Emergency Care Institute
NEW SOUTH WALES

ACI NSW Agency for Clinical Innovation

BACK TO BASICS

Learning from our Incidents:

RED FLAGS in the Emergency Department

The case

A 58 year old female presents to the ED with a 1 week history of progressively worsening back pain, radiating down her left buttock/posterior thigh.

PMH

- Hypertension
- Stress incontinence – self diagnosed
- Smoker

What additional information should you acquire from the patient?

The case

She is examined by the junior doctor with no spinal tenderness, reduced left knee jerk, but nil other neurological deficit in the lower limbs.

She is given ibuprofen 400mg and panadeine forte 1000/60mg.

Her pain subsides and she mobilises successfully with the physiotherapist.

Discharged home, with regular simple analgesia and back exercises, advised to follow up with the GP.

The case

Second presentation:

2 weeks later she is brought in by ambulance, after a slip and fall in the kitchen, which has exacerbated her back pain. She feels her left leg is weaker than her right but attributes this to the pain of her left sciatica

When asked further questions she tells you:

'I've been feeling quite lethargic lately, I've lost my appetite and my clothes have become a little looser'

'I haven't been sleeping well recently, this back pain has been keeping me awake at night, I'm exhausted'

The case

On examination:

- *Tenderness over L4/L5*
- *Reduced power left hip flex 4/5 and knee extension*
- *Left knee jerk absent*
- *Patchy sensory changes left lower limb*
- *Reduced perianal sensation*
- *Laxity of anal sphincter*

What are your differential diagnoses?

The case

A CT of her lumbar spine is performed which reveals:

'Anterior wedge compression fracture of L4, with an abnormal sclerotic appearance of the L4 vertebral body, with posterior protrusion causing narrowing of the spinal canal'

She is reviewed by the neurosurgical registrar and undergoes an urgent MRI spine which reveals:

'*Narrowing of the spinal canal at L4 resulting in cauda equina at the level of L4, with multiple sclerotic deposits throughout the spine, suspicious for metastasis*'

She underwent urgent spinal surgical decompression, with referral to the oncologist for further management.

A CXR revealed nodular opacification in the right mid-zone, suspicious for a primary malignancy.

She was diagnosed with cauda equina, secondary to primary lung cancer with spinal metastasis.

Which features of this patient's presentation are the Red Flags indicating a high risk of serious disease?

What is the lesson here?

In assessing a patient with back pain, one must seek and exclude red flags, and specifically assess bladder/bowel function, anal tone and sacral sensation.

What is the evidence?

- Adults with acute non-traumatic back pain account for 2-3% of presentations to ED[1].
- Dugas *et al*.[2] found a misdiagnosis rate of 29% for spinal cord compression.
- For the diagnoses of spinal epidural abscesses and cauda equina syndrome, misdiagnosis rates of 75 and 50% have been found respectively [3,4].
- Nearly one-quarter of patients with radiologically-confirmed spinal cord compression had no motor or sensory deficit on physical examination in the ED[2].

What is the evidence?

- Classic presentations of serious pathologies are frequently absent, and symptoms and signs may evolve with time[1].
- Only approximately 10% of patients with spinal epidural abscess present with the classic triad of fever, back pain, and neurologic deficits[3].
- Although most patients with metastatic epidural spinal cord compression have a history of cancer, in approximately 20%, the vertebral metastasis is the first evidence of the cancer[5].

What is the evidence?

- Red flags in back pain come from history and physical examination. The best-validated red flags of back pain include history of **cancer, corticosteroid use, abnormal neurologic physical findings** (including new ataxia and difficulty walking), **and anticoagulant use**[1].

- Downie *et al.*[6] found presence of older age, prolonged corticosteroid use, severe trauma, and presence of a contusion or abrasion increased the likelihood of spinal fracture; likelihood was higher with multiple red flags. Only a history of malignancy increased the likelihood of spinal malignancy.

Red flags in Lower Back Pain[7]:

Presentation

- Duration > 6 weeks
- Age < 18 yrs
- Age > 50 yrs
- Major trauma, or minor trauma in elderly
- Cancer
- Fever, chills, night sweats
- Weight Loss
- IVDU
- Immunocompromised status
- Night pain
- Unremitting pain
- Pain radiating below knee
- Pain worse on coughing/sitting/valsalva
- Incontinence
- Saddle anaesthesia
- Severe or rapidly progressive neurological defecit

Physical examination

- Fever
- Unexpected sphincter laxity
- Perianal/perineal sensory loss
- Major motor weakness
- Point tenderness to percussion
- Positive straight leg raise test

Access the ECI Clinical Tool:

Acute Low Back Pain

http://www.ecinsw.com.au/acute-low-back-pain-assessment

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References

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3. Davis, D.P., Wold, R.M., Patel, R.J. et al. *The clinical presentation and impact of diagnostic delays on emergency department patients with spinal epidural abscess*. Journal of Emergency Medicine, 2004. 26: pp. 285–291.
4. Jalloh, I., Minhas, P. *Delays in the treatment of cauda equina syndrome due to its variable clinical features in patients presenting to the emergency department*. Emergency Medicine Journal, 2007. 24:pp. 33–34.
5. Cole, J.S., Patchell, R.A. *Metastatic epidural spinal cord compression*. Lancet Neurology, 2008. 7: pp.459-466.
6. Downie, A., Williams, C.M., Henschke, N. et al. *Red flags to screen for malignancy and fracture in patients with low back pain: systematic review*. British Medical Journal, 2013. 347: pp.7095-7103.
7. Della-Giustina, D.A. *Evaluation and Treatment of Acute Back Pain in the Emergency Department*. Emergency Medicine Clinics of North America, 2015. 33: pp. 311-325

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In assessing a patient with back pain, one must seek and exclude specific red flags, and specifically assess bladder/bowel function, anal tone and sacral sensation.