Acute Low Back Pain Workshop

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GPCME
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Key points

- Acute LBP is common; most patients recover fully in 3 months
- Serious causes are rare and can be excluded with careful history & examination
- Imaging is not required in absence of red flags
- An exact diagnosis is often not possible, nor needed for management
- Beliefs, attitudes and fear about pain contribute to chronicity & should be addressed
- Management includes reassurance, education & staying active
- Adequate analgesia

An algorithm for acute LBP

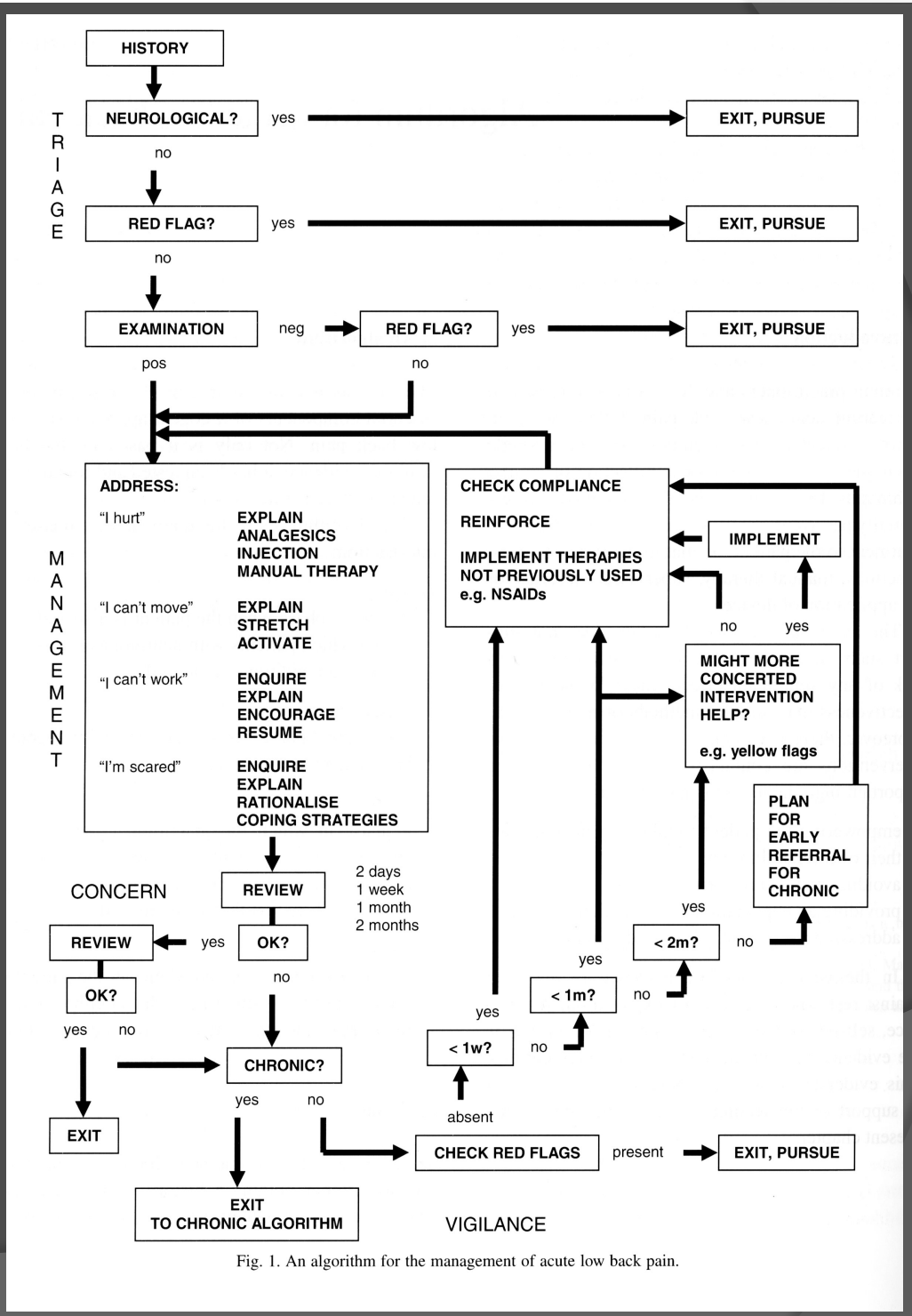
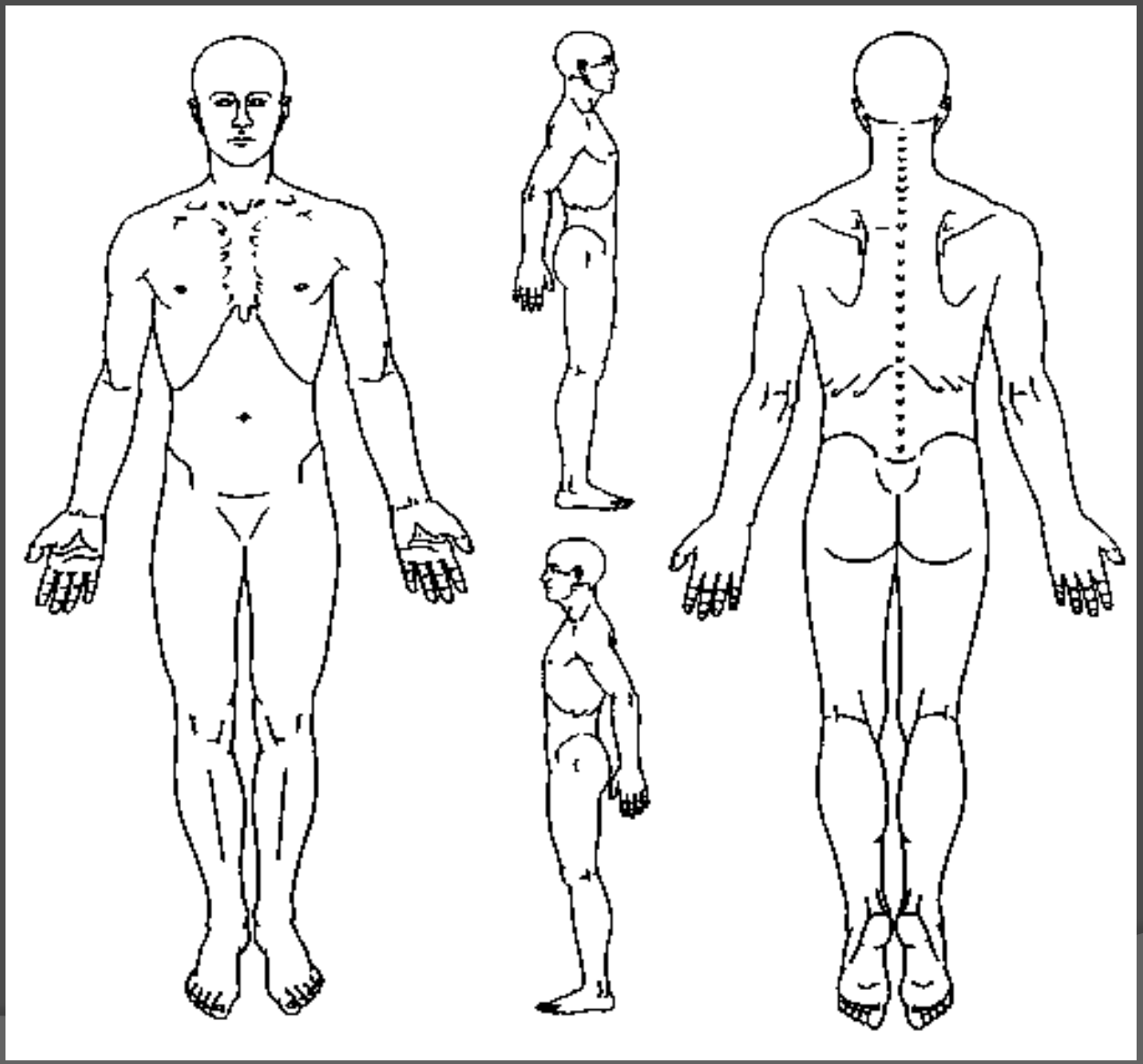


