

# Neurosurgical Quarterly Topic Review

## “It’s all about the patient”

This is the first quarterly newsletter to be produced by Columbia Neurosurgical, LLC. The purpose of the letter is to provide information to practicing physicians, surgeons and patients about different neurosurgical topics. The letter is designed to facilitate an exchange of information between physicians and to enhance patient care. Each quarter a neurosurgical topic will be presented by reviewing a specific disease entity and illustrating it with case reports.

## Lumbar disc disease Case 1

### Chief complaint

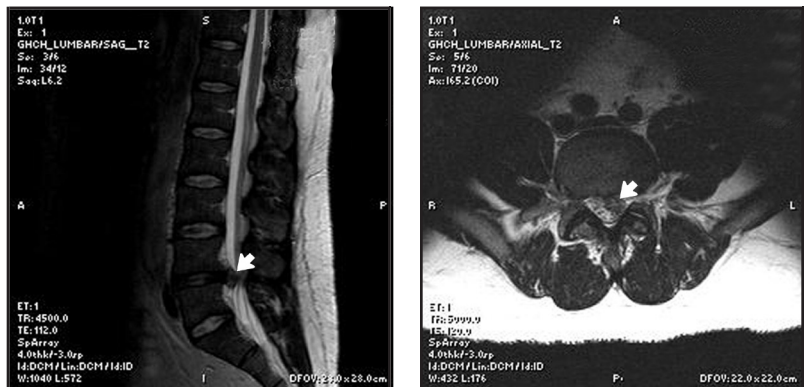
The patient is a 32 year old male who presented with a chief complaint of intermittent low back and left lower extremity pain of five years’ duration.

### History of present illness

The patient was well until 1999 when he was reaching to pick up a box that was frozen to the ground. He leaned over and “pulled his back out”. He had low back and left lower extremity pain for two months before he experienced some relief. Since that time he has had episodic back and LLE pain. These episodes occur every 3 – 6 months and resolve. The last time he experienced these symptoms he fell to the ground. Back pain is characterized as dull and aching while LLE pain is sharp, radiating and extends into the left gluteus, posterior thigh, anterolateral leg and dorsum of the left foot. There are no specific positions that tend to relieve or exacerbate pain. There is no history of numbness, tingling or weakness in the lower extremities. On the visual analogue scale pain measures an average of 2, at least a 0 and at worst a 10. Back pain is typically worse than LLE pain. This patient’s symptoms limit his normal daily activity when present but have otherwise remained stable. He stated that at certain times and in certain positions back pain is excruciating. Low back pain occasionally wakes him at night. There is no history of bowel or bladder disturbance.

### Examination

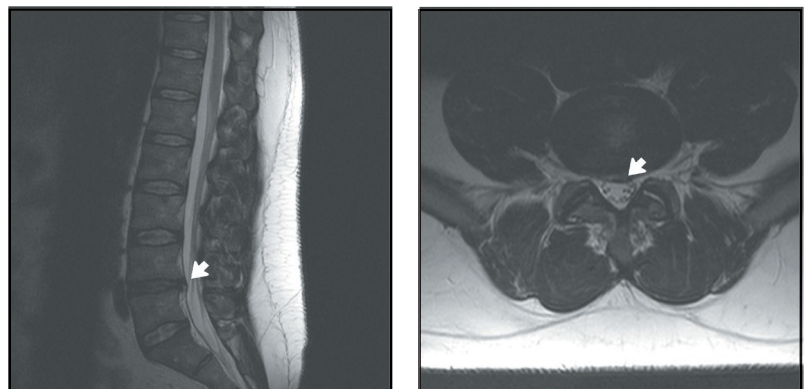
The patient appeared his stated age. Vital signs were normal. He was moderately overweight. He was in no apparent distress. General physical exam was within normal limits with a protuberant abdomen. Neurologic exam showed that sensation was intact to light touch and pinprick. Motor function showed normal tone



**MRI: T2 weighted sagittal and axial images of the lumbar spine show mild disc space narrowing and dessication at L45. There is a left paracentral disc extrusion measuring 1.2cm in the axial plane and 1.5cm in the craniocaudal dimension.**

and strength in all muscle groups. Reflexes were 1+ in the upper extremities and 2+ in the lower extremities. Left straight leg raise elicited low back pain at 80 degrees. Gait was normal. MRI showed a large left L45 disc herniation (above).

The patient was seen again 6 months later with similar complaints but of slightly less severity. Exam was similar but without back pain upon straight leg raise. A new MRI (below) was obtained to evaluate the previously identified disc herniation, suggesting no need for neurosurgical intervention.



