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LOW BACKACHE & SCIATICA



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Definitions

- *Low back pain (LBA)*: does not radiate past the knee.
- *Sciatica* : low back pain radiation past the knee.
- *Acute* when symptoms < 6 weeks.
- *Chronic* when symptoms > 6 weeks.



Pain severity:

- Scale of 0 to 10, with 10 indicating most severe pain (**visual analogue scale, VAS**).

	Scale	
No pain	0	
	1	
Mild, annoying pain	2	
	3	
Nagging, uncomfortable, troublesome pain	4	
	5	
Distressing, miserable pain	6	
	7	
Intense, dreadful, horrible pain	8	
	9	
Worst possible, unbearable, excruciating pain	10	



Types of low back pain

Spondylogenic:

Pain derived from spinal column and associated structures. It increases by general or specific activities, relieved by rest.

Neurogenic pain:

Tension, irritation or compression of nerve routes leading to referral of pain symptoms down one or both legs. It could be due to prolapsed disc or an osteophyte. However tumors of spinal dura and nerve roots, usually upper lumbar spine, may mimic the picture.





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Viscerogenic back pain:

Back pain due to disorders of the kidney, pelvic viscera etc. The patient will have associated symptoms of the organ involved. These pains are usually neither aggravated by activity, nor relieved by rest. Patient with visceral pain will writhe around to get relief whereas the one with spondylogenic pain will lie still.

Vascular back pain:

Abdomen aortic aneurysm or peripheral vascular disease (PVD) may give rise to back ache. Aortic aneurysm presents as a deep seated boring pain unrelated to activity.

Peripheral vascular pain is aggravated by walking but relieved by standing still (pain in the calf – vascular claudication).



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Spinal canal stenosis may mimic vascular pain however the distinguishing feature is that in spinal stenosis the pain is not relieved by standing still. The patient needs to sit down or slouch forwards (neurogenic claudication).

Psychogenic back pain:

Back pain in patients with emotional overtones.
However there may be concomitant organic disease.



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Specialist referral in low back ache (for walk in patients):

- Fever 38° C or 100.4°F for greater than 48 hours.
- Unrelenting night pain.
- Pain with distal (below the knee) with numbness or weakness of leg(s).
- Loss of bowel or bladder control (retention or incontinence).
- Progressive neurological deficit.
- History of significant injury to the back / exertion.
- History of cancer.
- Unexplained weight loss (greater than 10 pounds in 6 months).
- History of back symptoms – has been seen before, at least once
- chronic back pain (> 6 weeks)

Management of low backache by **primary care provider**, if none of the above is true.



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Differential diagnosis of PIVD(Prolapsed intervertebral disc):

Non-mechanical causes of spondylogenic low back pain -

- 1. Infection** – Bone, disc, epidural space.
- 2. Neoplasm** – Primary (myeloma, ostiod osteoma etc), secondaries.
- 3. Inflammatory*** – Spondyloarthritis (e.g ankylosing spondylitis, rheumatoid arthritis).
- 4. Metabolic bone disease** (e.g. osteoporosis, Paget's disease).





Extra spinal causes of back-pain –

1. Peripheral vascular disease.
2. Gynaecological conditions causing sacral plexus pressure/ Pelvic tumors.
3. Osteoarthritis hip.
4. Sacroiliac joint disease/ lesions in sacrum or ilium.
5. Fracture of ischial tuberosity
6. Peripheral nerve lesion – neuropathy, Herpes zoster, Sciatic nerve entrapment (piriformis syndrome).





****Inflammatory pain:***

- *Early morning stiffness > 30 min.*
- *Constitutional symptoms.*
- *Symptoms worse at night.*





Primary care evaluation and Imaging indications:

This includes history and physical consideration.

A. Patient History includes:

- Any triggering factor.
Fall/ pulling or pushing weight/ unaccustomed strain
- Involvement of other joints or other parts of the spine





- **Cancer risk** factors:
 - Age > 50.
 - History of cancer.
 - Unexplained weight loss.
 - Failure to improve after 4 to 6 weeks of conservative LBP therapy.

