QUESTION 30 Spinal cord
A 73-year-old man presents with a 12-month history of left leg pain radiating from the buttock to the heel. There is no associated back pain. Neurological examination reveals straight leg raising of 60 degrees on the left with a positive dorsiflexion test. Power is normal with a reduced left ankle jerk. The remainder of the neurological examination is normal. His lumbar magnetic resonance imaging (MRI) scan at the L5/S1 region is shown above.

The most likely diagnosis is:
A. L5/S1 disc protrusion.
B. left L5/S1 facet pain.
C. schwannoma involving the left S1 nerve root.
D. malignant infiltration of the left S1 nerve root.
E. piriformis syndrome.
Disc prolapse
- Herniation occurs laterally and compresses adjacent nerve roots
- May occasionally occur centrally, compressing the cauda equina
- Associated hypertrophy of degenerated facet joints often a further source of back and leg pain and is an important cause of root compression.

Clinicla features
**Lateral disc protrusion:**
- Leg pain from root irritation/compression produces pain in the distribution of affected root
- Numbness or tingling in distribution of nerve root

**Mechanical signs**
- Straight leg raising L5 and S1 root compression causes limitation to less than 60 degrees and produces pain down the back of the leg
- Dorsiflexion of foot while leg is elevated aggravates the pain
- Elevation of “good” leg may produce pain in the other leg.

**Central disc protrusion**
- Symptoms and signs are usually bilateral, although one side is often worse than the other
- Leg pain extends bilaterally down the back of thighs
- Pain disappear with the onset of paralysis
- Paraesthesia occurs in the sacral area
- Loss of bladder and urethral sensation with intermittent or complete retention of urine occurs in most patients
- Anal sensation is usually impaired and accompanies constipation.
- Motor loss: presents as foot drop with complete loss of power in dorsiflexors and plantarflexors of both feet
- Ankle jerks are usually absent

Management
(a) Lateral disc protrusion
1. Conservative (most bouts of leg pain settle spontaneously by taking simple measures)
   - Analgesia
   - Avoiding heavy lifting and bending
   - Using an orthopaedic mattress
   - A plaster jacket
   - Bed rest
2. Surgery indications
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- Severe unremitting leg pain despite conservative measures
- Recurrent attacks of leg pain especially when causing repeated time loss from work
- Development of neurological deficit
- 80% obtain good results, root damage in <1%

(b) Central disc protrusion
- Compression of cauda equina from a central disc constitutes a neurosurgical emergency

1Facet joint
- Most common cause of all recurrent, disabling low back and neck problems
- Rarely involve spinal nerves
- Symptoms
  - Acute episodes of lumbar and cervical facet joint pain, intermittent, generally unpredictable
  - Persisting joint tenderness overlying inflamed facet joint
- Diagnosis
  - CT scan gives most information
  - MRI scan is not quite as useful but good at investigating possible disc problems
  - Most definitive diagnosis: facet joint injection with small vol of a combination of Xray contrast material, local anesthetic and cortison → if relieved, diagnostic

Malignant infiltration
Extradural (78%) – metastasis, myeloma, neurofibroma, lymphoma
Intradural (18%)- meningioma, schwannoma
Intramedullary (4%)- astrocytoma

- Occurs in about 5% of all cancer patients
- Primary site: breast, lung, prostate and kidney
- Clinical features: bone pain and tenderness preceeding limb and autonomic dysfunction
- Management
  - Radiotherapy
  - Surgical decompression results are poor.

2Schwannoma
- Slowly growing benign tumours
- Occur at any level arising from posterior nerve roots
- Lie entirely within the spinal canal or go through the intervertebral foramen
- Occur in the 30-60 age group
- Present with root pain
- MRI or CT myelogram identifies intradural/extramedullary lesion
- Oblique Xrays may show foraminal enlargement
- Neurofibromas are identical apart from their microscopic appearance and their association with multiple neurofibromatosis (Von Recklinhausen’s disease- café aulait spots)

3Piriformis syndrome
- Piriformis muscle either irritate or compress the proximal sciatic nerve due to spasm and/or contracture
- Diagnosis of exclusion
- Ddx:
  a. lumbosacral radiculopathy
  b. Buttock pain

1 http://www.spine-health.com/topics/cd/facetjoint/facetjoint02.html
2 Neurology and Neurosurgery illustrated Lindsay & Bone pg385
3 eMedicine – Piriformis syndrome
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c. Ischial tuberosity bursitis
d. Sciatica

- Sx: deep pain in buttocks aggravated by sitting, climbing stairs or performing squats

Difficult diagnosis to make and not much consensus on treatment.
Treatment: Ultrasound and other heat modalities prior to physical therapy – physio referral
Home stretching program

**Back to the question:**

The MRI does show a lateral protrusion of the lumbar disc. This would be most likely diagnosis.
Facet joint problems will be hard to see on MRI and does not present with neurological symptoms.
It is definitely not the piriformis syndrome as there is obvious pathology seen in the MRI.
As for Schwanoma and the malignant infiltrate, it is less likely.

Answer A.