

## Low back pain - look for the “Red Flag Signs”

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[Partly based on reference 1.]

Over the last few years I have visited Rwanda many times working at a beautiful but remote rural health centre (Kirambi, about 100km south–west of Kigali). The “Land of a thousand hills”, as Rwanda is sometimes called, is a land that is difficult to cultivate needing a lot of hard work. The people there attend the health centre at Kirambi with a wide variety of complaints but, at my recent visit in July, the striking fact was the frequency of low back pain (“mugongo”). It affected at least ten per cent of the adult patients I saw. The sites were mainly the sacro-iliac and lumbo-sacral regions with associated and often severe tenderness.

In most cases the cause was clear - the use of long hoes with heavy heads. People tend to hold the hoes with outstretched arms putting a huge strain on the low back that becomes the fulcrum of the force. Digging the often hilly land is crucial for feeding their families and resting was not a realistic option. Our advice was to use the hoe closer to the body to reduce the back strain (see Figure 1). Indeed we kept a hoe in the consulting room and taught the nurses how to instruct groups of patients.

The anatomy of the African lumbo-sacral spine is different from Caucasian spines because there is an exaggerated lumbo-sacral lordosis. This may have the mechanical effect of putting even more strain on the region when using heavy hoes. We need more research in this area of orthopaedics in spite of it not being a “glamorous” subject. However it is important as the problem causes much discomfort, impaired ability to work on the land, reduced resources for families, visits to healthcare facilities and increased use of analgesics - all of which carry a cost.

In “industrialised” countries up to 80% of the population is affected at some time by low back pain. In the UK this leads to over 50 million working days lost each year. Fortunately in 90% of these cases the symptoms go within two months.

### Causes of acute back pain

‘Acute low back pain’ is defined as pain in the back, anywhere between the lower ribs and the buttock crease, and is often associated with disability. It usually improves in less than 6 weeks but often re-occurs (2).

Most (97%) causes of acute back pain arise from a mechanical process. For example, strains (70%) like those I saw in Rwanda, herniated intervertebral disc, spinal stenosis and fractures. The remaining three percent fall into two groups:

#### 1. Non-mechanical processes of the spine:

- Malignancies: primary cord tumours, secondary, myeloma, lymphoma
- Infective discitis, osteomyelitis, abscesses (paraspinal and epidural)
- Herpes zoster.

#### 2. Referred pain:

- Urinary tract: pyelonephritis, renal calculus, perinephric abscess, prostatitis
- Gynaecological: tubal pregnancy, endometriosis
- Gastrointestinal: peptic ulcer, cholecystitis, bowel cancer, pancreatitis
- Aortic aneurysm.

In less than one per cent of cases of acute back pain is the cause serious (i.e. the “red flag signs”) and it is on this group that this review now focuses.

### Diagnosing acute low back pain and “red flag signs”

To diagnose the cause of acute back pain:

- Take a careful history and
- Examine the patient looking particularly for the following “red flag signs”:



Figure 1. Rwandan lady using the typical hoe. Note that she is using the hoe close to her body with the left hand grip at least half way down the long handle. (credit David Tibbutt)

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- **bacterial infection**
- **malignancy**
- **spinal cord compression and**
- **spinal fracture.**

1. A **bacterial infection** may give rise to a **discitis** or an **epidural abscess**. These should be suspected in the presence of these systemic symptoms:
  - weight loss
  - fever
  - night sweats
  - waking at night with pain.Included in this group should be those with a history of
  - **recent infection** elsewhere
  - **immunosuppression** (e.g. **HIV infection**)
  - **use of steroids** and
  - **intravenous drug abuse.****Tuberculosis** may also have a similar presentation.
2. **Malignancy**, primary or secondary, may present with similar systemic features as infection. A history of a known primary carcinoma (e.g. breast, lung or prostate) gives a useful pointer to a probable cause of back pain.
3. **Spinal cord** or **cauda equina compression** often presents with a rapid onset of neurological signs including saddle anaesthesia and bladder and/or bowel problems (faecal incontinence). The commonest causes are a tumour or a prolapse of an intervertebral disc centrally. Urgent investigation of these cases is required because a delay with decompression procedures will lead to irreversible damage. If the cord compression is considered to be caused by a secondary tumour then this can be managed initially with high doses of dexamethasone (16 mg daily).
4. **Spinal fracture** should be suspected if there is a history of an accident, especially a fall from a height. If a patient is known to have osteoporosis then even minor trauma may cause a fracture.

Investigations depend on circumstances and availability. Unless the cause of pain is obvious the following is an ideal list:

- Full blood count ('haemogram')
- Erythrocyte sedimentation rate (ESR)
- C reactive protein
- Renal biochemistry: urea, creatinine, electrolytes
- Hepatic biochemistry: bilirubin, alkaline phosphatase, alanine transaminase, albumen, globulin
- Bone biochemistry: calcium, phosphate
- Screening for myelomatosis (protein in urine and serum protein electrophoresis)
- Prostatic specific antigen in males
- Plain skeletal Xrays.

**So key messages for diagnosing and treating acute low back pain are:**

- Take a good history, examine the patient and be aware of "red flag signs".
- Treat the cause as appropriate.
- Where necessary, teach a better technique for lifting heavy objects and using hoes (see Figure 1).

**References**

1. Hamilton J. Acute back pain. *Medicine* 2009; 37(1):17 – 22.
2. Pengel LHM, Herber RD, Maher CG and Refshange KM. Acute low back pain usually improves within a month, then recurs. *BMJ* 2003; 327: 323 <http://www.bmj.com/content/327/7410/0.5.full> (accessed September 2010)