If all 4 of the above risk factors for cancer are absent then studies suggest





- ***Spinal infection (pyogenic)*** likelihood increases with :
 - IV drug use.
 - Urinary infection.

- ***Tubercular infection:***
 - Poor socioeconomic/ immune status.
 - History of weight loss.
 - History of tuberculosis elsewhere in the body/ family.
 - History of generalized malaise/ loss of appetite/ low grade fever.





- ***Cauda equina syndrome:***

- Urinary retention (if no urinary retention then the likelihood of Cauda Equina is less than 1 in 10,000).
- Rectal Pain.
- Saddle anaesthesia,/ paralysis of sphincters.
- Unilateral or bilateral sciatica, sensory and motor deficits, and abnormal straight leg raising.

- ***Neurologic involvement:***

- Complaint of numbness or weakness in the legs.
- Sciatica with radiation past the knee (increases the likelihood of a true radiculopathy; rather than pain radiating only to the posterior thigh).





- ***Psychosocial history*** review:
 - History of failed previous treatments.
 - Substance abuse.

Factors such as fear, financial problems, anger, depression, job dissatisfaction, family problems or stress can contribute to prolonged disability.

May consider early referral to specialist for pain:

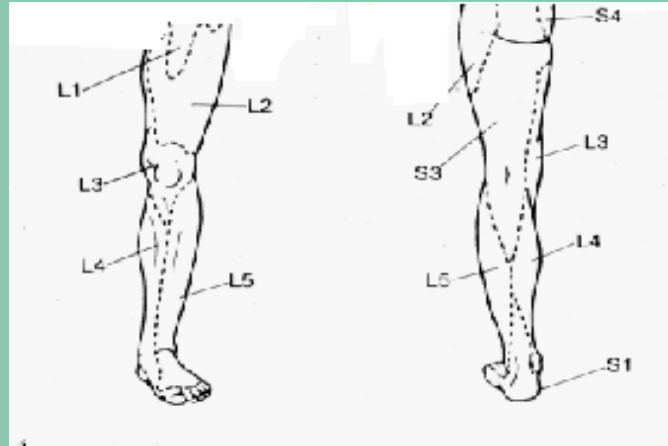
- *Patient presents with severe incapacitating/ disabling back or leg pain; or*
- *Significant limitation of functional or job activities.*



B. Physical examination should document:

- Palpation for spinal tenderness.
- Neuromuscular screening
(Significant or progressive neuro-motor deficit requires specialist consultation.)

Testing emphasis should be on ankle dorsiflexion (**L5**), plantar flexion (**S1**) and great toe dorsiflexion (**L4**) strength, ankle reflexes (**S1**), knee reflexes (**L4**) and the sensory exam with pin prick sensation in the medial, dorsal and lateral aspects of the foot and leg.



Straight leg raise (SLR) should be assessed bilaterally to evaluate for disc herniation.

- Positive SLR is defined as pain in the posterior leg that radiates below the knee with the hip flexed 60° or less and the patient lying supine, and is suggestive of disc herniation.
- Negative SLR rules out surgically significant disc herniation in 95% of cases.

Femoral Stretch Test , for higher lumbar lesion elicits anterior thigh pain





Lab findings:

Consider raised erythrocyte sedimentation rate as suspicion of cancer or infection.

Confirmatory imaging:

Lumbar Spine X-ray (*AP and Lat views*)

Plain X-rays are of limited use in the diagnosis as they do not show disc herniation or other intraspinal lesions, but may be warranted when:

- Over 50-years-old (increased risk of malignancy, compression fracture).
- Pain at rest (increased incidence of clinically significant pathology).





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- History of cancer (rule out metastatic disease).
- Fever above 38°C (100.4°F) for greater than 48 hours.
- Neuromotor deficit.
- Serious accident or injury (fall from heights, blunt trauma, motor vehicle accident – this does not include twisting or lifting injury unless other risk factors, i.e. history of osteoporosis are present).
- Failure to respond to 4-6 weeks of conservative therapy.
- Drug or alcohol abuse (increased incidence of osteomyelitis, trauma, fracture).
- Clinical suspicion of ankylosing spondylitis.

