Differential diagnosis and assessment of spinal pain:

1. **Mechanical pain**: increased by activity without systemic symptoms; from the facet, disc, nerve root compression

A. Disc prolapse: spinal and radicular pain associated with sensory and sometimes motor and reflex changes.. MRI and CT. Occasionally pain is localized to the spine (discogenic pain-discography.
B. Spinal stenosis: lumbar stenosis-neurogenic claudication for central canal stenosis and radiculopathy for lateral recess stenosis. For cervical stenosis-myelopathy, radiculopathy, cervical pain or all.
C. Spondylolisthesis
D. Kyphosis, scoliosis, lordosis
E. Musculoligamentous: the most common cause

2. **Infections: pain** associated with fever, weight loss, and high CRP and ESR.

A. Vertebral osteomyelitis: 60% staph. Aureus, gram –ve bacteria in immunocompromised and IVDU. Most commonly affects lumbar spine
B. Epidural abscess: staph aureus in 60%
C. Discitis: In adults most commonly after surgery, in children spontaneous (haematogenous spread), blood cultures and disc biopsy are negative in 30-50%.
D. Granulomatous infections: TB, actinomycosis, nocardia and fungal infections (Cryptococcus, coccidiomycotic, and blastomycotic).

3. **Inflammatory disorders:** pain associated with morning stiffness. Pain improves with activity.(RA, AS etc..)
4. **Neoplastic disorders:** pain associated with recumbency and worse at night. See below
5. **Acute localized pain:**

A. Trauma (fractures, musculoskeletal pain)
B. Metabolic(osteoporosis, Paget's and osteomalacia)

6. **Pain from other organ pathology:** Renal colic, pancreatitis, dissecting aneurysm etc., endometriosis etc..)

Red flags for pain are night pain and pain associated with recumbency, fever and weight loss and pain associated with neurological deficit. In taking history ask about the onset of pain, duration, character, radiation, neurological deficit and systemic symptoms.