

LOW BACK PAIN DUE TO LUMBAR SPONDYLOSIS AND DISC HERNIATION: A CASE REPORT

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Abstract: *Low back pain (LBP) remains one of the most prevalent musculoskeletal complaints worldwide, especially among individuals with physically demanding activities. This case report discusses a 51-year-old woman who presented with five months of low back pain radiating to both legs. The symptoms intensified during prolonged sitting or standing and were relieved in a supine position. Her history of frequent heavy lifting was considered a contributing factor. Clinical findings were unremarkable for neurological deficits. Lumbosacral radiography demonstrated anterior osteophyte formation from L1 to L5 and narrowing of the intervertebral space at L5–S1, suggestive of lumbar spondylosis and suspected herniated nucleus pulposus. The patient received conservative treatment, including NSAIDs, muscle relaxants, and neurotropic agents, alongside physiotherapy and postural education. Early diagnosis and interdisciplinary management of chronic LBP are crucial in reducing the risk of long-term functional impairment.*

Keywords: *Low Back Pain, Lumbar Spondylosis, Herniated Nucleus Pulposus.*

A. Introduction

Low back pain (LBP) refers to discomfort felt in the lower back region. It is not classified as a disease or a definitive diagnosis, but rather a clinical syndrome describing pain that originates from anatomical structures in the lumbar area. The duration and intensity of symptoms may vary, and the etiology can be multifactorial. LBP may result from degenerative changes, muscular strain, intervertebral disc abnormalities, facet joint dysfunction, or involvement of other spinal support structures.¹

Globally, LBP remains a prevalent condition with significant socioeconomic implications. In France, the prevalence among healthcare workers ranges from 15% to 45%. In the United States, it affects approximately 13.1% of adults aged 20 to 69, while in Italy, the estimated prevalence in the general population is 5.91%. The incidence has doubled over the past decade and continues to rise, particularly among aging populations, affecting both genders and all ethnic groups. In Indonesia, musculoskeletal disorders—including LBP—affect 11.9% of the population based on clinical diagnoses, and up to 24.7% when based on self-reported symptoms. Notably, the highest prevalence is observed between the ages of 35 and 55.^{2,3,4}

Several contributing factors have been identified in the development of LBP, including advanced age (over 35 years), smoking, prolonged occupational exposure (5–10 years), poor ergonomic posture, obesity, and a positive family history of musculoskeletal disorders. Other individual factors such as body mass index (BMI), height, physical activity levels, duration of work, and workload intensity have also been correlated with LBP onset.^{1,5,6}

Given its growing prevalence and the functional limitations it can impose, there is a clear need to enhance clinical awareness and understanding of LBP through detailed case documentation. The purpose of this study is to present a clinical case of chronic low back pain in a 51-year-old female patient, highlighting the diagnostic process, contributing risk factors, and multidisciplinary management approach. By analyzing this case, the author seeks to contribute to the ongoing discussion on effective strategies for early diagnosis and intervention in LBP, particularly in patients with occupational and mechanical risk factors.

Definition of Low Back Pain (LBP). Low back pain (LBP) refers to pain localized in the lower back region. It is not considered a specific disease or a definitive diagnosis, but rather a term used to describe a pain syndrome involving anatomical structures within the lower back, with variable duration and intensity. The pain may present as localized discomfort, radicular pain, or a combination of both. Typically, it is felt in the area between the lower costal margins and the gluteal folds, encompassing the lumbar or lumbosacral region, and in some cases, it may radiate down the lower limbs and into the feet. LBP may arise from a wide range of musculoskeletal conditions, psychological disturbances, or improper movement and posture.^{1,2,3}

Epidemiology of Low Back Pain (LBP). The prevalence of musculoskeletal pain, including low back pain (LBP), has reached epidemic proportions. It is estimated that approximately 80% of the population will experience LBP at least once in their lifetime.¹ In France, the prevalence of LBP among healthcare workers ranges between 15% and 45%. In the United States, LBP affects 13.1% of adults aged 20–69 years, with more than 26 million individuals aged 20–64 reportedly suffering from this condition. In the general population of Italy, the estimated prevalence is 5.91%. Over the past decade, the prevalence of LBP has nearly doubled among adults and continues to rise significantly within the aging population, affecting both men and women across all ethnic groups. In Australia, LBP is the most common musculoskeletal complaint, with approximately 3.7 million people visiting general practitioners due to lower back pain.^{2,3,4}

In Indonesia, the exact incidence of LBP remains uncertain; however, the estimated prevalence ranges from 7.6% to 37%. Nationally, musculoskeletal disorders—based on clinical diagnoses—have a prevalence of 11.9%, while self-reported symptoms or diagnoses reach 24.7%. In the province of Lampung, the prevalence of musculoskeletal disorders based on both diagnosis and symptoms is reported to be 18.9%. The highest prevalence by occupation is found among farmers, fishermen, and manual laborers, reaching 31.2%. The prevalence of LBP continues to increase and tends to peak between the ages of 35 and 55.^{1,5,6}

