered.¹

With lumbar curves in general, the ideal situation is to produce as much chiropractic correction as possible involving the smallest number of involved segments. In this manner, adjusting of the compensatory segments may be avoided. The pelvic obliquity is a complicating factor in view of the spinal bifida; to this is added a leg-length discrepancy with shortness on the convex side demonstrated in her standing x-ray. According to the medical literature, surgical intervention for curve derotation states that; " if the lumbar Scoliosis is corrected surgically by sacral fusion the patient may leave with a trunk shift to the left."² An

alternative option and rather desirable method of conservative chiropractic management used by this practitioner is outlined below to assist in derotation of the curvature.

My preference involves treating the scoliosis and the short leg with the obliquity as two separate problems and delineating management strategies for both. I would handle the scoliosis from a postural or muscular imbalance perspective, targeting the involved musculature on the concave side with percussion therapy. This is a relatively old chiropractic therapeutic concept, but using new instrumentation available for those patients who suffer from musculoskeletal pain and myofascial trigger syndrome. It is a nonsurgical, noninvasive procedure that may serve as a therapeutic alternative to the allopathic trigger point and epidural injections, or to be used when other treatments have failed. Performed on an outpatient basis, percussion instrumentation carries little or no risk and is relatively comfortable.

Suitable candidates within a chiropractic practice are those who suffer from musculoskeletal pain and local tenderness in an area characteristic for an individual muscle or that characterize myofascial trigger syndrome, and in those who experience referred pain in a distribution specific for the individual muscle. The "trigger" or affected area of muscle is firm or hard to palpation; sometimes it has a "ropy" consistency and may appear contracted or in spasm.³

I handled her functional short limb with custom orthotics and a left-heel lift. I targeted postural rehabilitation with an emphasis on muscle recruitment and specific chiropractic adjustments to obtain correction. This can be subject to confirmation by a forced-bend film toward the apex of her scoliosis or a pelvic AP film re-measuring the femoral leg heights or pelvic crests. Traditionally, chiropractors are trained to measure this biomechanical distortion using prone- extension methods and radiographic femoral leg height measurements. A low femur head height or a low iliac crest height is generally observed on the same side as the convexity.

Derifield and Thompson developed the original leg length analysis method for the chiropractic practice. The leg length is observed at the juncture of the heel and shoe, and best observed with the feet in a neutral position. The patient is in a prone position. The vertebral subluxations are accessed by leg length analysis to determine the areas of adjustment. This practice is still commonly used today. My definitive management of the short leg on the left side and the obliquity of L5 and pelvis in this case was to adjust the specific joints, balancing her trunk and leaving her spine mobile between L3 and the pelvis.

The treatment of the leg discrepancy depends upon the practitioner's careful clinical and radiographic diagnosis. When custom orthotics with a lift are considered in the management plan, the question often arises, "How much of a lift?" Logan⁴ has demonstrated a relationship between the lumbar spine, sacrum and the planter heel. It is suggested that by raising the heel 8-mm the ipsilateral sacral base will raise by 4 mm and the lumbar spine by 2 mm. To avoid overcorrecting, I generally lift slightly less than the measured discrepancy. However, Gonstead⁵ advocates using a full lift to correct the measured discrepancy.

The optimal goal of chiropractic treatment for this patient with idiopathic scoliosis is to leave her with the most functional flexible spine possible. Therefore, orthopedic fusion to the sacrum is not the option to consider in her case. Nevertheless, in any management plan sound principles and good intentions for the patient must not be defeated by future anticipated degenerative changes. Flexibility is a key management goal. This is critical in lumbar scoliosis, where fusion (surgically induced or induced by fibrotic fixations) of once mobile segments leaves the distal ones to share higher stresses. Personally, I feel that flexibility is best-obtained through regular chiropractic care. The patient demonstrated asymmetry of the L5-S1 facets, which is not as much a factor as her facet tropism and symptomatic disc degeneration that is still largely unresolved.

The patient has returned to full-duty status and remains active today with minimal interference to her recreational or social lifestyle. She remains a strong advocate for chiropractic care.

The author welcomes your comments. If you have any questions or comments about the issues raised in this article, feel free to contact me at the email address below.

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