**MRI: T2 sagittal and axial images demonstrates marked spontaneous improvement in the disc protrusion.**

# Lumbar disc disease

## Case 2

### Chief complaint

The patient is a 42 year old male who presented with one week of progressive left lower extremity pain and weakness.

### History of present illness

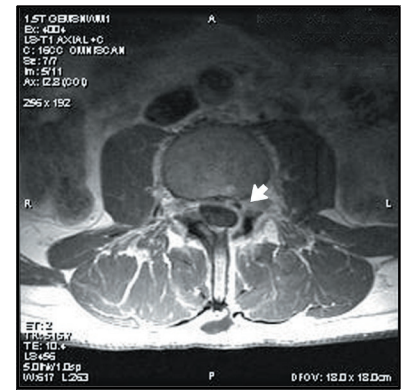
The patient was well until 5 days prior to being seen in the office when he was wrestling. He experienced a sudden twisting motion and felt a “pop” in his lower back. Acute onset of back pain occurred. There was some relief over 48 hours. Two days later the patient engaged in doing squats. The following day he woke with severe low back and left gluteal and posterior thigh pain. Over the course of 1-2 days pain worsened, measuring an average of 7 and was characterized as dull, aching, radiating and debilitating. He described quadriceps weakness and had difficulty raising his LLE into the car. Pain consistently woke the patient from sleep. The Valsalva maneuver significantly worsened the lower extremity pain. Thigh pain was significantly worse than back pain and was progressing. There was no bowel or bladder disturbance.

### Examination

The patient was in clear distress. Vital signs were normal. General physical exam was normal. Neurologic exam demonstrated decreased pin prick in the left L3 dermatome. Motor strength in the left quadriceps was 4-/5 and he was unable to step up onto a stool with the left lower extremity. The left knee jerk was absent. He walked with an antalgic gait.

### Treatment

Urgent left L34 hemilaminotomy/microdiscectomy was

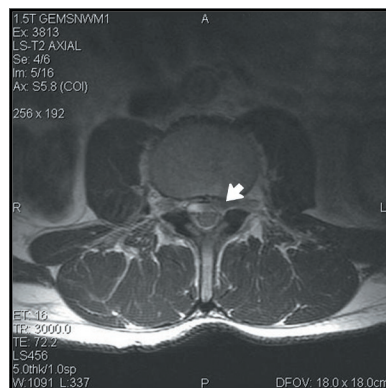
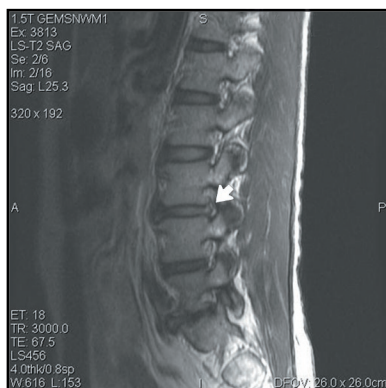


**MRI (post-operative): T1 sagittal and axial images with contrast demonstrate postoperative changes but decompression of L3 nerve root.**

performed based on the MRI findings (below). Post-operatively, the patient experienced some residual pain and weakness, requiring an MRI scan (above). Within two months the patient became asymptomatic.

### Discussion

These cases contrast two different courses of lumbar disc disease. Case #1 depicts a patient with a surgical lesion on the initial MRI. However, his symptoms did not warrant neurosurgical intervention: back pain was significantly worse than the lower extremity pain and intermittent, the radiculopathy was not well-defined or persistent and his symptoms were not debilitating. The patient was treated non-surgically by prescribing a non-steroidal anti-inflammatory medication, muscle relaxants and core strengthening exercise. The patient improved clinically with reduction and retraction of the disc herniation as evidenced by a follow-up MRI. If back pain becomes intolerable and further evidence of disc degeneration appears in the form of disc space collapse, the patient may be a candidate for an artificial lumbar disc or lumbar fusion.



**MRI (pre-operative): T2 sagittal and axial images show a left L34 paracentral and foraminal disc herniation with L3 root compression.**

In contradistinction to case #1 there are two important components to the history and physical exam in case #2 which prompted expeditious surgical treatment: 1) symptoms were debilitating and progressive and 2) the patient had a well-defined neurologic deficit. Surgical treatment for this type of lesion consists of a minimally invasive microdiscectomy through a series of sequential dilating tubes. The final tube typically measures 5cm in length by 18mm in diameter. This operative technique typically allows for excellent surgical exposure, minimal muscle dissection, decreased postoperative pain and same day hospital discharge.