Anatomy and Physiology. The vertebral column is composed of 33 vertebrae, consisting of seven cervical vertebrae, twelve thoracic vertebrae, five lumbar vertebrae, five sacral vertebrae (which are fused to form the sacrum), and four coccygeal vertebrae.⁷

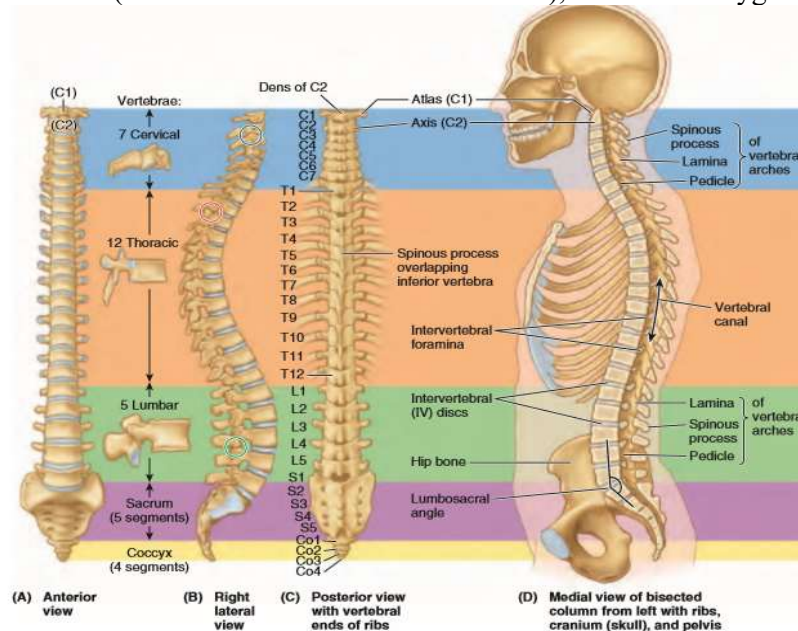
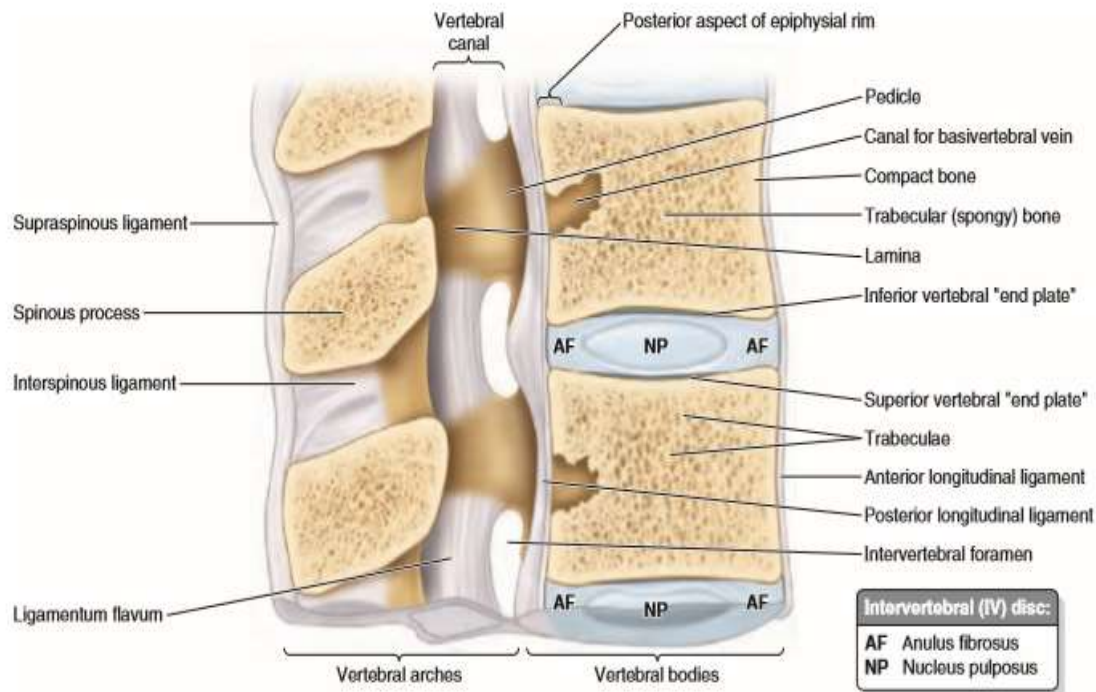


Figure 1. Anatomy of the vertebra.⁷

Vertebral Column. The vertebral column is composed of functional units consisting of anterior and posterior segments.^{7,8,9}

Anterior Segment. The anterior segment is formed by the vertebral bodies, which are interconnected by intervertebral discs. This structure is further reinforced by the posterior longitudinal ligament and the anterior longitudinal ligament. Starting from the level of L1, the posterior longitudinal ligament narrows progressively, and by the L5–S1 region, its width is reduced to about half of its original size. Consequently, this area presents a structural weakness, particularly in the posterolateral aspects of the intervertebral disc, which are not protected by the posterior longitudinal ligament.



