

Acute low back pain

Assessment and management

BACKGROUND Back pain is a common presenting problem in Australian general practice. Serious causes, however, are rare. Tumours, infections and fractures account for less than 1% of cases and can usually be recognised or excluded by taking a careful history. Patients should expect a good outcome.

OBJECTIVE This article summarises the management of acute low back pain and sets out the key points in history taking including alerting factors for serious disorders, and psychosocial factors that enable a rational management plan.

DISCUSSION A specific cause of pain need not be established for appropriate management to be instituted, with the active engagement of the patient as partner. Although no pattern of pain is diagnostic, a sudden onset of unremitting pain should be regarded as a 'red flag' to a serious underlying disorder. In accordance with evidence based principles, clinicians need to take into account previous experience, personal preferences, and cultural factors when recommending therapy for individual patients.

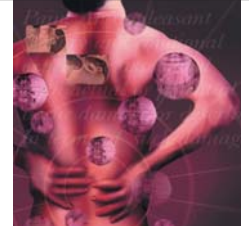
Acute low back pain is a common problem in primary care. Serious causes, however, are rare. Tumours, infections, and fractures account for less than 1% of cases, and can be recognised, or excluded, by careful history taking and examination without resorting to special investigations or screening tests. Some 70–80% of patients will fully recover within 3 months, and remain that way at 1 year.¹ With good management, recurrence rates are less than 25%.¹

For most patients with acute low back pain, a diagnosis will not be evident. There is no scientific evidence as to what the common causes of acute low back pain are. Patients will present with a diversity of clinical features; they may have mild, moderate, or severe pain. Movement may be restricted to greater or lesser degrees; but no combination of features implicates any particular cause or source of pain. A specific cause need not be established for appropriate management to be instituted, with the active engagement of the patient as partner.

Medical history

Despite technological advances, a patient's history remains the most valuable evidence available to the general practitioner. The history assists diagnosis, engages the patient, and is important for medicolegal reasons. First, clarify whether or not the patient has back pain by establishing the location of the pain, then systematically establish the features of that pain.

The red area in *Figure 1* indicates the area of low back pain. Acute low back pain can occur in isolation, or together with somatic referred pain into the lower



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Table 1. Differences between somatic referred and radicular pain

| | Somatic referred pain | Radicular pain |
|--------------------------|--|---|
| Cause | Due to spread of pain from deep spinal tissues (including muscles) | Due to chemical or mechanical irritation of nerves |
| Back vs leg | Back pain worse than leg pain, which may be bilateral | Unilateral leg pain worse than back pain |
| Radiation | Pain concentrates proximally in buttock and thigh, but may spread below the knee | Pain concentrates distally, running into the lower limb, usually extending below the knee |
| Quality | Deep, dull aching, expanding pressure-like quality | Sharp, shooting, electric quality, often both deep and superficial |
| Distribution | Vague location, varies over time, ill defined distribution | Pain runs along defined narrow band in dermatome distribution |
| Altered sensation | Poorly defined paraesthesia may be present | Numbness and paraesthesia in dermatomal distribution |
| Neurology | Normal reflexes and power (if abnormal further assessment is needed) | Reflexes may be reduced or absent. Motor weakness may be present |

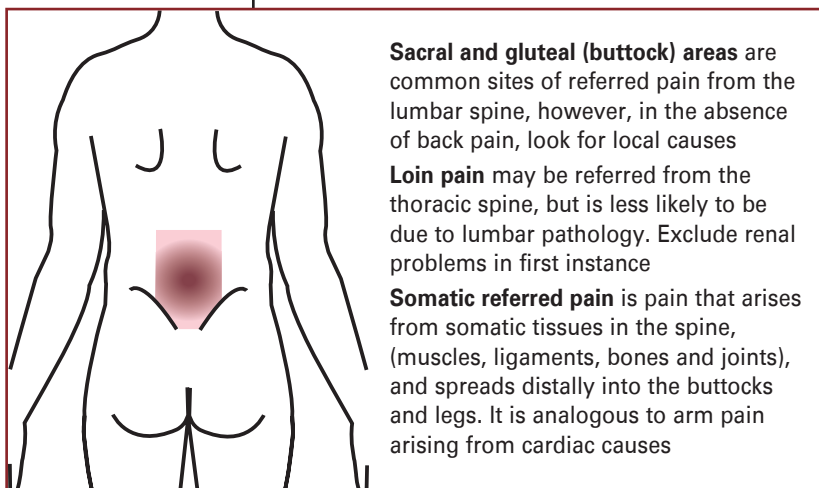


Figure 1. Features of low back pain

that travels through the lower limb), but does not cause back pain. Compression of lumbar or sacral nerve roots causes impaired conduction of nerve impulses (radiculopathy) resulting in objective neurological loss (dermatomal paraesthesia, numbness and weakness).

The investigations indicated for radicular pain and radiculopathy are different from those appropriate for low back pain with or without somatic referred pain. Their treatment requires interventions that are different to those for back pain, and is subject to a totally different evidence base (see the article *Radicular pain* by Jay Govind page 409 this issue).

