



# Herniated Lumbar Disk

## HERNIATED LUMBAR DISK

Patients under treatment by their own physician who fail to improve after two to four weeks - refer to an Orthopedic Surgeon or Neurosurgeon for consultation and/or treatment.

### I. BACKGROUND

Herniations occur most commonly through a posterolateral defect, but midline herniations may occur. Resulting compression of the spinal nerve root causes inflammation and pain, usually along the anatomic course of the nerve. In the lumbar spine, this most often occurs at the L4 and L5 disk levels, causing pressure on the corresponding L5 and S1 nerve roots. As a result of both mechanical and biochemical changes around the nerve root, the patient will experience pain, paresthesia, and possibly weakness in the leg or legs, usually below the knee. The rare herniations at the L1, L2 and L3 levels are usually associated with pain, paresthesia and weakness above the knee. Back pain may or may not be a presenting complaint with any herniated lumbar disk.

### II. DIAGNOSTIC CRITERIA

- **A. Pertinent historical and Physical findings**

Back pain is usually the first symptom and may or may not abate as the pain and paresthesias begin to radiate down the leg. The leg pain is often described as a sharp, shooting pain that radiates along the anatomic course of the nerve from proximal to distal. The onset may be sudden or insidious. The patient often has difficulty getting up from sitting or supine positions and commonly leans or lists to one side or the other. Motion of the spine is limited due to pain and muscle spasm. The neurological examination may be normal if the compressed nerve is still functional, or it may yield objective evidence of impaired nerve function (e.g. atrophy, weakness, sensory alteration, or diminished reflex) depending upon the nerve root affected. Signs of nerve root tension (e.g. positive straight leg raising) may also be present.

When the L4 disk herniates, it usually causes pressure on the L5 nerve root resulting in weakness of the great toe extensor or other dorsiflexor muscles of the foot and sensory loss along the medial aspect of the foot to the great toe, but it is usually not associated with reflex abnormality. When L5 disk herniates, it usually causes pressure on the S1 nerve root, resulting in a sensory deficit in the posterior calf area and lateral aspect of the foot in addition to a diminished Achilles' reflex and occasionally weakness of the plantar flexors of the foot.

- **B. Appropriate Diagnostic Tests and Examinations**

- 1. Clinical diagnosis is supported by these studies:

- a. plain spine radiographs (and on rare occasions bone scans) to rule out other conditions such as tumor, infection, fracture and congenital anomalies, if not previously done.
  - b. Magnetic resonance imaging, or
  - c. Myelography/CT scan
- **C. Inappropriate Diagnostic Tests and Examinations**
  - 1. Myelography
  - 2. Dermatome somatosensory evoked potentials
  - 3. Thermography
  - 4. Spinoscopy
- **D. Supporting Evidence**

EMG may be helpful in rare cases. Discography can occasionally be helpful. Selective lumbar nerve block may be helpful for diagnosis.

### III. TREATMENT

- **A. Outpatient Treatment**
  - 1. Non-operative Treatment
    - a. Treatment options
      - (1) Short period of bed rest, up to ten days with analgesics, mild relaxants and nonsteroidal anti inflammatory drugs.
      - (2) Physical Medicine and/or rehabilitation
      - (3) Orthotics
    - b. Supporting evidence
 

The value of periods of bed rest has been demonstrated. Complete bed rest for prolonged periods may be deleterious to the body and should be closely monitored. A significant number of patients will respond to a nonoperative treatment program for herniated lumbar disk. The physician should be aware that those patients who have marked, early limitation of straight leg raising and those patients who have symptoms or physical findings suggestive of cauda equina syndrome may need early surgery. Close monitoring is indicated in those settings.
- **B. Inpatient Treatment**
  - 1. Nonoperative treatment
    - a. Indications for admission
      - (1) Inability to control pain
      - (2) severe or progressive neurologic deficit
    - b. Treatment options
      - (1) Monitored bedrest with parenteral medications
    - c. Indications for discharge
      - (1) Uncomplicated - Relief or improvement of leg and/or back pain
      - (2) Exceptions
        - a. No response to nonoperative treatment options requiring consideration of surgical intervention
        - b. Spinal headache after myelogram requiring IV fluids or blood patch.

- 2. Operative Treatment
  - a. Indications: Diagnosis
    - a. Indications: Diagnosis confirmed by Myelography/Ct, or MRI, plus one of the following three.
      - (1) Failure of nonoperative treatment to relieve symptoms
      - (2) Quality of patient's life significantly impaired
      - (3) Presence of significant or progressive neurologic deficit
    - b. Procedure options
      - (1) open removal
      - (2) Percutaneous discectomy by special approval
    - c. Indications for discharge
      - (1) Uncomplicated - One to three days after discectomy
      - (2) Complicated - after wound infection thrombophlebitis, spinal fluid leak, or other significant complication has been controlled.
    - d. Home health care may be required for a short period
    - e. Physical modalities and/or rehabilitative procedures
      - (1) Some monitoring of the patients activities may be necessary.
      - (2) General fitness, flexibility, and simple spinal muscle strengthening are all important.
      - (3) Patient should be instructed in walking program with a gradual increase in their physical activity.
      - (4) Strengthening exercises or work simulation activities may be indicated for some patients.
    - f. Supporting evidence
 

Discectomy has been proven to be a safe and effective procedure in some patients with herniated disk. Such surgical intervention remains elective (in the absence of a severe neurological deficit) and the decision is based on the surgeon's clinical judgment and the patient's personal assessment of the extent to which quality of life has been impaired.
- **C. Estimated Duration of Care**
  - 1. Nonoperative treatment - maximum medical improvement 0-12 weeks.
  - 2. Operative treatment - 0-12 weeks.
- **D. Modifiers (age, sex, and co-morbidity)**

Patients with symptoms suggestive of cauda equina syndrome will require a different approach to treatment. Cauda equina syndrome is a surgical emergency. Symptoms include low back pain and paralysis with loss of bladder and bowel control. Once this diagnosis is suspected, the patient should undergo prompt referral and neurodiagnostic evaluation.