Medial view of left halves of two adjacent hemisected vertebrae and associated IV discs

Figure 2. Medial view of the vertebra.⁷



Figure 3. Ligaments of the vertebra.⁷

Posterior Segment. The posterior segment consists of the vertebral arch, transverse processes, and spinous processes. Each vertebra is connected to the adjacent one by a pair of articulations, which are supported and stabilized by ligaments and muscles.^{7,8,9}

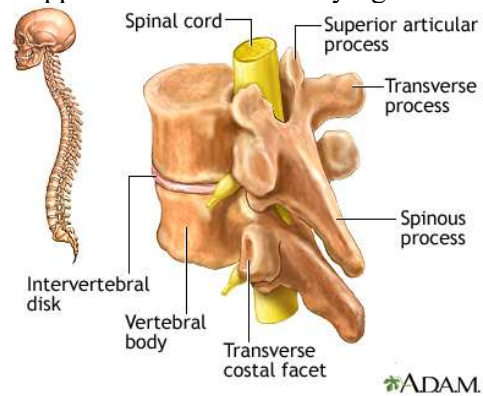


Figure 4. Anterior and Posterior Segments of the Vertebral Column.⁷

Intervertebral Discs

In addition to supporting body weight, the intervertebral discs function as shock absorbers. These discs are composed of the annulus fibrosus—a meshwork of fibroelastic fibers arranged in a barrel-like structure. The superior and inferior edges of the disc are attached to the vertebral endplates, creating a cavity between vertebrae. This space contains the nucleus pulposus, a viscous mucopolysaccharide-rich substance with high water content. The nucleus pulposus is the gelatinous inner core of the disc, made up of water, proteoglycans, and collagen. At birth, it consists of approximately 90% water. As a person ages, the discs gradually dehydrate and degenerate, resulting in the loss of disc height—one of the reasons why older adults tend to be shorter than they were in their youth.^{7,8,9} The annulus fibrosus is composed of concentric lamellae arranged at alternating oblique angles, enabling resistance to tension from multiple directions. The outer layers of the annulus contain more collagen and less proteoglycans and water compared to the inner layers. This varying composition allows the outer annular layer to function like a ligament, providing restraint to flexion, extension, rotation, and other spinal movements.^{7,8,9}

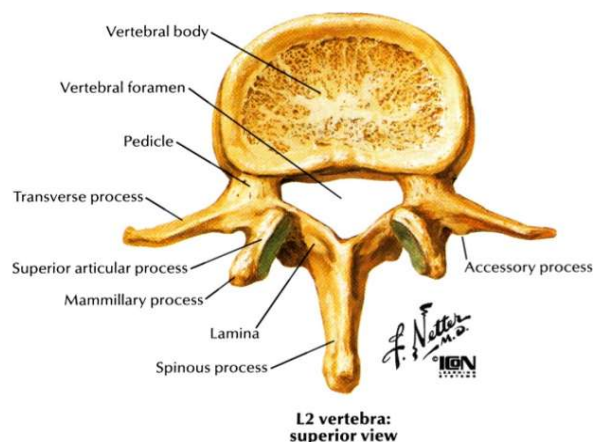


Figure 5. Intervertebral Disc.⁸

The primary function of the intervertebral disc is to act as a shock absorber, a role mainly fulfilled by the annulus rather than the nucleus. When the body experiences axial loading, it leads to an increase in intradiscal pressure, causing the nucleus to exert outward force on the annulus, thereby stretching its fibers. If the annulus becomes damaged, it may result in herniation of the nucleus pulposus.⁷

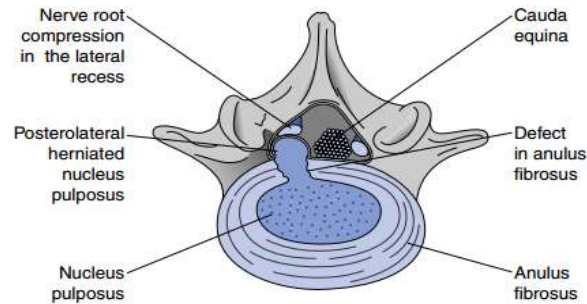


Figure 6. Posterolateral Herniation of the Intervertebral Disc.⁷

Ligaments

The lumbar vertebrae are stabilized by two primary sets of ligaments: the longitudinal and the segmental ligaments. The longitudinal ligaments are composed of anterior and posterior components, named based on their anatomical positions relative to the vertebral bodies. The anterior longitudinal ligament functions to resist extension, translation, and rotation movements, while the posterior longitudinal ligament primarily limits flexion. Ligamentous injuries most commonly occur during rotational movements, rather than with flexion or extension. Notably, the anterior longitudinal ligament is approximately twice as strong as its posterior counterpart.^{7,8,9}