The extent of spread of pain is important in determining whether or not there is a referred component. Somatic referred pain is pain that is felt at a site distant from the source, but is not due to actual nerve irritation or pinching. While there is no absolute rule as to whether pain in the lower limb is somatic referred pain or radicular pain, *Table 1* may be useful to differentiate the two types of pain. Note that radicular and somatic pain may coexist.

It is useful to assess the severity of back pain in order to advise therapy and to monitor progress. A numerical pain scale is recommended to record the intensity of the patient's pain. Ask the patient how severe they rate the pain on a scale of 0–10, with 10 being the worst pain imaginable.

Although no pattern of onset of pain is diagnostic, a sudden onset of unremitting pain without any precipitating factor should be regarded as a cue ('red flag') to a serious underlying disorder. Similarly, pain unrelieved by rest, or pain at night, should be regarded in the same manner.

limbs. It can occur in association with neurological symptoms and signs, or in patients with radicular pain and radiculopathy.

Neurological impairment, such as bladder disturbance and polysegmental weakness or numbness, requires urgent neurological management. In patients with such features it is the neurological impairment, not the back pain, which determines the necessary investigations. Those investigations are not indicated in the absence of neurological signs.

Failure to distinguish somatic referred pain from radicular pain and radiculopathy continues to be a major reason GPs order inappropriate investigations and undertake inappropriate treatment for low back pain.

Irritation of lumbar or sacral nerve roots gives rise to radicular pain (typically a shooting or lancinating pain

Psychosocial history and 'yellow flags'

Certain psychosocial factors can be associated with a poor prognosis for low back pain – the 'yellow flags'. The following factors may be associated with progression from acute to chronic pain and disability:

- a belief that back pain is harmful and potentially severely disabling
- a tendency to lowered mood and withdrawal from social activity
- an expectation that passive treatments will help more than active participation (passive coping strategies)
- fear avoidance behaviour (avoiding activities for fear of damaging the back)
- past history of chronic pain (anywhere in the body)
- negative attitudes and outlook, and
- somatisation and preoccupation with health.

Work history

There are several poor prognostic indicators regarding return to work. They include a personal history of back pain, long distance travelled to work, low job satisfaction, monotonous work, perceived work stress, and conflict with an employer or supervisor.

It is important to take a clinical, disability and occupational history, concentrating on the impact of symptoms on activity and work, and any obstacles to recovery and return to work. Suggested questions to the worker with low back pain are listed in *Table 2*. Pursuing such issues is of paramount importance in order to identify beliefs, attitudes, and fears that may lead to unnecessary disability, regardless of the severity of the back pain.

'Red flag' indicators of serious conditions

Do not presume that, in all cases, low back pain is 'mechanical' in origin. 'Red flags' are features on history suggestive of serious underlying disorders that may present as back pain. Although rare – representing less than 1% of acute presentations of back pain – they should not be overlooked.² A systems review is necessary to exclude other pathology (see the article *Diagnostic imaging for back pain* by Michael Yelland page 415 this issue).

Management

At the initial visit it is important to address the patient's concerns with explanation, reassurance and advice regarding staying active. Pain related fear is more dis-

Table 2. Questions to the worker

- Have you had time off work in the past with back pain?
- What do you understand is the cause of your back pain?
- What are you expecting will help you?
- How are your employer/co-workers/family responding to your back pain?
- What are you doing to cope with your back pain?
- Do you think you will return to work? When?

abling than pain itself. Management is structured around the patient's four cardinal presenting problems:

- 'I hurt'
- 'I can't move'
- 'I can't work', and
- 'I'm scared'.

Explanation – level I evidence³

Explain the self limiting nature of acute low back pain. Offer a biological model of the pain, eg. 'It is like an ankle sprain, you have probably strained muscles or ligaments maybe involving a disc that won't show on X-ray. It may take a few weeks to heal, during which time you should gradually get back to normal activities'. Address any misunderstanding the patient may have about their pain and reassure them that light activity will not cause further injury. Explain that increased muscle tension and spasm can increase pain and this can be relieved by simple stretching and mobilising the lumbar spine by light activity. Discuss with, and teach, the patient simple stretching techniques, or refer the patient to an allied health practitioner.

Reassurance – level II evidence³

Reassure that light activity will not harm the spine and that most patients are better within 4 weeks.

Rest – level II evidence⁴

Bed rest is not recommended, as there is evidence that more than 2 days rest in bed increases the amount of sick leave required, compared to early resumption of normal activity.

