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Original Article

Orthopaedics Section

Clinical Presentation and Categorisation of Chronic Low Back Pain: A Cross-sectional Analysis of 1000 Outpatients in Eastern India

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ABSTRACT

Introduction: Low back pain is one of the most common presenting symptom among patients seeking medical help, accounting for approximately 85% of the cases. It affects individuals of all age groups and genders. Predominantly back pain is non specific, lacking identifiable patho-anatomy, while a lesser-known type, specific low back pain, demonstrates identifiable aetiology and pathology. This poses a challenge for physicians, as they must not only determine the underlying cause but also formulate categorical treatments for Chronic Low Back Pain (CLBP).

Aim: To assess the prevalence of different types of CLBP based on clinical examination, past history, age, and gender in the overall population of the study.

Materials and Methods: A cross-sectional study was conducted at Kalinga Institute of Medical Sciences (KIMS), Bhubaneswar, Odisha, India, from August 2019 to July 2021. A total of 1,640 patients were examined in the orthopedics outpatient department, of which 1,000 patients aged between 20 and 60 years, with back pain lasting three months, were included in the study. All patients underwent a detailed clinical evaluation, including history and physical examination. The final type of CLBP was determined based on the predominant symptom. Data analysis was performed using Microsoft Excel software.

Results: The male-to-female ratio was 1.23:1, and the average age was 43.1 years. The most common type of CLBP was neuropathic (n=473, 47.3%), followed by discogenic CLBP (n=255, 25.5%). The least common type was coccydynia (n=4, 0.4%). Facetogenic CLBP had the highest average age of presentation (57.3 years), while postural CLBP had the lowest average age (29.6 years).

Conclusion: Neuropathic CLBP was the most common type, followed by discogenic CLBP, with sacroiliitis and coccydynia being less common. Detailed clinical evaluation aids in classifying different types of CLBP, which can help avoid unnecessary investigations, except for the neuropathic type and, to some extent, instability CLBP.

Keywords: Discogenic, Instability, Mechanical, Neuropathic, Sacroiliitis

INTRODUCTION

The CLBP, is one of the typically presenting symptoms among patients seeking medical help in most outpatient departments. The lifetime prevalence of low back pain is 80-84% [1,2]. Approximately 24-80% of patients may experience recurrent back pain within one year [1,3], and 11-12% of the population is disabled by low back pain [1]. There is no significant difference in the prevalence of low back pain between teenagers and adults [4]. The prevalence of benign low back pain tends to decrease with advancing age, reaching a peak in the sixth decade, but severe back pain continues to increase with further ageing. The prevalence of CLBP is about 23% [1,3]. The majority of back pain is non specific in nature, with no demonstrable patho-anatomy, and the lesser-known type is specific low back pain, where a definite etiopathology is identifiable. Specific chronic back pain is associated with a disorder, structural deformity, or trauma. Only 20% of cases of back pain can be accurately diagnosed [5], and in the remaining 80%, the etiopathology remains unclear despite multiple diagnostic tools. Hence, it poses a challenge for physicians to determine the perfect aetiology for CLBP.

The pathological areas of concern with respect to CLBP are altered spinal alignment, intervertebral disc diseases such as degeneration, infections, and vertebral body pathology such as fractures and tumours. Patrick N et al., Bogduk N, Kuslich SD et al., and have demonstrated that innervated myofascial and ligamentous structures, intervertebral discs, facet joints, nerve roots, and dura have the ability to generate and transmit pain in the lower back [2,6,7]. Additional accompanying factors believed to cause CLBP are genetic predisposition [1], sleep disorders [8,9], high Body Mass Index (BMI) [9-11], smoking [9,12], advanced age [9,12,13], and pre-existing psychological disorders/stress [14-16].

In addition to detailed history and clinical examination, dynamic radiography, Computed Tomography (CT), and Magnetic Resonance Imaging (MRI) aid in diagnosing the pathology of CLBP. However, there is variable correlation between clinical diagnosis and radiological investigations [17-19], but better clinical correlation with MRI in cases of large disc prolapse and severe Lumbar Canal Stenosis (LCS) [19]. In the last two decades, diagnostic blocks, provocative discography, MRI, and serodiagnosis (highly sensitive CRP) have enhanced the accuracy of diagnosing various types of CLBP [20].