The primary segmental ligament is the ligamentum flavum, a paired structure that connects adjacent laminae. This ligament is pierced during a lumbar puncture. Flexing the lumbar spine stretches the ligamentum flavum, making it more accessible and easier to penetrate with a spinal needle. Other segmental ligaments include the supraspinous, interspinous, and intertransverse ligaments. The supraspinous ligament is a strong band that joins the tips of adjacent spinous processes and serves to counteract flexion. Alongside the ligamentum flavum, it plays a key role in maintaining spinal stability and preventing excessive forward bending.^{7,8,9}

Muscles of the Lumbar Vertebrae

Lumbar spinal musculature is anatomically divided into anterior and posterior groups. The posterior muscles include the latissimus dorsi and the paraspinal group. The lumbar paraspinal muscles consist of the erector spinae (iliocostalis, longissimus, and spinalis), which serve as the primary extensors of the spine, and the deeper layer comprising the rotatores and multifidus muscles. The anterior muscles of the lumbar spine include the psoas major and quadratus lumborum. Due to the direct attachment of the psoas to the lumbar vertebrae, contraction of this muscle accentuates the normal lumbar lordosis. This action increases the mechanical load on the posterior spinal elements and may contribute to zygapophyseal joint pain.^{7,8,9}

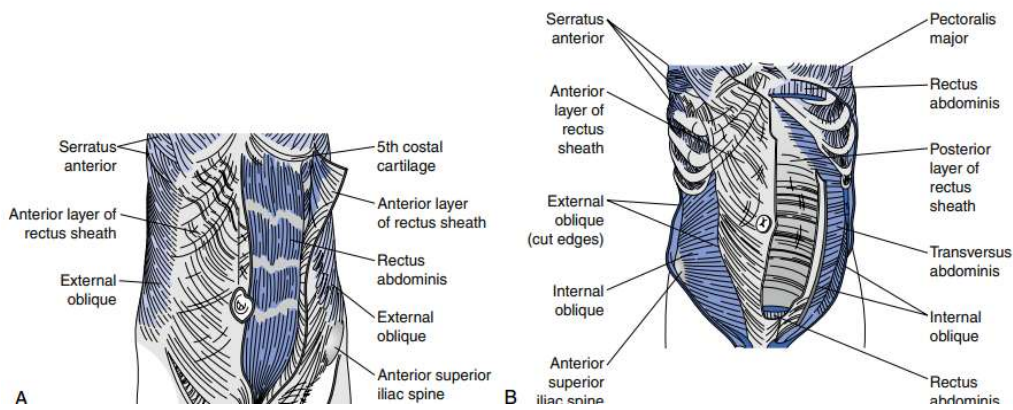
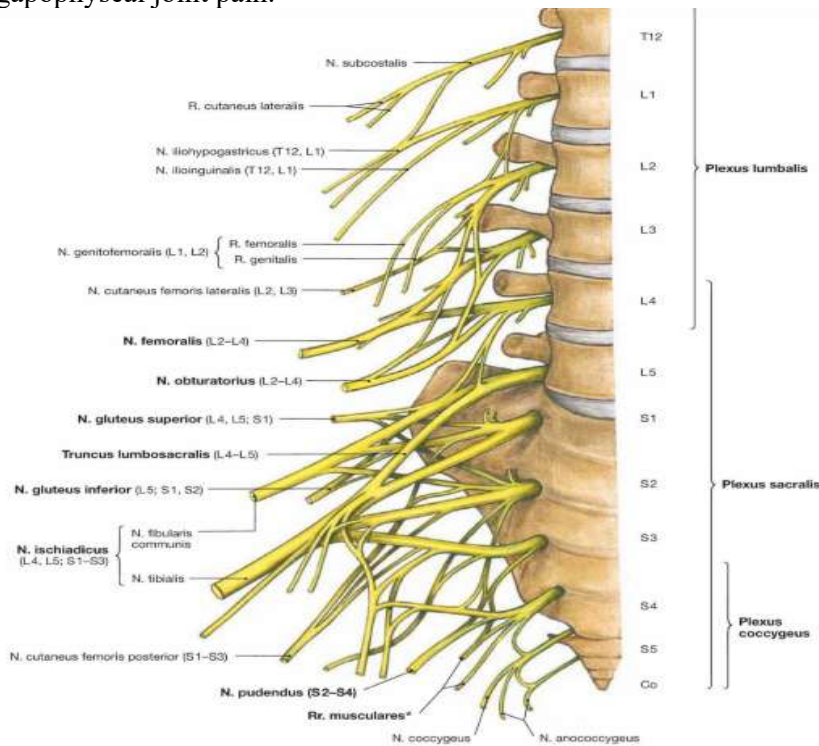


