Determination of “Red Flags” for serious spine disease.
[Trauma, infection (TB), neoplasm.]

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I have no disclosures
Learning Objectives

• A couple of case examples from Namibia.  
  (try to identify the red flag)
• How to approach the patient complaining of Back pain
• Identifying “red flags” i.e. which patients need urgent further work-up
Case 1: Mr. ST - 57 y.o. male, retired

- C/o Thoracic back pain >1 year
- Multiple GP visits, Specialist Physician
- X-rays reported normal; sent for Physio for 3/12
- When should blood investigation be requested?
- When should one request a MRI?
Hb = 13
WCC = 4.6
ESR = 20
CRP = 1.5

Thank you for the referral
X-RAY THORACIC SPINE:
Normal thoracic kyphosis.
The intervertebral disc height and vertebral body heights are preserved.
The spinous processes and pedicles are aligned.
Metastatic Adenocarcinoma
Mr. ST - 57 y.o. male, retired: Learning points

• Learn to interpret standard x-rays yourself, then read the report to see what you missed (or the radiologist missed)
• Thoracic back pain is less common and warrants further attention
• Before this case, and in last 16 years I assumed it was NOT possible to have a tumour without a raised ESR / CRP.
• Develop a gut feel / sixth sense.... Early MRI indicated in some cases
Case 2: Mr DJ - 77 year old male

- Retired foreign national living in Namibia
- Last 3/12 regularly been to GP with new onset focal back pain (T12-L2 region)
- +’ve Haematuria
- X-ray reported as normal
- U-sound abdomen reported as normal
• Referred to “GP pain specialist”
  ▫ GP pain specialist proceeded to inject facets / rhizotomies around L1, and did NOT request a MRI scan as they wanted to contain costs.
• 2 weeks after injection admitted with severe LBP and CT scan requested looking for kidney stones......

Thank you for the referral. 77-year-old patient with chronic back problems. Now severe pain right flank for 2 days, and haematuria. Query renal stone.

CT KUB:

Large, destructive lesion involving the L1 vertebral body, with involvement of the right pedicle, and associated pathological fracture. This is suggestive of a metastatic lesion.
CT Scan done to confirm Kidney stones
Learning points Mr. JD

• Sudden onset focal back pain in advanced aged (77) ..... Metastasis must be in differential.
• “Pain specialist”....... Know who you are referring to – these practitioners also need to know their limitations and refer if “out of their depth”.
• Don’t take short cuts to “save money” – if patient needs investigation – do it!
Case 3: Mr. JK - 18 year old male

- Presented to rural hospital 8 months ago with urinary retention.
- Urinary catheter inserted and sent home
- 4 months later still urinary retention, now also needs crutches to walk
- Sent to Windhoek Orthopaedic Dept where lumbar x-rays are performed and reported as normal – sent home
- 4/12 later sent to Spine Clinic – MRI requested
Hydatid Cyst Disease of the Spine
Learning points Mr. JK

- 18 year old with gradual onset urinary retention is **NOT** normal
- 18 year old needing crutches to walk is **NOT** normal
Case 4: Mr. DK - 52 year old male

- Lawyer
- Known with “treated Prostate CA” – cured according to pt....
- Severe back & left leg pain L2 nerve
- Cannot walk, stand – 6/52 history
- Maximal pain killers
- +’ve femoral stretch..... Left
- How long conservative Mx?
- MRI? Bloods?
Diagnosis?
Learning points Mr DK

- Previous confirmed prostate CA
- Maximal pain killer
- (Diagnosis: - Ganglion Cyst)
Case 5: Mr. MM (x-ray 2016)

- Referred by GP with 1 year history of lower back, right buttocks, right anterior thigh pain.
- Needs a crutch / walking stick to mobilize.
- Exhausted conservative management option according to his GP.
On drug history it is established that GP prescribed **oral steroid daily for 1 year**.
Learning points Mr. MM

- Don’t forget the drug history – daily high dose oral steroid for one year is almost criminal.
- Always screen the hips when examining the back
- Back patients rarely need crutches / walking stick
Case 6: Ms. CM 52 year old female
Learning points Ms. CM

- High energy MVA
- Complete paralysis
Red Flags - Back to basics
Primary Causes

- Muscle strain or ligament sprain
- Facet joint arthropathy
- Discogenic pain or annular tears
- Spondylolisthesis
- Spinal stenosis
Differential Diagnosis

• Classify according to age

• Always exclude systemic causes

• Malignances
  - Pregnancies / Gynecological
  - U / Genital causes
How do we evaluate the patient with LBP?