Fig. 1. An algorithm for the management of acute low back pain.

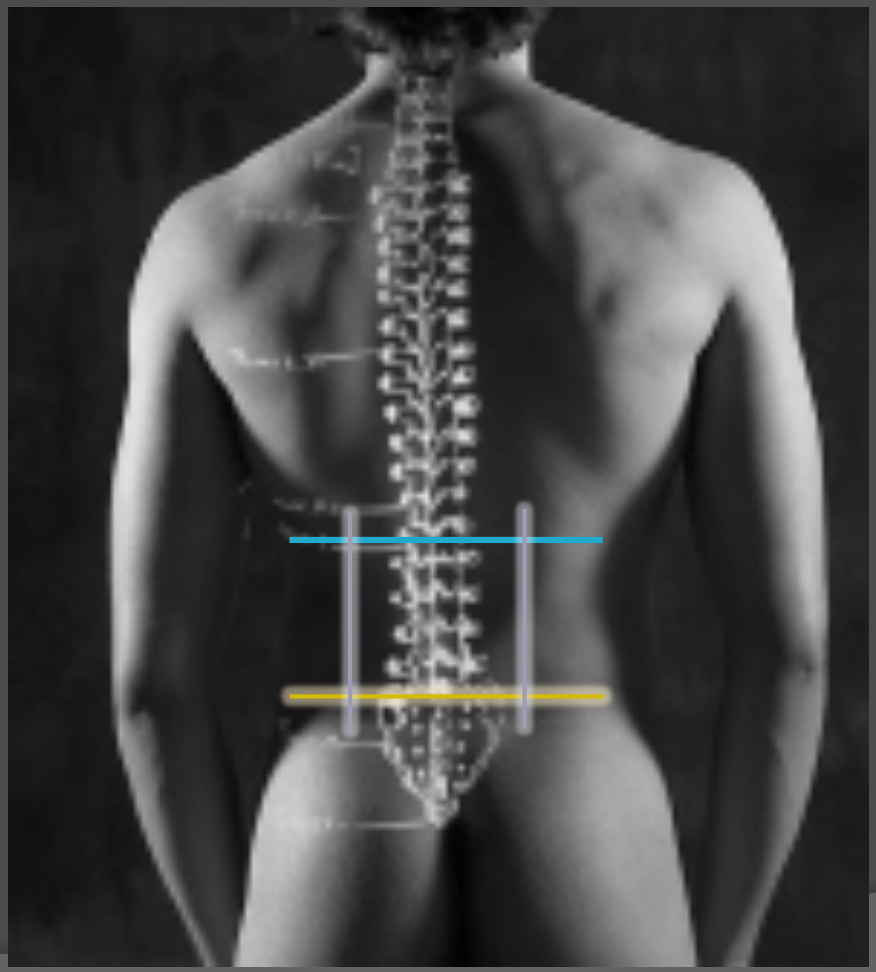
Is it truly low back pain?