Figure 7. A. Superficial abdominal muscles. B. Deep abdominal muscles.⁷

Lumbar Spinal Nerve Innervation

The conus medullaris terminates at approximately the level of the L2 vertebra, and below this point lies the cauda equina. The cauda equina is composed of dorsal and ventral roots, which converge within the intervertebral foramina to form the spinal nerves. Each spinal nerve gives rise to a primary ventral ramus. These ventral rami at each level form the lumbar and lumbosacral plexuses, which provide innervation to the lower extremities. The dorsal primary rami, comprising medial, intermediate, and lateral branches, supply the posterior half of the body, including the paraspinal muscles and the zygapophyseal joints, as well as cutaneous sensation to the back. Of these, the medial branch is of particular clinical relevance, as it innervates the zygapophyseal joints and the lumbar multifidus muscles, and is commonly targeted in radiofrequency neurotomy for suspected zygapophyseal joint pain.^{8,9}



Etiology

Low back pain may originate from a wide range of pathological processes involving the vertebral structures, surrounding musculature, intervertebral discs, articulations, and other supporting tissues of the spine.^{1,10}

The leading causes of low back pain include:^{6,11,13}

a. Herniated Nucleus Pulposus (HNP)

The herniated disc material contains inflammatory proteins that can irritate the nerve roots and produce radicular pain. Additionally, the annulus fibrosus of the lumbar disc is highly innervated, making tears within it a source of intense pain.

b. Degenerative Disc Changes

With advancing age, the intervertebral discs lose water content, compromising their ability to absorb mechanical stress. This degeneration predisposes to annular tears, herniation, or spinal canal narrowing.

c. Sacroiliac Joint Dysfunction

Pain may arise from inflammation or abnormal movement of the sacroiliac joint.

d. Facet Joint Dysfunction

These synovial joints are lined with cartilage and surrounded by richly innervated capsular ligaments, making them sensitive to degenerative or inflammatory changes.

e. Spinal Stenosis

Narrowing of the vertebral canal can compress neural elements, resulting in pain and neurological symptoms.

f. Spondylolisthesis and Spondylosis

g. Osteoarthritis

h. Spinal Deformities

i. Traumatic Injury

j. Vertebral Compression Fractures

Less frequently, low back pain may be caused by:⁶

- **Infections**, such as vertebral osteomyelitis
- **Neoplasms** involving the spine
- **Autoimmune or inflammatory disorders**, including ankylosing spondylitis, rheumatoid arthritis, systemic lupus erythematosus, Crohn's disease, and fibromyalgia.

A number of risk factors have been linked to the development of chronic back pain, such as age over 30 years, male sex, smoking, alcohol misuse, obesity, postural abnormalities, mood disturbances, low educational or socioeconomic status, and occupational exposure to repeated flexion, rotation, vibration, or heavy load carrying.¹¹

Risk Factors

Low back pain (LBP) is influenced by a combination of individual, occupational, and environmental factors.^{1,5,12,15}

A. Individual Factors

Several personal characteristics have been associated with the development of LBP, including:^{1 3 5 17}

1. Age

Degenerative changes in spinal structures occur progressively with age, often beginning around 30 years. This process involves tissue damage, scar tissue formation, and reduced hydration, resulting in diminished stability of bones and muscles. Older individuals face an increased risk of reduced spinal elasticity, which predisposes them to LBP. Musculoskeletal complaints are most frequently reported during working age (25–65 years). Garg (as cited in Pratiwi, 2009) found the highest LBP incidence between ages 35–55, with prevalence rising alongside age. Sorenson's research also showed onset typically around 35 years, with further increase by age 55.

2. Sex

LBP is more common among women than men, possibly due to lower average muscle strength in females.

3. Body Mass Index (BMI)

BMI, calculated as weight in kilograms divided by height in meters squared (kg/m^2), is a strong predictor of LBP risk. Individuals who are overweight are up to five times more likely to develop LBP than those with a healthy weight. Excess body weight increases mechanical stress on the spine, accelerating structural damage.

4. Work tenure

Longer employment duration increases exposure to occupational risk factors. Workers with more than 10 years of service are over three times more likely to develop LBP than those with 10 years or less. Prolonged work may lead to permanent narrowing of intervertebral disc spaces and spinal degeneration.