CLBP can be discogenic, mechanical, postural, instability, neuropathic, referred pain, or of inflammatory and infective aetiology. Often, mixed patterns are observed in many patients, such as discogenic CLBP with a neuropathic element. Most of the symptoms and signs of Discogenic Low Back Pain (DLBP) are non specific in nature, making it challenging to distinguish from other types of CLBP [20]. Fairbank J et al., in their meta-analysis on CLBP, concluded that although there are multiple classifications for CLBP, which are either descriptive, prognostic, or directed towards treatment, a specific system of classification cannot be adopted for all purposes [20]. He also stated that any classification of CLBP should help guide both non surgical and surgical modes of treatment.

The aim of the study was to assess the prevalence of different types of CLBP based on clinical examination, past history, age, and gender in the overall population of the study.

MATERIALS AND METHODS

This was a cross-sectional study conducted at the Department of Orthopaedics, Kalinga Institute of Medical Sciences (KIMS), Bhubaneswar, Odisha, India. A total of 1,640 outpatients with chronic back pain were examined from August 2019 to July 2021,

out of which 1,000 patients were included in the study and 640 patients were excluded.

Inclusion criteria: Patients aged between 20 and 60 years with low back pain lasting for a minimum period of three months were included in the study.

Exclusion criteria: Patients aged <20 years and >60 years, pregnant women, patients previously diagnosed with spinal disorders, concomitant cervical spine diseases, history of spinal surgeries, vertebral fractures, and hip disorders. Patients with ankylosing spondylitis, Inflammatory Bowel Diseases (IBD), pelvic inflammatory disease, and vertebral body tumours, patients with sacroiliitis associated with the above medical conditions were excluded from the study.

A sample size of 1,000 patients meeting the inclusion and exclusion criteria was considered for the study. Informed consent was obtained from all patients regarding the disclosure of their data in a published journal.

A detailed history followed by a thorough physical examination, including neurological evaluation, was conducted for all patients. The history related to chronic back pain disorders, including location, duration, and radiation of pain if any, was collected. Aggravating and relieving factors, neurogenic claudication, and associated bladder or bowel dysfunction were also noted. Red flags for malignancy (continuous back pain, night pain, weight loss, and loss of appetite), red flags for trauma (older age, prolonged corticosteroid use), and red flags for infection (fever, loss of appetite and weight, personal and family history of tuberculosis) were assessed and excluded from the study. The clinical examination included assessment of gait, spinal deformity, local skin conditions, swelling, local warmth, tenderness, and spinal Range Of Motion (ROM). The Depalma MJ et al., method was used in this study to localise the site of pain, which helped in determining the particular type of CLBP. For example, if patients pointed to the midline area of the spine, there was a high likelihood (83.5%) of discogenic Internal Disc Disruption (IDD). pain rather than facetogenic or sacroiliitis pain [21]. Similarly, if patients referred to the para-midline area, there was a greater chance of having facetogenic pain and sacroiliitis than IDD.

The neurological examination included sensory and motor examination, and when necessary, a per rectal examination was performed. Three clinical tests advocated by Slobodin G et al., were used to diagnose sacroiliitis [22]. These tests included the pelvic rock test, Flexion, Abduction, External Rotation (FABER) test, and Gaenslen maneuver. Atleast one positive test out of the three was considered diagnostic of sacroiliitis. The Pelvic Rock Test [22] involved compressing the pelvis towards the midline by placing hands over the iliac crests and the thumb held on the anterior superior iliac spine. During the FABER test [22], the hip was flexed and abducted with the knee in flexion, and the contralateral iliac crest and knee were pressed down, inducing pain in the ipsilateral sacroiliac Joint. In the Gaenslen maneuver [22], the leg was dropped on the side of the bed, inducing hip hyperextension and stressing the sacroiliac joint. However, all three tests have low sensitivity and specificity. Patients were asked about symptoms such as lower back pain or leg pain. Most often, patients first complained about LBP and upon repeated questioning, some of them mentioned leg pain.

All the patients in this study were categorised into various clinical types of CLBP, such as discogenic, mechanical, neuropathic, postural, instability, facetogenic, sacroiliitis, and coccydynia. Meticulous history and clinical examination were performed for each patient to differentiate the various types of CLBP, as the clinical features often overlap [Table/Fig-1]. The final clinical categorisation of CLBP was based on the predominant symptom and sign(s). The predominant symptom was considered the dominant symptom that disabled the patient to some degree and could be either the first or second presenting symptom. Patients presenting with leg pain/sciatica with or without neurological deficit were clinically classified as radiculopathy. Similarly, patients presenting with bilateral leg pain/sciatica, with/without neurogenic claudication, with or without neurological deficit were clinically classified as LCS [23]. Both the radiculopathy and LCS groups were included in a common final categorisation of neuropathic pain. The criteria for the final categorisation are explained in [Table/Fig-1].

