BACK PAIN

CNS Teaching

June 30th 2021

Dr Mark Ballinger FACEM

CAUSES AND HISTORY

CAUSES - SPINAL

- MSK
  - Muscular strain
  - Ligamentous
  - Disc herniation (>90% L4,5,S1)
- Osteoporotic fracture
- Malignancy
  - Myeloma
  - Lymphoma
  - Mets – breast, prostate, lung
- Vertebral infection
  - Discitis
  - Osteomyelitis
  - Epidural abscess
- Transverse myelitis

CAUSES – NON-SPINAL

- MI - usually thoracic back pain
- Vascular
  - Aortic dissection
  - Leaking aortic aneurysm
- Gastrointestinal
  - Pancreatitis
- Renal
  - Renal colic
  - Pyelonephritis
  - Renal cyst, cancer, haemorrhage
- Non-organic
  - Depression
  - Drug seekers

* If pain not worse on movement, think of non-spinal causes

RED FLAGS

- Age >65
- Trauma – usually significant
  - Recent mild trauma if >50 years
- Prolonged steroid use
  - Increased risk of fractures
- History of osteoporosis
- Prior history of cancer
- History of recent infection
- Fever
- Low back pain worse at rest or at night
- Unexplained weight loss (poorly predictive)
- IV drug use

PAIN HISTORY - SOCRATES

- Site
  - Thoracic more likely to be sinister
- Onset
  - Sudden w/o trauma = vascular
  - Weeks-months = malignancy
- Character
  - Ache, burn, shooting, sharp
- Radiation
  - Flank, buttock, legs, neck, abdomen
- Associations
  - Abdo pain, chest pain, collapse, urinary symptoms, fever, headache, neck pain, weakness, neurology
- Time
  - Sudden, days, weeks, months
  - Nocturnal pain = malignancy
- Exacerbating/relieving factors
  - Exertion, food, movement or worse at rest
- Severity
  - Getting worse/better/fluctuating

EXAMINATION

GENERAL EXAMINATION

- Spinal ROM of limited value
- Vertebral point tenderness may suggest risk of infection or fracture
- Paravertebral muscle spasm
- Non-organic disease
  - Compression on top of the head worsens pain
  - Patient unable to straight leg raise but able to sit up
- Other body systems looking for non-spinal causes

NEUROLOGICAL EXAMINATION

- >90% of all clinically significant disc herniation involves L5 or S1 nerve roots
- L5 test – dorsiflex great toe and ankle, heel walking
- S1 test – ankle eversion, toe flexion, toe walking
- Reflexes – knee jerk mostly L4, ankle jerk S1
  - Loss of ankle jerk is common if previous episodes of sciatic back pain have occurred
- Sensory symptoms without definite signs are usually non-significant

STRAIGHT LEG RAISING (SLR)

- To >70° is normal
- SLR tests tensions in L5 or S1 nerve root
- True sciatic pain should occur before hamstring stretched too far
- Determine most distal area of discomfort when pain elicited
- Ankle dorsiflexion at the limit of SLR increases the tension and often accentuates symptoms
- Crossed SLR test more sensitive for disc herniation
  - Positive when SLR of normal leg causes pain in the symptomatic leg

PATHOLOGIES

CAUDA EQUINA SYNDROME

- Usually due to large central disc herniation L4-5 or L5-S1
- Bilateral lower extremity pain or weakness is strongest predictor
  - Approximately 80% specific
- Saddle anaesthesia
- Urinary incontinence or retention
  - PVR >200ml highly suggestive (>500ml odds ration is 4)
  - <50-100ml very uncommon
- Lax anal tone and other features are not particularly discriminating
- The majority of patients suspected of having CES don't have it!

VERTEBRAL INFECTIONS

- Discitis, osteomyelitis, epidural abscess
  - 50% primary infection from transient bacteraemia
  - 50% secondary infection source
- Risks – DM, active cancer, immunosuppression, renal failure, IVDU or ETOH
- Clinical
  - Thoracic most commonly involved
  - Progressive over hours to days
  - No history of trauma
- Fevers, sweats
- Find the primary source

TRANSVERSE MYELITIS

- Acute or subacute inflammatory disorder of the spinal cord
- Causes:
  - Direct infection
  - Post-viral – EBV, CMV, several others
  - MS, SLE, malignancy
- Features:
  - Focal neck or back pain
  - Dermatomal paraesthesia, sensory loss
  - Paraplegic symmetric motor weakness
  - Sphincter disturbance
  - Urinary retention
  - Evolves over hours-days
  - Variable presentation, atypical

METASTATIC SPINAL DISEASE

- Affects about 30% of patients with cancer
  - Cord compression occurs in 5%
  - Prostate, lung, breast = 20% each
- Back pain precedes neurological loss (usually by months) in 95%
- Pain has radicular component in 80% of cases
- Motor loss is often more prominent than sensory loss
- Sensory symptoms may extend over many dermatomes below lesion level
- Plain X-rays abnormal in 85% of cases

NON-SPINAL CAUSES

If pain not worse on movement, think of non-spinal causes

- Pancreatitis – pain in epigastrium to back, N&V
- Pyelonephritis – fever, urinary symptoms, flank/abdo pain
- Renal colic – loin to groin pain
- Acute MI – female > male, chest pain, nausea, sweating, SOB
- Dissection – tearing chest pain to back, neurological deficit, limb ischaemia
- Leaking/ruptured AAA – collapse, abdo pain, sweating