5. Smoking

Smoking reduces spinal blood supply due to nicotine-induced vasoconstriction and decreases bone mineral content, increasing the risk of vertebral microfractures and pain.

6. Educational level

Education influences ergonomic awareness. Higher education often correlates with better knowledge of correct posture and injury prevention.

7. Income level

In certain workplaces, income is tied to overtime, prompting workers to take on extended hours, which can affect productivity and increase fatigue-related risks.

8. Physical activity

Sedentary lifestyles reduce oxygen delivery to muscles, contributing to fatigue and pain.

9. History of spinal disorders or trauma

Abnormal curvature or structural anomalies of the spine, such as spondylolisthesis, increase the likelihood of LBP in physically demanding jobs, although some variations like spina bifida occulta may have minimal effect. Spinal trauma disrupts structural integrity, potentially causing persistent pain.

Occupational factors

Work-related conditions also play a major role in LBP risk:^{1,3,5,12}

1. Workload

Physically demanding tasks impose significant mechanical stress on muscles, tendons, ligaments, and joints, increasing the likelihood of irritation, inflammation, fatigue, and tissue damage. Nurwahyuni reported the highest LBP rates among workers handling loads >25 kg. Lifting more than 5 kg repeatedly increases LBP risk by 2.3 times compared to lifting lighter weights.

2. Work posture

Engaging in non-neutral postures, such as forward reaching, trunk twisting, leaning, kneeling, squatting, maintaining prolonged static positions, or forcefully gripping objects has been shown to be associated with an approximately **2.5-fold higher risk** of developing low back pain compared to adopting neutral spinal alignment.

3. Repetitive movements

Frequent repetition of the same motion leads to muscle and tendon strain.

4. Duration of exposure

Risk increases with longer daily exposure: less than 1 hour is considered short, 1–2 hours moderate, and more than 2 hours long exposure.

Environmental factors

Several environmental conditions in the workplace contribute to LBP risk.^{3,5}

1. Vibration

Prolonged exposure to whole-body vibration, such as in certain vehicles or machinery, is a significant risk factor. Vibration increases muscle contractions, impairs blood circulation, and leads to lactic acid buildup, causing pain.

2. Noise

Excessive workplace noise can indirectly worsen LBP by contributing to psychological stress, which may heighten pain perception.

Diagnosis

The diagnosis of low back pain (LBP) is established based on a directed history, general and neurological physical examinations, and supporting diagnostic investigations.

Anamnesis

To achieve an early and accurate diagnosis of LBP, a structured and thorough history is essential.^{12,13,14}

Onset

Mechanical causes of LBP typically result in sudden pain following a detrimental mechanical position, potentially involving muscle tears, fascia strain, or joint surface irritation. Pain from other etiologies usually develops gradually.

Duration and frequency

Mechanically induced LBP may persist from several days to a few months. Disc herniation can take up to eight days or longer to resolve. Disc degeneration may cause chronic discomfort with exacerbations lasting 2–4 weeks.

Location and radiation

LBP from mechanical or medical causes commonly localizes to the lumbosacral region. Pain radiating to the lower limbs or confined to a limb suggests nerve root irritation. Pain extending to the lower extremities may also arise from sacroiliac joint inflammation. Psychogenic pain typically lacks a consistent distribution pattern.

Aggravating or relieving factors

Mechanical lesions often improve with rest and worsen with activity. In patients with herniated nucleus pulposus (HNP), flexed sitting positions may intensify pain. Coughing, sneezing, or Valsalva maneuvers exacerbate symptoms. Tumor-related pain may be more severe or persistent when lying down.

Quality and intensity

Patients should describe pain intensity and temporal changes. Differentiation between LBP and limb pain is crucial, with limb pain often reflecting radicular involvement. When limb pain predominates over LBP in an 80:20 ratio, radiculopathy is likely and surgical intervention may be considered. Predominant LBP over limb pain usually indicates the absence of nerve root compression and often does not require operative management. Chronic, intermittent LBP interspersed with pain-free periods typically reflects a mechanical etiology.

Physical examination

Inspection

During inspection, several aspects should be carefully assessed:¹⁰

- Presence of abnormal spinal curvatures, such as excessive curvature, flattening of the lumbar arch, angulation, pelvic tilt or asymmetry, asymmetry of paravertebral muscles or gluteal region, and abnormal leg posture.
- Observation of the back, pelvis, and legs during movement to evaluate possible limitations.

- Observation of the patient while standing, sitting, leaning, lying down, and transitioning from lying to standing.

- Assessment for possible muscle atrophy, fasciculations, swelling, or skin discoloration.