Discogenic pain [5,24]: Low back pain localised to the mid-axial spine, which increases with spinal loading, bending forward, walking, standing, coughing, and sneezing, and is relieved by rest and spine extension. There is local mid-axial tenderness and decreased ROM of the spine, but a negative Straight Leg Raise (SLR) test on examination.

Mechanical pain [25]: Low back pain localised to the paraspinal area. The pain is more pronounced in the morning and decreases as the day progresses and with activity. There is local tenderness over the paraspinal muscles, transverse processes, and facet area, and a negative SLR test on examination.

Facetogenic pain [26]: Pain localised to the paraspinal area, over the facets, which increases with extending the spine (loading the spine on extension) and rotating the spine. It decreases with flexing the spine. There is local tenderness over the facets and a negative SLR test on examination.

Neuropathic pain [23,26-28]: Back pain radiating to the gluteal area, thigh, calf, or foot. The pain is described as numbness, tingling, and electric feeling. It increases with sneezing, coughing, walking (neurogenic claudication), and decreases with rest. There may or may not be a neurological deficit. There may be a positive SLR test.

Postural pain [29,30]: This is predominantly seen in active young adults engaged in jobs that require sitting or standing for long periods. Patients have mid-axial low back pain that increases with prolonged sitting or standing and decreases with rest. There is tenderness on the mid-axial spine with a negative SLR test.

	Discogenic	Mechanical	Neuropathic	Postural	Facetogenic	Instability	Sacroiliitis	Coccydynia
Location	Midaxial	Midaxial/ Paraspinal	Gluteal/thigh/leg/foot	Midaxial/Paraspinal	Paraspinal	Midaxial or paraspinal	Over sacroiliac joint	Tip of Coccyx
Symptoms	LBP increased on forward flexion/ decreased on rest	LBP decreased on activity	Radiating pain/ Paraesthesia/numbness/ tingling/burning pain	LBP on prolonged standing/sitting, Decreased on rest	LBP increased on walking/ bending forward.	Increased on activity and turning on bed/ decreased on rest	LBP paraspinal	Pain at the tip of the Coccyx
Signs	Midaxial tenderness. Back pain decreased on extension	Paraspinal tenderness	Decreased sensation and/or motor weakness of leg	Nil	Increased on extension/ rotation Decreased on forward flexion	Increased interspinus gap	Positive PHT/FABER test	Local tenderness on palpation
SLR	Negative	Negative	Positive	Negative	Negative	Negative	Negative	Negative

[Table/Fig-1]: Criteria for clinical diagnosis of Chronic Low Back Pain (CLBP).
FABER: Flexion abduction external rotation; PHT: Pump handle test

Instability pain [26,31,32]: Low back pain that increases with activity, turning on the bed, localised to the mid-axial spine or paraspinal area. There may be a palpable step and an increase in spinal gap with flexing the spine.

Sacroiliitis [26,33]: Pain localised to the sacroiliac joint. There is local tenderness and a positive pelvic rock test, Gaenslen maneuver, or FABER test.

Coccydynia: Pain localised to the coccyx that worsens with sitting and upright traveling. Local tenderness to the coccyx confirms coccydynia.

STATISTICAL ANALYSIS

The data were analysed using Microsoft Excel software. The data were presented in the form of descriptive statistics.

RESULTS

A total of 1,000 patients were analysed in this study. There were 553 males and 447 females, with a male-to-female ratio of 1.23:1. The average age of the study population was 43.1 years (ranging from 20 to 60 years). The average age of males was 42.6 years, and for females, it was 43.7 years. Out of the total, 887 patients presented with the first symptom of low back pain, while 113 patients presented with leg pain as their first symptom.

Of the total 473 (47.3%) patients, 262 males and 211 females were diagnosed with neuropathic CLBP [Table/Fig-2]. This was the most common type of CLBP in the study population. There were a total of 61 cases of LCS without deficit, 11 cases with deficit, 299 cases of radiculopathy without deficit, and 102 cases of radiculopathy with deficit in the neuropathic CLBP category [Table/Fig-2]. The average age of these patients was 46.6 years for males and 46.4 years for females.