Oblique x-ray projection views on routine screening are rarely indicated, add only minimal information in a small percentage of cases, and more than double exposure to radiation. Oblique view x-rays are, therefore, not recommended for suspected spondylitis.



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Lumbar Spine CT or MRI imaging Indications

Currently, the most useful test for diagnosing a herniated lumbar disc is MRI. CT scan is usually combined with myelography.

The indications include:

- Cauda Equina Syndrome, especially with urine retention.
- Suspected discitis, epidural abscess, osteomyelitis.
- Suspected malignancy
- Previous surgery for lumbar spine





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Treatment program:

- It is important to know and convey to the patient that the pain in the lower back is very common. It can be related to certain activities, poor posture, physical stress, or psychological stress. 90% of back pain patients improve within 4-6 weeks.
- Consider telling the patient that more than half of the people who recover from a first episode of acute low back symptoms will have another episode within a few years. Unless the back symptoms are very different from the first episode or there is a new medical condition, improvement can be expected from each episode.
- When pain or weakness lasts longer than 6 weeks, more specialized treatment (s) may be needed. For this reason it is important for the patient to keep the doctor informed of their progress.



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- Other etiologies: pregnancy labour, menstrual period, urinary tract problems and stomach upset with nausea, vomiting or diarrhoea may mimic LBA due to spine.
- Carefully introduce activities back into your day as you begin to recover from the worst of your back pain episode. Gradual stretches and regular walking are good ways to get back into action.
- Learn safe back exercises like modified sit-ups and low back stretches and make them a regular part of your lifestyle.
- Take time to relax. Tension will only make your back feel worse.

When patients are improving they should continue self-care as outlined to the patient. No appointment is needed at this time. Should call back if questions arise or condition changes.





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Instruct patient to call back if:

- No improvement with home management.
- Significant pain persists beyond a week.
- Symptoms persists, worsen or progress.



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Consult or Refer:.

Refer to appropriate medical speciality for serious underlying conditions, e.g. cancer, or other systemic illness. For conditions such a Cauda Equina syndrome or significant/ progressive neurologic deficit consult or refer to the orthopaedician or neurosurgeon.

Orthopaedics or Neurosurgery Consult:.

- Cauda Equina Syndrome.
- Progressive or significant neuromotor deficit (e.g., foot drop or functional muscle weakness such as hip flexion weakness, quadriceps weakness).
- Persistent neuromotor deficit > 4-6 weeks of conservative treatment (does into include minor sensory changes or reflex changes).
- Chronic sciatica with positive SLR > 4-6 weeks.

Neurology (limited special indications)

- Atypical chronic leg pain (negative SLR).



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Conservative Treatment

- Reassure patient that 70% of acute patients will improve within 2 weeks and 90% of acute patients will improve within 4 weeks.
- Rest –
 - (a) **Bed rest** (supine position) with pillow under the knees/ Semi fowler position for 2-3 days.
 - (b) Modification of activities: No lifting of weights or bending forwards.
 - (c) **Braces** – Reminds the patients to be cautious, increases intra-abdominal pressure, which in turn supports the lumbar spine. Simple abdominal corset may be used temporarily. Discontinue as soon as possible as it encourages muscle wasting.





(d) Traction is not recommended anymore as a means of treatment. However may help restricting the patient to the bed and to relieve muscle spasm. Commonly used techniques are :

- (1) Continuous traction in the hospital
- (2) Intermittent in the physical therapy

The amount of weight required to affect the disc space is at least 25% of the body weight. It is important to add counter-traction.





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- **Analgesics** – Non-narcotics & Narcotics.
 - o Non-narcotics: acetaminophen, ibuprofen, diclofenac, piroxicam, etoricoxib etc.
 - o Narcotic analgesics. Codeine, propoxyphene, tramadol, morphine.
- Muscle relaxants are sometimes helpful for a few days but can cause drowsiness.
- Antidepressants:
 - o Are helpful but need to be mentioned for side effects and drug interactions.
- Cold and hot therapies – ice packs, superficial heat (packs/ infra red), deep (Ultrasonics and SWD).