Palpation

- Palpation should begin at the area with the least tenderness and proceed gradually toward the most painful site.¹⁰

- While palpating the vertebral column, the examiner should assess for possible lateral or anteroposterior deviations.¹⁰

Range of Motion (ROM) Examination

Several methods may be applied to assess spinal range of motion (ROM). These include the use of a single or dual inclinometer, measurement of fingertip-to-floor distance, and, for forward flexion, Schober's test (measuring changes between two skin landmarks during forward bending).¹⁰

Commonly Applied Tests in Low Back Pain

a. Lasegue Test (Straight Leg Raising)

The leg is flexed at the hip joint while the knee remains extended. This maneuver stretches the sciatic nerve. If low back pain results from irritation of this nerve, pain will be perceived along its course, from the buttock to the foot.

b. Crossed Lasegue Test

When performing Lasegue's test on the unaffected leg elicits pain in the symptomatic leg, the crossed Lasegue sign is considered positive, indicating a lesion of the sciatic nerve or its root origins.

c. Kernig's Test

Similar to Lasegue's test but performed with knee flexion. After the hip is flexed to 90 degrees, the examiner attempts to extend the knee.

d. Patrick's Sign

The patient lies supine, placing the heel of one foot on the opposite knee. The examiner applies downward pressure on the flexed knee, causing external rotation of the hip. Pain elicited during this maneuver suggests a non-neurological cause such as coxitis.

e. Viets and Naffziger Test

Jugular vein compression is applied manually (Viets) or using a blood pressure cuff inflated to 40 mmHg (Naffziger).

f. Ober's Sign

The patient lies on the side with the lower leg flexed. The opposite leg is abducted and extended, then released suddenly. Normally, the leg drops quickly. If contraction of the fascia lata is present, the leg descends slowly.

g. Neri's Sign

With the patient standing upright, forward bending induces involuntary knee flexion on the symptomatic side.

Supporting examinations

Several investigations can assist in diagnosing LBP, including:^{3,5,6,10,19,20}

X-ray: Provides structural information about the spine and is commonly used to evaluate spinal instability, tumors, and fractures.

CT scan: Captures cross-sectional images of the vertebrae and intervertebral discs, useful in assessing herniated discs or spinal stenosis.

Myelogram: Allows identification of abnormalities in the spinal column, spinal cord, and nerve roots. A contrast dye is injected to enhance visualization of the spinal structures prior to X-ray or CT scanning.

MRI scan: Produces detailed cross-sectional images of spinal components. It is particularly valuable for evaluating lumbar disc and nerve root pathology, as well as excluding other causes of low back pain such as spinal infections or tumors.

Management

The management of LBP can be broadly divided into two categories:^{11,14,18}

Non-Pharmacological Management

- a. Information and education.
- b. Acute LBP: immobilization (duration depending on the case), weight management, posture and activity adjustment, thermal modalities (heat and cold therapy), massage, traction (for spinal distraction), exercises such as walking, cycling, swimming (case-dependent), and assistive devices (including corsets, canes).
- c. Chronic LBP: psychological support, pain modulation (TENS, acupuncture, thermal modalities), muscle conditioning exercises, weight management, posture correction, and activity modification.

Medical Management

- a. Pharmacotherapy.
 - Acute LBP: acetaminophen, NSAIDs, muscle relaxants, opioids (for severe pain), epidural injections (steroids, lidocaine, opioids) for radicular pain.
 - Chronic LBP: tricyclic antidepressants (amitriptyline), anticonvulsants (gabapentin, carbamazepine, oxcarbazepine, phenytoin), alpha-blockers (clonidine, prazosin), and opioids (only when strictly necessary).
- b. Non-surgical invasive interventions.
 - Nerve blocks with local anesthetics (for radiculopathy), neurolytic agents (100% alcohol, 30% phenol) for intractable neuropathic low back pain.
- c. Surgical Management

Surgery for Hernia Nucleus Pulposus (HNP) is indicated in cases of :

 - Sciatica not responding to conservative therapy for more than four weeks, particularly with severe, intractable, persistent, or progressive pain.
 - Worsening neurological deficits.
 - Cauda equina syndrome.
 - Spinal canal stenosis unresponsive to conservative treatment.
 - Confirmed nerve root compression based on neurophysiological and radiological assessments.

B. Methods

This case report adopts a descriptive clinical approach with a qualitative element, based on an in-depth exploration of the patient's experiences through detailed history taking, supported by physical examination, relevant diagnostic investigations, and therapeutic interventions..

C. Result and discussion

51-year-old woman, complaining of low back pain radiating to both lower limbs for the past five months. The pain was described as intermittent, starting from the lower back and extending down both legs. It was aggravated by prolonged sitting or standing and alleviated when lying down. These symptoms had progressively interfered with her daily functioning. She attributed her condition to her daily habit of frequently lifting heavy objects as part of her household responsibilities.

She denied any prior history of hypertension, diabetes mellitus, asthma, allergies, pulmonary, cardiac, or renal diseases. Her family history was similarly unremarkable, with no known hereditary conditions such as hypertension, diabetes, malignancies, or

respiratory disorders. The patient had never previously sought medical consultation for these symptoms and reported no history of trauma or falls.