Using a pain map

Low back pain terminology

- **Lumbar spinal pain**

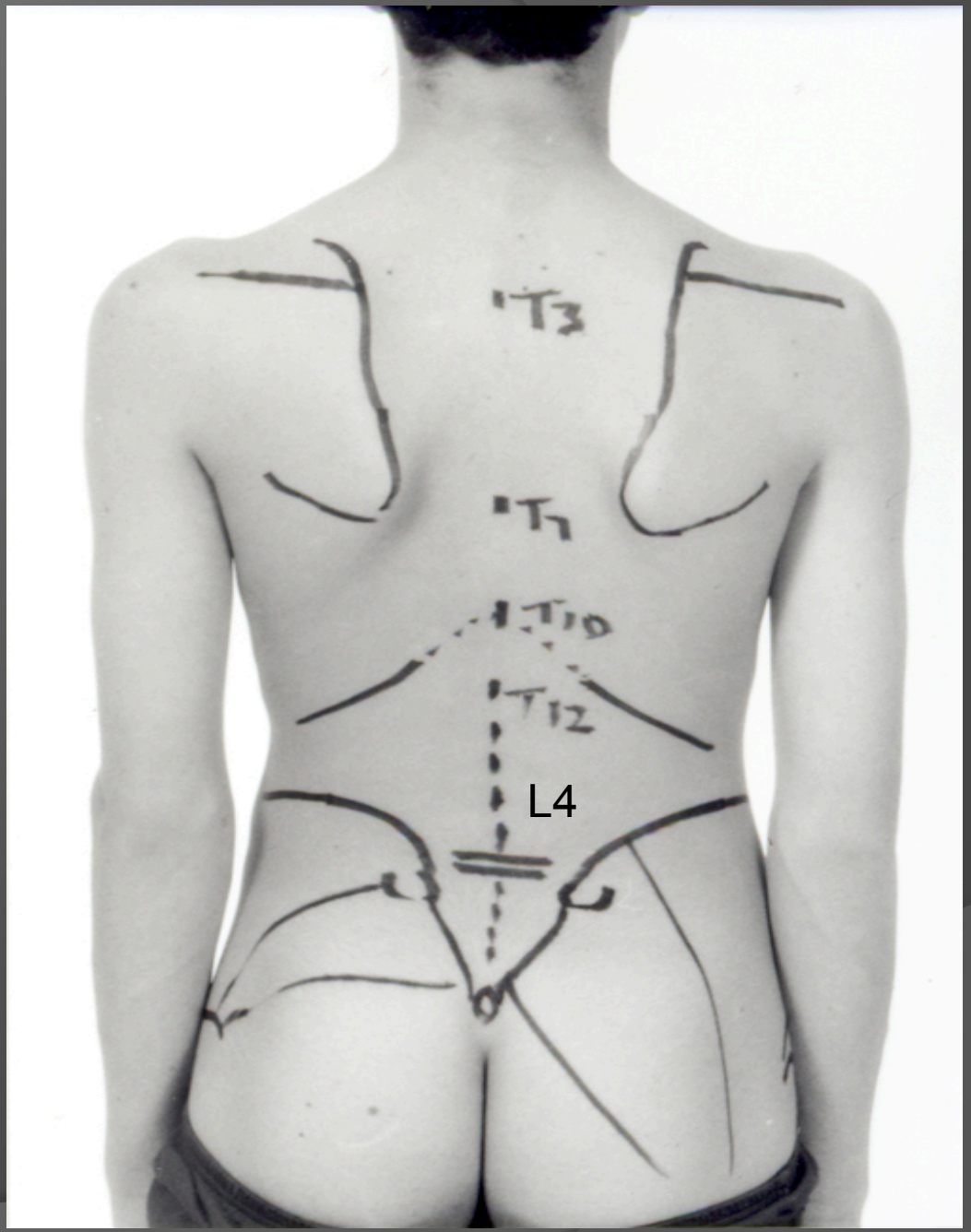


T12 spinous process

Lumbar erector spinae muscles.

S1 spinous process

SURFACE ANATOMY



Low back pain terminology

- **Sacral spinal pain**

S1 spinous process

PSIS and PSIS

Sacrococcygeal joint

What is not low back pain?

