NR 8  Low back pain

Low back pain

Clinical history and physical examination

Low back pain with no “red flags”

Sciatica

Cauda equina syndrome or rapidly progressing neurological deficit

Suspected spinal fracture

Suspected tumour / infection

Post-operative spine

Radiological investigations not clinically helpful in first 4 weeks

MRI

Please refer to the guideline on thoracolumbar spine trauma (NR 3)

Lumbar spine radiographs

Lower limb neurological deficit absent

Lower limb neurological deficit present

Suspected infection

Suspected bone lesion

Follow-up reassessment for “red flags”

MRI

MRI/ Bone scan + Gallium scan

CT / Bone scan
REMARKS

1 General
1.1 Uncomplicated acute low back pain and/or radiculopathy is a benign, self-limited condition that does not warrant any imaging studies.2-6

1.2 “Red flags” are indications of a more complicated status of back pain/radiculopathy in the following settings:7,8
   1.2.1 Trauma, cumulative trauma
   1.2.2 Insidious onset of unexplained weight loss
   1.2.3 Age > 50 years, especially women, and males with osteoporosis or compression fracture
   1.2.4 Unexplained fever, history of urinary or other infection
   1.2.5 Immunosuppression, diabetes mellitus
   1.2.6 History of cancer
   1.2.7 Intravenous drug abuse
   1.2.8 Prolonged use of corticosteroids or osteoporosis
   1.2.9 Age >70 years
   1.2.10 Focal neurologic deficits with progressive or disabling symptoms, cauda equina syndrome
   1.2.11 Duration > 6 weeks
   1.2.12 Prior surgery

2 Plain radiographs
2.1 They are recommended if any of the “red-flags” are present.9,10
2.2 Lumbar spine radiographs may be sufficient for the initial evaluation of:
   2.2.1 Recent significant trauma (any age)
   2.2.2 Prolonged use of steroid
   2.2.3 Osteoporosis
   2.2.4 Age > 70 years
2.3 Oblique views may be useful for specific conditions like spondylolysis and facet joint disease.11
2.4 Radiographs have a role in evaluation of alignment, instability, and scoliosis and in postoperative evaluation of instrumentation and fusion.

3 Nuclear Medicine
3.1 Bone scan is moderately sensitive but nonspecific in diagnosing tumor, infection or occult vertebral fracture.9,10 Specificity of diagnosis of skeletal infection is improved when correlating with gallium scintigraphy.
3.2 Bone scan is also useful in surveying the entire skeleton.
3.3 Single Photon Emission Computed Tomography (SPECT)/CT improves localization of active sites in bone scan.

4 MRI
4.1 Low back pain complicated with the red flags may justify early use of CT or MRI even if radiographs are negative.9
4.2 MRI is the imaging modality of choice in diagnosing disc herniation.14-15 If MRI is not available or contraindicated, CT myelogram can be performed.
4.3 MRI with contrast is useful for suspected infection and neoplasia.
4.4 MRI with contrast allows distinction between disc and scar in post-operative patients.
5 CT
  5.1 Provides superior bone detail but not as useful in depicting extradural soft tissue when compared with MRI.
  5.2 Useful for depicting bone/structural lesions and alignment such as spondylolysis, pseudoarthrosis, fracture, scoliosis and stenosis and for post-surgical evaluation of bone graft integrity, surgical fusion and instrumentation.\(^{16}\)

6 Myelography and CT myelography
  6.1 Complementary to plain CT or MRI and occasionally more accurate in diagnosing disc herniation, but requires lumbar puncture and intrathecal contrast injection.\(^{17,20}\)
REFERENCES