On physical examination, she appeared moderately ill but was alert and fully conscious. Her vital signs were within normal limits: blood pressure 120/80 mmHg, pulse 86 beats per minute, respiratory rate 20 breaths per minute, and axillary temperature 37.6°C. Pupillary examination revealed equal, round pupils (3 mm) that were reactive to light both directly and consensually. There were no ocular secretions, conjunctival pallor, or scleral icterus. Nasal and pharyngeal structures were normal with no deformities or discharge. The trachea was midline, no cervical lymphadenopathy was detected, and jugular venous pressure was estimated at 5 + 2 cmH₂O.

Thoracic inspection revealed symmetrical chest movement with no signs of deformity or subclavicular retraction. Pulmonary assessment showed symmetrical respiratory effort on inspection and palpation, resonant percussion, and normal vesicular breath sounds on auscultation. Cardiac examination noted regular S1 and S2 heart sounds without murmurs or gallops.

The abdominal region was soft and non-distended on inspection, with no tenderness on palpation, particularly in the epigastric area. There was no evidence of hepatosplenomegaly. Percussion revealed tympanic tones, and bowel sounds were present on auscultation. Peripheral circulation appeared intact: all extremities were warm with a capillary refill time of less than two seconds, and no signs of pitting edema were observed. Lumbosacral X-ray examination, AP/Lateral view



Lumbosacral X-ray findings (AP/Lateral view) :

- Bone trabecular alignment is well-maintained
- Anterior osteophytes observed on vertebral bodies L1–L5
- Slight narrowing of the intervertebral disc space at L5–S1
- Pedicles appear normal

Expertise:

- Lumbar spondylosis
- Herniated nucleus pulposus at L5–S1

Evaluation and Management

Further diagnostic evaluation with MRI is recommended to obtain a more detailed assessment of the lumbar spine. The management approach includes both pharmacological and non-pharmacological strategies. Pharmacologically, the patient was prescribed Meloxicam 7.5 mg orally twice daily, Myonep one tablet orally twice daily, and Neurodex one tablet orally twice daily. Non-pharmacological measures include referral to the Department of Physical Medicine and Rehabilitation for physiotherapy, as well as the use of lumbar traction or a supportive brace to minimize pain exacerbation. Patient education is also an integral component of management. The patient was advised to avoid strenuous physical activities that could worsen the condition, such as lifting heavy objects. Proper lifting techniques should be practiced, beginning from a squatting position and rising with knee support rather than bending forward. The patient was also instructed to maintain an upright and relaxed posture when walking, to sit with the back fully supported against the chair, and to use a firm mattress to reduce pain aggravation. With appropriate treatment and adherence to medical advice, the patient is expected to have a favorable prognosis.

This case underscores the significance of early diagnosis and a multidisciplinary management approach in patients presenting with chronic low back pain associated with lumbar spondylosis and disc herniation. Radiological findings such as anterior osteophyte formation from L1 to L5 and intervertebral disc space narrowing at L5–S1 are indicative of degenerative changes often seen with aging, which may contribute to symptom development even in the absence of significant neurological deficits. The suspected herniated nucleus pulposus further complicates the clinical picture, necessitating conservative intervention to alleviate symptoms and prevent progression.

Current evidence suggests that conservative measures—including pharmacological therapy with NSAIDs, muscle relaxants, physiotherapy, and patient education on posture and activity modification—are effective first-line treatments for such conditions. Early intervention is crucial to minimize the risk of long-term disability and improve functional outcomes. Moreover, addressing modifiable risk factors such as heavy lifting and poor ergonomics plays a vital role in both management and prevention. This case also highlights the importance of integrating clinical and radiological assessments for accurate diagnosis, facilitating tailored treatment plans. Continuous follow-up and patient education constitute integral components in preventing recurrence and optimizing recovery. Given the patient's clinical presentation and response to conservative management, the overall prognosis is considered favorable. Future research should focus on the long-term efficacy of various conservative interventions and explore preventive strategies to mitigate degenerative lumbar spine conditions.

D. Conclusion

Chronic low back pain remains a significant clinical issue, particularly in individuals engaged in repetitive physical tasks that strain the lumbar spine. This case illustrates how mechanical stress from frequent heavy lifting, combined with age-related degenerative changes, can lead to lumbar spondylosis and suspected disc pathology. A thorough clinical and radiological assessment allowed for early diagnosis and appropriate conservative management. With proper pharmacological treatment, physiotherapy, and lifestyle modification, the patient showed notable improvement. This case reinforces the importance of patient education and a multidisciplinary approach in managing chronic low back pain to reduce long-term disability and improve quality of life.^{1,2,4,10,18}

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