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- Massage & manipulation.
 - o Massage has probably a placebo effect.
 - o Manipulation is effective in acute LBA, however needs a skilled therapist. Overenthusiastic manipulation may cause – massive disc herniation/ cauda-equina syndrome.
- Physical therapy
 - o Graduated – Back stretching and muscle strengthening exercises.
 - o TENS – Therotically close gates to CNS. The concept is under scrutiny.
- Back School

Educating the patient about the anatomy/ pathoanatomy and the theory behind treatment proposals leads to better outcome.





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- **Injections** – Epidural cortisone*- It is a combination of a long –acting steroid with an epidural anaesthetic ,is a method of symptomatic treatment of leg and back pain from discogenic diseases. Fluoroscopy control enhanced success rate. Not proved to be effective in the treatment of acute radicular pain – useful in the management of chronic pain of spinal stenosis. (* To be done by a trained specialist)

Minimum of 6 weeks of conservative treatment is recommended for lumbar degenerative conditions.



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Activity Recommendations to prevent recurrence:

Patients with acute low back pain should be advised to stay active and continue ordinary daily activity within the limits permitted by the pain. For patients with chronic back pain, there is evidence that exercise therapy is effective.

- A gradual return to normal activities is more effective and leads to more rapid improvement.
- Continue routine activity while paying attention to correct posture.
- Patients with acute low back problems may be more comfortable if they temporarily limit or avoid specific activities known to increase mechanical stress on the spine, especially prolonged unsupported sitting, heavy lifting and bending or twisting the back especially while lifting.



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- Low stress aerobic exercise can prevent debilitation due to inactivity during the first month of symptoms and thereafter may help to return patients to the highest level of functioning appropriate to their circumstances.
- Aerobic (endurance) programs, which minimally stress the back (walking, biking, or swimming), can be started during the first 2 weeks for most patients with acute low back problems.
- Conditioning exercise for trunk muscles (especially back extensors) gradually increased, are helpful for patients with acute low back problems, especially if symptoms persist. During the first 2 weeks these exercises may aggravate the symptoms since they mechanically stress the back more than endurance exercise. These exercises should not be forced in the face of increased pain.



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Surgical disc removal*- Indications for Surgery

Mandatory and Urgent indication-

- Cauda Equina syndrome with neurological involvement.

Elective indication-

- Failure of conservative treatment, trial of at least six weeks.
- Progressive or severe neuro-motor deficit.
- Persistent neuro-motor deficit > 4-6 weeks of conservative treatment
- (does not include minor sensory change or reflex changes)
- Chronic Sciatica with positive SLR 4-6 weeks

**Disc surgery is not a cure, only provides symptomatic relief of leg pain, it does not restore the normal state*





Summary

Degenerative disease of the spine is the commonest cause of back and leg pain however a gamut of spinal and non-spinal causes can mimic the symptoms and have to be ruled out.

Because 70% or more of acute patients with discogenic pain improve by 2 weeks, a conservative treatment approach is recommended. Low back pain patients who are not improving or who experience significant limitation of daily activity at home or work should contact within 1 to 3 weeks of the initial evaluation. Patients who are improving should continue home self-care.





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Consider referral to the specialist

Consider referral to a trained spine therapy professional.

Indications for referral include:

- *Failure to make improvement with conservative care after 2 weeks.*
- *Severe incapacitating/ disabling back or leg pain.*
- *Significant limitation of functional or job activities.*
- *Appearance of neurological symptoms.*

The professional's treatment plan should include both education and exercise. The treatment plan may include modalities, if necessary, to enable an individual to carry an exercise program and self care.



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Passive treatments helps an individual towards independence in exercise and self care. Active treatment such as exercise must be introduced within a week of initiating passive treatments.

Within 3-4 weekly visits the patient must display documented improvement in order to continue therapy. Continued improvement must be documented for continued therapy. Typically no more than 4-6 visits are needed.

Surgery is rarely indicated essential if Cauda Equina Syndrome or else when conservative treatment fails



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Thank You



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