**History**
- The differential diagnosis for spinal causes of back pain is extensive – how does one pin point the exact pain driver?
- Back pain with or without radicular pain?
- Extremes of ages?
- Trauma history?
- Night pain?
- Various extra-spinal conditions also can cause back pain
- Potential secondary gain issues...
“Spinal” Causes of Back Pain

• **Structural**
  - Segmental instability
  - Discogenic pain, annular tears
  - Facet joint arthropathy
  - Muscle strain, ligament sprain
  - Spondylolisthesis
  - Spinal stenosis
  - Fracture
  - Infection
    - Discitis
    - Vertebral osteomyelitis

• **Inflammatory**
  - Ankylosing spondylitis
  - Rheumatoid arthritis

• **Tumors**
  - Primary
  - Secondary, myeloma

• **Endocrine**
  - Osteomalacia
  - Osteoporosis
  - Acromegaly

• **Hematologic**
  - Sickle cell disease
“Extra-Spinal” Causes of Back Pain

• **Visceral**
  - Renal calculus, urinary tract infection, pyelonephritis
  - Duodenal ulcer
  - Abdominal or thoracic aortic aneurysm
  - Left atrial enlargement in mitral valve disease
  - Pancreatitis
  - Retroperitoneal neoplasm
  - Biliary colic
  - Gynecologic
  - Etopic pregnancy
  - Endometriosis
  - Sickle cell crisis

• **Drugs**
  - Corticosteroids cause osteoporosis and methysergide produces retroperitoneal fibrosis
  - Nonsteroidal anti-inflammatory drugs may cause peptic ulcer disease or renal papillary necrosis

• **Musculoskeletal**
  - Hip disease
  - Sacroiliac joint disease
  - Scapulo-thoracic pain
  - Psychogenic
On Physical Examination

- **Neurologic assessment**
  - Note any weakness
  - The effect of position on symptoms and exacerbating or relieving factors should be noted

- **Physical examination**
  - Observe the patient closely while walking and during transfers, noting any pain, antalgia, or ataxia
  - Perform a meticulous neurologic examination and note any inconsistencies
  - Always perform provocative testing (eg, straight-leg raise, femoral stretch test)

**WADDELL Criteria**

- Pain with Vertical compression
- Discrepancy-Informal & Formal testing
- Hyper reactivity
- Paradoxical SLR test
- Non-Dermatome loss Sensation
BACK PAIN

conservative management

PERSISTENT PAIN
DEVELOPING NEUROLOGY

red flags
imaging
lab tests
Red Flags

Red flags are possible indicators of serious spinal pathology:

- Thoracic pain
- Fever and unexplained weight loss
- Bladder or bowel dysfunction
- History of carcinoma
- Ill health or presence of other medical illness
- Progressive neurological deficit
- Disturbed gait, saddle anaesthesia
- Age of onset < 20 years or > 55 years
What imaging should I request?

- X-rays
  - **AP(supine) & Lateral(standing)**
    - If pain > 6 weeks
    - Earlier if you suspect malignancy or infection
    - Note coronal and sagittal alignment as well as the presence or absence of disc degeneration, osseous or soft-tissue abnormalities
  - **Oblique** (foraminal or radicular symptoms)
  - **Flexion and extension views** (spondylolisthesis or suspected ligamentous instability)
Why should we NOT rely too much on imaging studies?

If under age 60 and pain free:

Low yield: unexpected X-ray findings 1: 2500

MRI:
- bulging disc in 1 of 3
- herniated disc in 1 of 5

• Over age 60 and pain-free:
• MRI:
  – herniated disc in 1 of 3
  – bulging disc in 80%
  – all have age-related disc and facet joint degeneration
  – spinal stenosis in 1 of 5 cases

• Imaging can be misleading: many abnormalities as common in pain-free individuals as in those with back pain
Further evaluation

- Goal is to discriminate between “benign” cases and disorders that require further diagnostic studies

- **Radiological imaging:** X-ray/ CT Scan/ MRI

- **Useful lab tests:**
  - FBC, ESR, CRP
  - Calcium, ALP
  - protein electrophoresis, BJP
Key Points about low back pain

- 90% are due to mechanical causes and will resolve spontaneously within 6 weeks to 6 months
- Pursue diagnostic workup if any red flags found during initial evaluation
- If ESR elevated, evaluate for malignancy or infection
- In older patients initial X-ray useful to diagnose compression fracture or tumour
Key Points about low back pain

- Bed rest is not recommended for low back pain or sciatica, with a rapid return to normal activities usually the best course.

- Back exercises are not useful for the acute phase but help to prevent recurrences and treat chronic pain.

- Surgery is appropriate for a small portion of patients with low back pain.
THANK YOU