Flank / loin pain

- Visceral

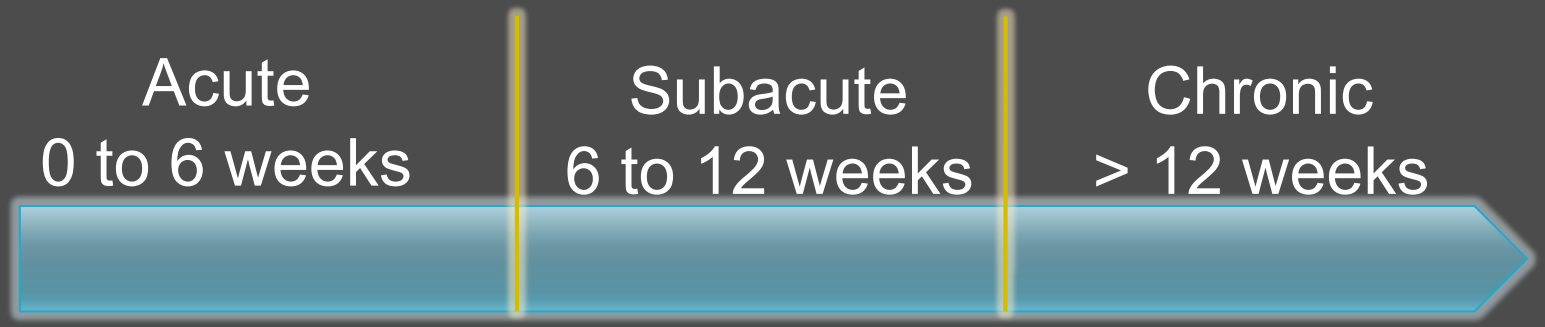
Gluteal pain

- Local causes

“Sciatica” (radicular pain)

- Not LBP
- Lower limb pain
- Causes are different
- Mechanisms of pain are different

Acute LBP



Prevalence, natural history

- Acute LBP (ALBP) is common
- In any given year, 1/3 of adults affected
- 1/3 of these seek treatment
- Most acute LBP resolves within 2 weeks
- 70-90% recover fully <3 months
- Relapse is common
- Up to 10% develop chronic pain & disability

Assessment

Differentiate:

1. Serious pathology (red flag conditions)
2. Radicular nerve involvement
3. Non-specific back pain

Red flag conditions

- **Fracture**

  Major trauma

  Minor trauma associated with osteoporosis

  age >50

  corticosteroid use

Red flag conditions

- **Cancer**

Weight loss	LR	2.5
Age > 50yo		2.7
PAST HISTORY		15.5
Failure to improve		3.1
Prolonged pain		2.6
ESR >50		15.3
Haematocrit <30%		15
Nocturnal pain		

Red flag conditions

- **Infection**

  Fever LR 13-41

  History of: skin infection
  iv catheters
  UTI

Red flag conditions

- **Ankylosing spondylitis**

Chest expansion <2.5cm		LR	9.0
4 out of 5 of:	morning stiffness	LR	6.3
	improved with exercise		
	onset <40 yo		
	slow onset		
	duration >3 months		

History

- Onset and duration of pain
- Site and radiation
- Precipitating and relieving factors
- Severity and disability
- Neurological deficit
- Symptoms of systemic illness

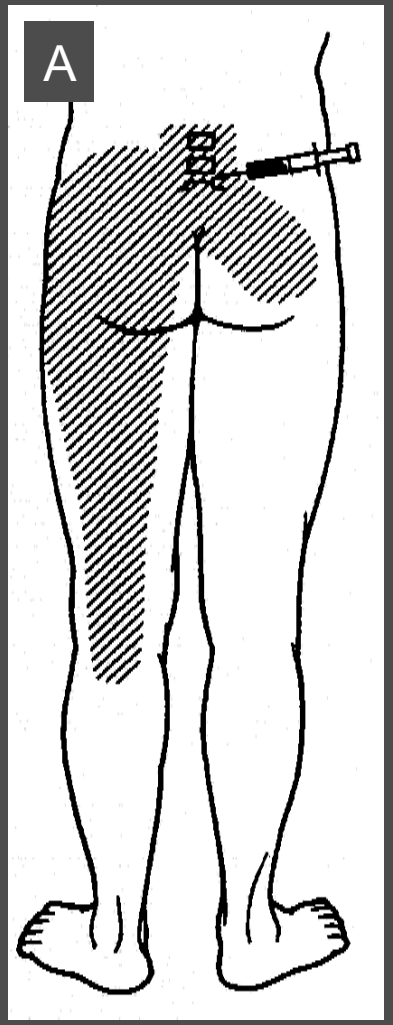
Onset and duration

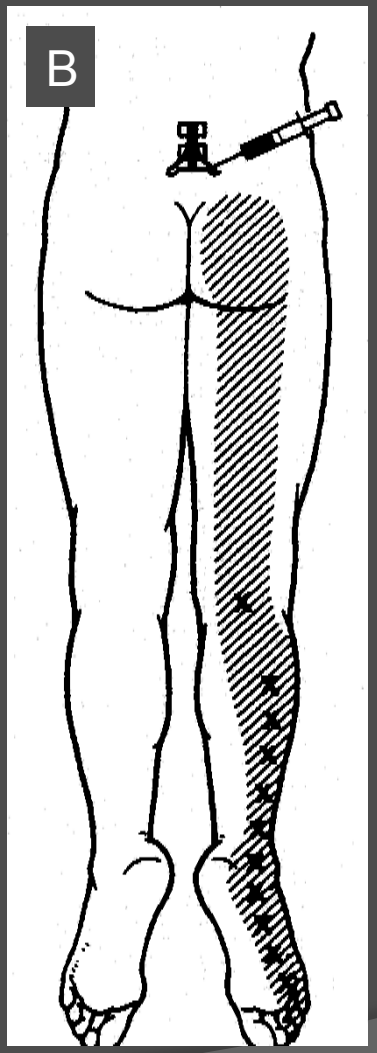
- Pain triggered by specific event
- Spontaneous onset
- Onset during normal activity
- Significant trauma ?fracture

