

# COX® DISTRACTION TREATMENT OF TRUE L5-S1 SPONDYLOLISTHESIS WITH L5 NERVE ROOT SCIATIC RADICULOPATHY

Submitted by  
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## **Brief Clinical History:**

The above named 62 year old moderately obese East Indian male was seen in this office for diagnosis and treatment of lower back, pelvis and right lower leg pain. He stated this problem has been ongoing for three years. It began with work related bending, lifting and twisting and standing for long periods. He works at a convenience store on 16 hour shifts. The pain is constant and rated at a 5-6 on the VAS scale. It is more pronounced during the night and prevents him from getting a comfortable night's sleep. He has taken OTC pain reducers without success. He smokes 1 pack/day and does not exercise.

## **Examination:**

Observation of the lumbar spine demonstrates mild scoliosis and flexion posture (Figures 1, 2).



Figure 1



Figure 2

There is a step defect in the L5 vertebra on palpation. Pain on palpation is evident from the lumbar area bilaterally into the L5-S1 area and along the L5 myotome to the right ankle. The deep tendon reflexes were absent at the patella and Achilles bilaterally. The muscle strengths are 5/5 in the lower extremities with the exception of right knee flexion at 4/5. Dermatomal evaluation of the lower extremities demonstrates hypesthesia of the right L5 dermatome to the foot. Valsalva sign is negative. Range motion lumbar spine is measured at 67 degrees flexion without pain, lateral flexion to the right 10 degrees with pain at the spine and right lower leg. Left lateral spinal flexion is painless. Rotation at 10 degrees bilaterally without pain, and any extension is painful with muscle spasm and right lower extremity pain. Recumbent right straight leg raise is positive for right low back and right lower extremity pain at 35 degrees. Lindner's sign is positive and creates lower back and right L5 dermatome pain. Left well-leg SLR creates LBP and right leg pain only if preformed sitting. Sacroiliac testing is normal. The hamstrings were bilaterally tight at 40 degrees as is common with spondylolisthesis (1).

X-ray evaluation of the lumbar spine reveals right L5-S1 reactive sclerosis (Figure3) and a 50% anterior true L5 spondylolisthesis with complete loss of L5 disc (Figure 4).



**Figure 3**



**Figure 4**

**Impression:**

1. True L5-S1 50% spondylolisthesis with right L5 nerve root radiculopathy.
2. L5-S1 Facet reactive hypertrophy and facet syndrome

**Treatment goals:**

The initial treatment goals were to relieve the L5 nerve root compression and reduce spinal stenosis with decompression manipulation while substantially reducing the patient's pain. The patient could not discontinue working 16 hour shifts due to monetary concerns. This patient was told that if he had not improved 50% within 4-6 weeks that he would need to stop working, have further diagnostic evaluation and/or a possible referral to another physician.

### **Treatment Methods:**

This patient was treated with Cox® Distraction Manipulation (beginning with Protocol I and advancing to Protocol II). No Dutchman roll was necessary due to the patient's obesity. During this form of treatment, cavitation was often heard and felt at the L4-5 facets. This patient received a lumbosacral support to be worn 24 hours per day for the first 1-3 weeks, and subsequently only while at work or strenuous activities of daily living. He was prescribed a glucosamine/chondroitin sulfate and enzyme anti-inflammatory supplement. Cox® lumbar spine exercise program (exercises 1-5) was started immediately.

Treatment began on February 21, 2007. He received 3 treatments per week for 5 weeks. The sixth through the eighth week he was seen 2 times per week. He continues as of this writing to be seen one treatment per week.

### **Treatment Outcomes:**

Treatment resulted in progressive relief of the lumbar spine and L5 dermatome pain. His night pain is absent and the morning ambulation pain is decreased. His initial Back Pain Index was rated at 48/100 (100/100 would be worst possible pain in all conditions). At 4 weeks it was rated at 36/100 and the VAS was down to a 3. At 8 weeks it was rated at 24/100 and the VAS was down to a 1-2. There was no iatrogenesis or increasing of patient pain with the procedures outlined here. He now describes his overall treatment outcome as greater than 70% overall improved.

### **Discussion:**

The question of the cause of the L5 nerve root in spondylolisthesis needs to be explored. Macnab (2) listed several possible mechanisms of nerve insult which may include

1. L4-5 HNP
2. Kinking of the L5 nerve root around the L5 pedicle
3. Encroachment by a degenerative, bulging annulus at L5-S1
4. A free fragment of the L5 posterior neural arch rotating anteriorly and pivoting on the sacrum, with compression of the L5 nerve root between the distal pars remnant and the sacrum.
5. Neuroforaminal stenosis
6. Extraforaminal entrapment between the L5 corpotransverse ligament and the sacral ala.

Without further diagnostic imaging studies, the case described here cannot be pinned down to the exact mechanism of pain production. Nevertheless, the outcome is a positive one for the patient and the doctor. This case builds on the positive outcomes in treating the spondylolisthesis and radicular pain patient (3).

### **References:**

1. Saraste H: Long term clinical and radiological follow-up of spondylolysis and spondylolisthesis. *Pediatr Orthop* 7:631-638, 1987
2. Macnab I: *Backache*. Baltimore, Williams and Wilkins, 1977
3. Cox JM, et.al. Distraction Chiropractic adjusting: Clinical application and outcomes of 1000 cases. *Topics in Clinical Chiropractic* 1996;3(3):45-59