Remain active – level I evidence⁴

Give the patient the 'green light' to remain active and resume normal activities. The provision of printed infor-

Table 3. Pain relief

- First line: paracetamol 500–1000 mg every 4 hours up to 4 g per day. Cost \$0.20–1.00 per dose (level IV evidence)⁵
- Second line: a nonsteroidal anti-inflammatory drug (NSAID) may be useful in addition to paracetamol where there is inflammation. Watch for significant risks of gastrointestinal side effects. Cost \$0.30–0.50 per dose. History of peptic ulcer disease – consider COX-2 selective drug. Cost \$0.75 per dose (level I evidence)⁶
- Third line – add codeine 30–60 mg 4 hourly or tramadol 50 mg 6 hourly. Use for 2 weeks to assist activation. Warn about constipation. Cost \$0.35 per dose, tramadol \$0.60 per dose (consensus – WHO analgesic ladder)⁷
- Oral short acting opioids such as Oxycontin 5–10 mg every 6 hours may be required in the acute stage if clinical diagnosis points to a physical cause. Caution is required due to risks of dependency (consensus – WHO analgesic ladder)⁸
- Avoid the use of muscle relaxants including diazepam as there is a significant incidence of side effects compared to placebo and their effectiveness is lost after 1 week (level I evidence)⁸
- As an alternative to medications, continuous low level heat wrap therapy is more effective than paracetamol or NSAIDs for the first 48 hours, extending to 4 days. The longer term benefit is not known (level II evidence)⁹

mation reinforces the message (see *Patient education* page 436 this issue). Advise walking as normally as possible. Suggest gradually increasing aerobic activity such as walking and/or swimming on a daily basis, aiming for at least 30 minutes each day. Advise that when lifting:

- avoid twisting and bending
- for heavy objects – use thighs with a vertical back
- at other times, use the back and flex it, and
- not to be afraid.

Answer any negative questions in a positive way. Simply labelling the patient as ‘functional’ may deny the patient treatment without offering a viable alternative.

Work intervention – level II evidence^{10,11}

Early intervention is recommended to reduce the likelihood of chronic disability. Encourage the patient to remain in his or her job, or to return to work at an early stage, even if there is still some low back pain – do not wait until they are completely pain free. With the patient’s consent, the GP’s contact with the employer may facilitate maintenance of sympathetic consideration of the absent worker.

Provide analgesia – consensus

Assess requirements by first assessing pain level on a scale of 0–10, with 0 being no pain and 10 being worst pain imaginable. Pain relief is shown in *Table 3*.

Manipulation and physical therapy

There is conflicting evidence that spinal manipulation provides pain relief compared to placebo in the first 2–4 weeks of acute low back pain.¹² It has not been shown to date to be more effective in the longer term than other therapies such as a concerted program of activation and self rehabilitation (level I evidence).¹³

Massage therapy provides similar relief of pain when compared to exercise and education (back schools) and manipulation, and is superior to placebo in the first 3 weeks (level II evidence).¹⁴

Review and follow up

Follow up is critical. Not only does it reflect care and concern by the GP, it allows for the development of the partnership relationship that will incorporate patient values and preferences, reinforce previous advice, and allow vigilance for the emergence of any serious disorder that previously may not have been recognisable. At each visit:

- check for red flags or neurological signs
- assess need for investigation or referral
- check adherence to medications and exercise advice – reinforce
- review medication, and
- assess and address fears
 - explain/educate/inform
 - reassure/encourage
 - activate
 - check return to work progress.

If there is a poor response to initial therapy, multimodal therapy consisting of manipulation, mobilisation, auto-traction and cortisone injections should be considered (level II evidence).

Other therapies to consider where there is insufficient or conflicting evidence include specific back exercises, back school, cognitive behavioural therapy, TENS, topical capsaicin treatment, electromyographic feedback, and multidisciplinary treatment in the workplace.

The following therapies are not recommended as there is no supporting research, and some evidence of potential harm:

- acupuncture
- lumbar supports
- passive physical treatments such as ultrasound and traction, and
- epidural steroid injection.¹⁵

Review after 4 weeks

Most patients should be improving well by this stage. If there is no improvement carefully reassess for red flag

indicators. If the patient is showing little improvement, check adherence and understanding of earlier recommendations, reconsider psychosocial factors and explore them more closely.

Patients who are frightened by pain and avoid all activities that may hurt, tend to become more disabled and have a poorer prognosis. Encourage a positive outlook and maintenance of activity. The patient who becomes depressed, however, may need more complex management. Consider consultation early.

Failure to return to work after 4 weeks

The longer a person is off work with low back pain, the greater the risk of chronic pain and disability, and the lower their chances of ever returning to work. Manual workers may have a real fear of the potential loss of employment caused by their back pain and disability. It is important to acknowledge this legitimate fear in developing the doctor-patient partnership. Address the common misconception among patients and employers of the need to be pain free before return to work. Some pain is to be expected and the early resumption of work activity improves the prognosis. With the patient's consent, advise employers on ways in which the physical demands of the job can be temporarily modified to facilitate return to work. Consider referral to an active and progressive physical fitness program if there is no improvement by 6 weeks.

Summary of important points

- The doctor-patient partnership is a fundamental and essential component of management.
- Fear about pain is a major determinant of disability and its possible chronicity.
- Patients' beliefs and attitudes warrant as much attention early in the history as do the anatomical and pathological aspects of their condition.
- Diagnostic triage is important in excluding red flags.
- Investigations including X-ray and CT scans are not warranted for acute low back pain in the absence of red flag indicators.
- Few cases are caused by serious disorders.
- Most cases are due to mechanical dysfunction and are self limiting.
- Adequate pain relief is important initially to allow the patient to stay active.

Conflict of interest: none declared.

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