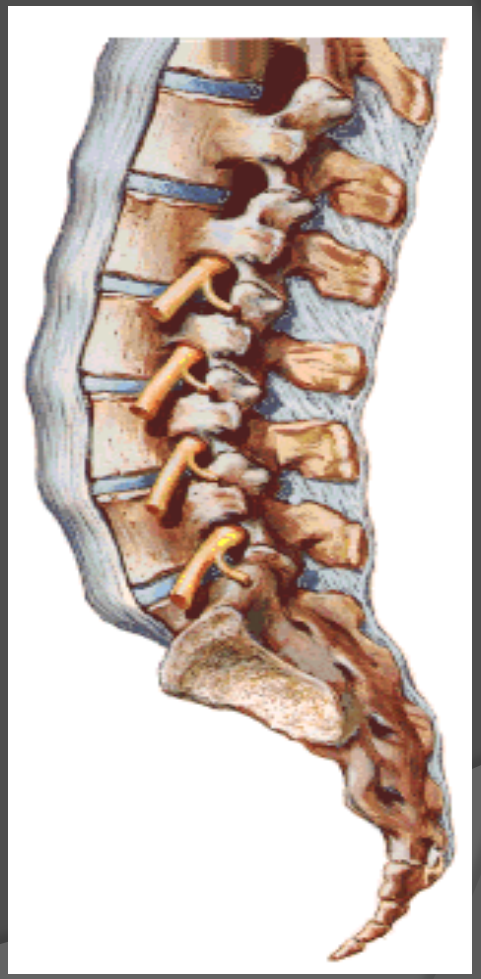
Site of pain and radiation

- Back pain only
- With leg pain
  - somatic referred pain
  - radicular pain
  - determine dominant pain, LBP or leg pain
- Leg pain dominant
  - Probably radicular

(somatic) referred or radicular pain?





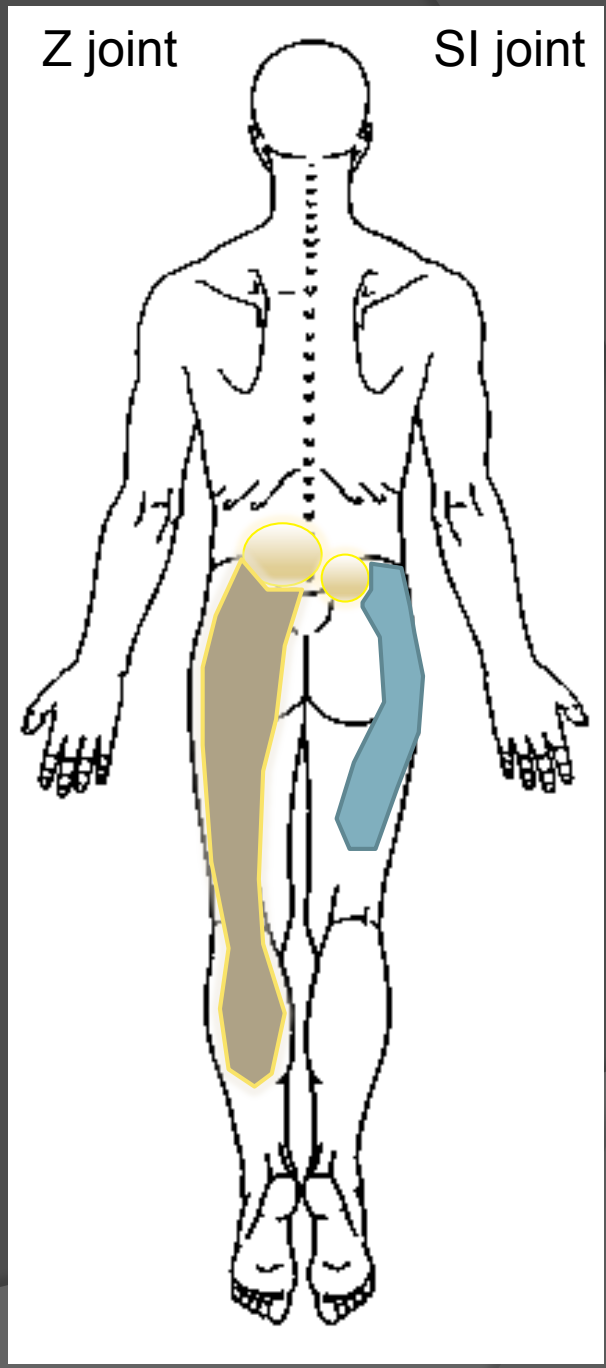


Somatic pain

- Pain evoked by noxious stimulation of nerve endings innervating spinal structures:
  - discs
  - zygapophysial/facet joints
  - sacroiliac joints
  - dura
  - ligaments
  - muscles
- Pain can be felt **locally** and/or **referred**

Referred pain

- Stimulation of peripheral endings of nociceptive afferent fibers
- Pain perceived in a region innervated by nerves other than the ones that innervate the actual source of pain



Radicular pain

Neurogenic pain

Stimulation or irritation of the nerve roots or dorsal root ganglion of a spinal nerve

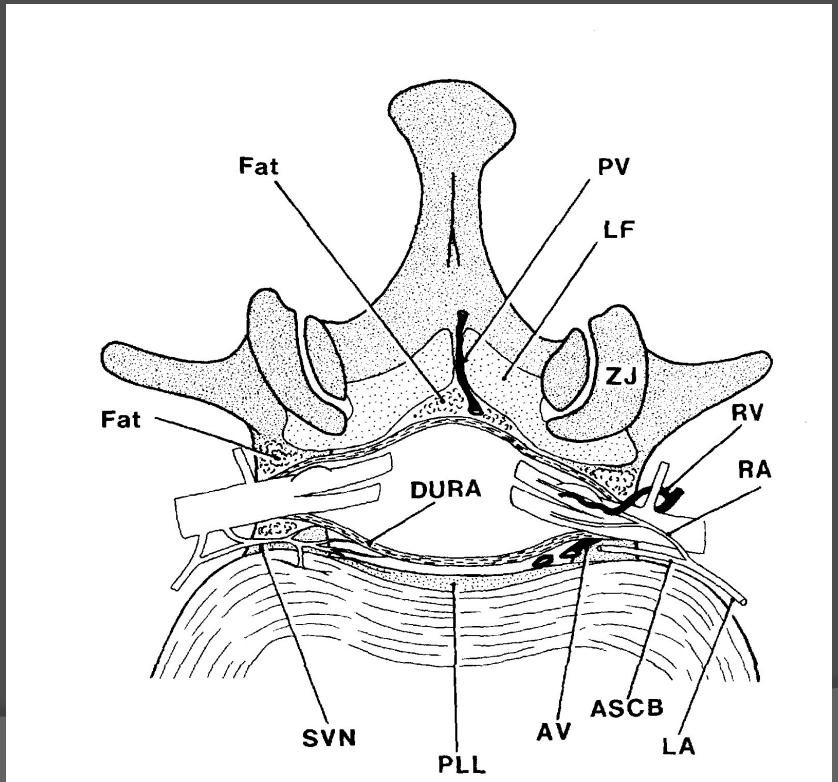
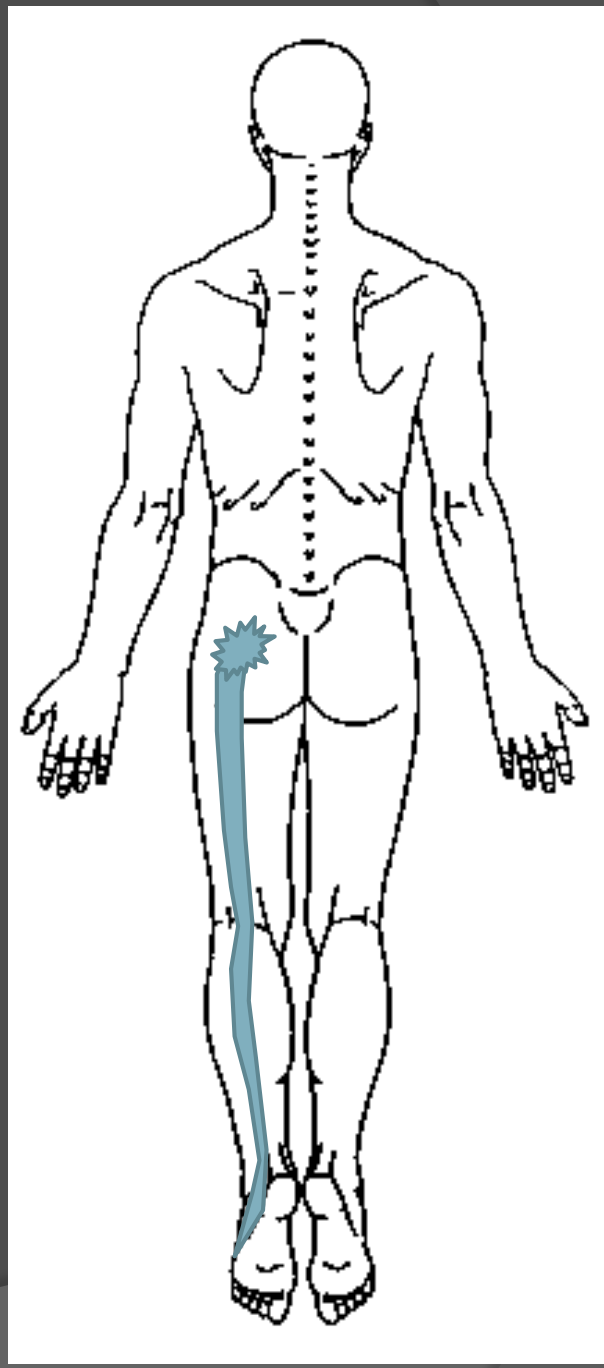


Figure 10.4 A transverse section through the vertebral canal and intervertebral foramina to demonstrate the



Radicular pain Vs Referred pain

FEATURE	RADICULAR PAIN	SOMATIC REFERRED PAIN
Distribution	entire length of lower limb, but below knee > above knee.	Anywhere in lower limb, but Proximal > distal.
Pattern	narrow band, travelling quasi segmental but not related to dermatomes; not distinguishable by segment	wide area, Relatively fixed in location quasi segmental but not dermatomal; not distinguishable by segment. Boundaries difficult to define, but Centroid identifiable.
Quality	shooting, lancinating, perhaps like an electric shock	dull, aching, Perhaps like an expanding pressure
Depth	deep as well as superficial.	deep only, lacks any cutaneous quality

Table LR.2.10. The distinguishing features of lumbar radicular pain and somatic referred pain.

Sacroiliac joint pain

- Consider if:
  - pain entirely caudal to L5
  - normal neurology
  - sacroiliac provocation tests
    - FABER test (Flexion ABduction External Rotation)
    - POSH test (POsterior SHeer) = thigh thrust test
    - Laslett et al (Australian J of Physiotherapy 2003 Vol 49)

      Distraction test
      Thigh thrust test
      Gaenslen's test
      Compression test
      Sacral thrust test
      (3 or more positive: kappa 0.52-0.88; LR 4-6)

  (chronic cases: consider if XR normal & MRI normal discs)

Precipitating & relieving factors

- Mechanical LBP
  - better at rest
  - worse with activity
- Inflammatory spondyloarthropathy
  - pain at rest
  - better with activity
- Disc disorders
  - worse with flexion e.g. prolonged sitting
- Spinal stenosis & facet joint disorders
  - worse with extension

Severity & disability

- VAS (Visual Analogue Scale)
  NRS (Numerical Rating Scale)
- Effect on ADLs

  e.g. sleeping, sitting, standing, walking, driving, work, sports
- Sleep – nocturnal pain ?red flag
- Functional/disability scale – short OMPSQ

  (short Orebro Musculoskeletal Pain Screening Questionnaire)

Neurological deficit

Radiculopathy refers to neurological deficit with nerve root lesions (is not synonymous with radicular pain)

i.e. leg numbness

weakness

impaired reflexes

tends to be associated with radicular pain

Neurological deficit

Cauda equina syndrome

result of compression of the neural elements below the end of the spinal cord (L1-2 level)

causing:
- severe LBP
- bilateral leg symptoms: pain, weakness impairing gait →paralysis, sensory changes
- Saddle anaesthesia, perineal numbness
- Urinary dysfunction: retention, difficulty starting/ stopping stream, overflow incontinence
- Reduced bladder and urethral sensation
- Bowel disturbance: incontinence, constipation, reduced anal tone on PR
- Sexual dysfunction

Refer urgently to hospital for assessment, MRI, surgical spinal decompression, to prevent permanent neurological damage

Symptoms of systemic illness

Loss of appetite

Weight loss

Fever, night sweats

Fatigue

Examination

1. To identify serious pathology
2. Radicular features
3. Non-specific LBP

Pain behaviour, posture, gait

ROM – lumbar, SLR, femoral nerve stretch, hips

Neurological

Tenderness

Sacroiliac joint pain

- Pain with normal pelvic alignment

  due to: sprain
  sacroiliiitis
  fracture, tumour

- Pain with pelvic malalignment/SIJ dysfunction

  due to: sprain

Pelvic malalignment/SIJ dysfunction

- height of iliac crests, PSIS, ASIS
- leg length difference (LLD) (apparent LLD vs true LLD)
  - supine
  - long-sitting position
- asymmetry pelvic landmarks:
  - PSIS, ASIS
  - ischial tuberosities
  - symphysis pubis
- provocation tests
- treatment – SIJ mobilisation (for anterior innominate)

Examination

Standing

observation: pain behaviour, posture, gait, spinal curvature, symmetry, iliac crests, skin folds, pelvic shift, wasting

movement: lumbar ROM

Supine

LLD, SLR, hips, SIJ stress tests

Neurological: reflexes, power, sensation

Prone

femoral nerve stretch, tenderness, gluteal muscles

Sidelying

gluteal muscles, perineal sensation, anal sphincter tone

Features of radicular irritation

- Leg pain > back pain
- Narrow band of pain in lower leg or foot (in segmental NOT dermatomal distribution)
- Numbness and paraesthesia in dermatomal distribution
- Reduced leg reflexes
- Positive SLR (L4-S1 roots)
- Positive FNS (L2-L4 roots)
- Segmental weakness
- Impulse pain – coughing, sneezing

Investigations

- Red flags

  major trauma or minor trauma with osteoporosis -> x-ray

  Unrelenting pain, worse at night
  Age <20 years, or new back pain age >50 years
  History of cancer
  Systemic symptoms eg fever, weight loss
  IV drug use
  Immunosuppression or steroids

  →x-ray, FBC, CRP, alk phos, Calcium, PSA, referral

  Sphincter disturbance
  Gait disturbance, progressive neurological deficit
  Saddle anaesthesia

  →?cauda equina →refer hospital for emergency assessment

Investigations

- Non-serious conditions
  - = 95% of of LBP
  - non-specific LBP
- X-ray
  - most non-specific LBP does not require x-ray
  - false positive findings
  - consider radiation exposure
  - if no improvement after 4 weeks

Investigations

- MRI

  non-specific LBP does not require MRI

  for: unresolving radicular pain

  chronic LBP

FEW CHANGES IN MANAGEMENT RECOMMENDATIONS OVER TIME

AN UPDATED OVERVIEW OF CLINICAL GUIDELINES FOR THE MANAGEMENT OF NON-SPECIFIC LOW BACK PAIN IN PRIMARY CARE

BART W. KOES, MAURITS VAN TULDER, CHUNG-WEI CHRISTINE LIN, LUCIANA G. MACEDO, JAMES MCAULEY, CHRIS MAHER

EUR SPINE J (2010) 19:2075–2094

Overall the recommendations in the current guidelines regarding diagnosis and treatment of low back pain did not change substantially compared to the guidelines issued about a decade ago.

May illustrate the lack of new evidence showing better results with new diagnostic and therapeutic approaches

and/or new evidence showing the inefficacy of existing interventions.

A less nihilistic view could be that already a decade ago the most valid recommendations for the management of low back pain were identified.

much more effort should now be given to implementation of guidelines.

In the past decade many countries have issued (updated) clinical guidelines for the management of low back pain. In general these guidelines provide similar advice on the management of low back pain.

Management

- Address fears

  fear about pain can be disabling

  contributes to disability and chronicity

- Determine beliefs and attitudes regarding condition and pain

  Feelings: what are your concerns?

  Ideas: what do you understand is the cause of your back pain?

  Function: how is it affecting you?

  Expectations: what do you think is needed to help?

Yellow flags

- Factors associated with poorer prognosis
- Belief that back pain is harmful and potentially severely disabling
  "I hurt", "I can't move", "I can't work" and "I'm scared"
- Avoiding behaviours for fear of damaging back
- PH chronic pain, somatisation, preoccupation with health
- Negative attitudes and outlook; tendency towards lowered mood and social withdrawal
- Expectation that passive treatments will help more than active participation

Management

- Provide reassurance
  - offer biological model of the pain
    - e.g. sprained ligaments, muscles, disc; takes days to weeks to heal; gradual return to activity
  - no sign of serious disease
  - most acute LBP gets better
    - most resolves < 2weeks
    - 70-90% < 3 months
    - relapses possible; overall recovery

Management

pain occurring with movement does not indicate ongoing damage; therefore light activity not harmful

muscle tension and spasm can be relieved with stretching and light activity

Management

- Encourage activity
  - stay active despite pain rather than waiting for pain to settle completely
  - continue normal activities if possible
  - continue work:
    - speeds recovery, reduces recurrences
    - selected duties rather than off work
    - if unfit for work, RTW ASAP; do not wait until pain-free
  - teach simple stretches or refer physiotherapy for exercises
  - walking, swimming/aquajogging
  - bedrest is harmful; delays recovery

Management

- Analgesia (lacks evidence;mainly empirical)
  - provide adequate analgesia to assist mobilisation
  - paracetamol, 1g four times daily
  - Add: NSAID eg ibuprofen 400mg qid
  - Add: codeine 30-60mg 4 hourly, or
    - tramadol 50mg 6 hourly
    - laxatives
  - ?muscle relaxants
  - tricyclics not indicated
- Heat (some evidence for heatwraps)
- Manual therapy – to encourage activity

Management

- Review regularly (few days to weekly) to:
  - develop relationship with patient
  - monitor progress
  - reinforce active participation
  - reassure
  - assess for red/yellow flags

- After 4 to 6 weeks:
  - if not resolving
    - x-ray, bloods
    - refer for specialist assessment

Radicular pain

- 50% resolve < 4weeks
- 90% start to improve < 6weeks, resolve <12 weeks
- no need for x-rays
- adequate analgesia

- if no improvement over 4-6 weeks
  →x-ray
  refer specialist
    assessment
    MRI
    TFI (TransForaminal Injection of steroid)

Chronic Low back pain

Validated sources of CLBP:

- lumbar intervertebral discs - prevalence 40%
- zygapophysial joints (Z joints) = facet joints

  10 -15% younger injured workers; 40% older non-injured population
- Sacroiliac joints - 15 -20%

Procedures for investigation of chronic LBP
(ISIS protocol)

- provocation discography
- zygapophysial (facet) joint blocks
- sacroiliac joint blocks

Chronic Low back pain

- Intervertebral disc
  - diagnosis
  - rehabilitation exercises
  - activity modification
  - surgery
- Facet joint
  - intra-articular injections
  - medial branch nerve blocks ->radiofrequency neurotomy
- Sacroiliac joint
  - pelvic mobilisation
  - intra-articular injections
- Chronic Pain Syndrome/centrally mediated pain/central sensitisation
  - explanation
  - medication
  - exercise
  - psychological management

Key points

- Acute LBP is common; most patients recover in 3 months
- Serious causes are rare; excluded with careful history & examination
- No imaging if no red flags
- Exact diagnosis often not possible, nor needed
- Beliefs, attitudes and fear about pain contribute to chronicity & should be addressed
- Management includes reassurance, education & staying active
- Adequate analgesia

THE END

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