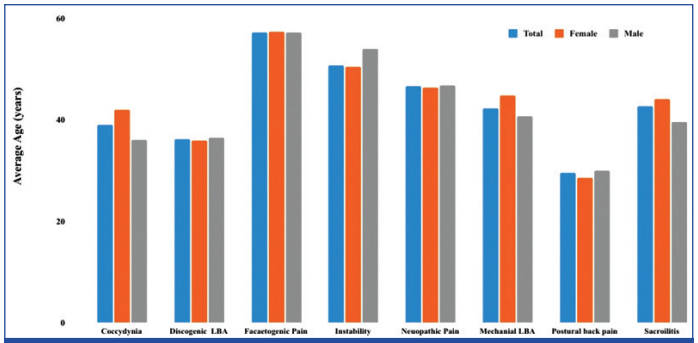
Clinical diagnosis	n	%	M	F	Av. age	Final categorisation
Discogenic	255	25.5	144	111	36.2	Discogenic CLBP
Mechanical	114	11.4	70	44	42.3	Mechanical CLBP
Radiculopathy Lumbosacral Spine (LSS) without deficit	299	29.9	157	142	45.2	Neuropathic CLBP
Radiculopathy with deficit	102	10.2	73	29	46	Neuropathic CLBP
LCS without deficit	61	6.1	26	35	53.2	Neuropathic CLBP
LCS with deficit	11	1.1	6	5	54.7	Neuropathic CLBP
Postural	56	5.6	39	17	29.6	Postural CLBP
Facetogenic	59	5.9	30	29	57.3	Facetogenic CLBP
Instability	30	3	3	27	50.8	Instability CLBP
Sacroilitis	9	0.9	3	6	44.2	Sacroiliitis
Coccydynia	4	0.4	2	2	39	Coccydynia

[Table/Fig-2]: Clinical diagnosis Vs final categorisation (types, population, sex and average age distribution).

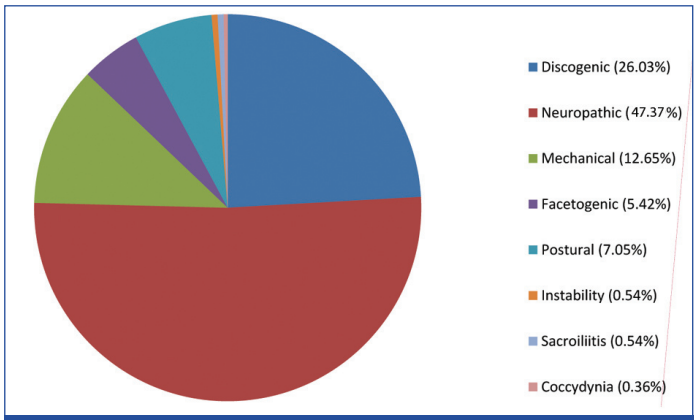
The average age of the patients with mechanical CLBP was found to be 36.2 years (36.5 years for males and 35.9 years for females). There were 114 cases (70 males, 44 females) diagnosed with mechanical CLBP, with an average age of 42.3 years [Table/Fig-2,3]. Furthermore, there were 59 (5.9%) cases of facetogenic CLBP, 56 (5.6%) cases of postural CLBP, 30 (3%) cases of instability CLBP, 9 (0.9%) cases of sacroiliitis, and 4 (0.4%) cases of coccydynia diagnosed. The average age of presentation was highest at 57.3 years for facetogenic CLBP and lowest at 29.6 years for postural CLBP [Table/Fig-2,3].

The present study showed that 144 (26.03%) cases of discogenic pain were observed in males and 111 (24.83%) in females. In the case of neuropathic pain, 262 (47.37%) males and 211 (47.2%) females suffered from this type of pain [Table/Fig-4,5].

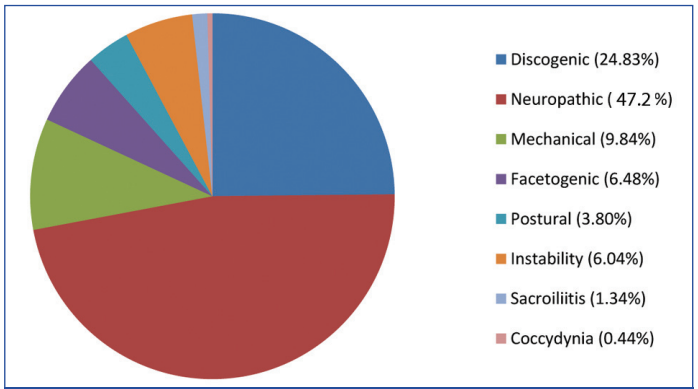
For 547 patients, the predominant symptom was LBP, whereas 473 patients had leg pain as their predominant symptom [Table/Fig-6].



[Table/Fig-3]: Average age of patients with various types of CLBP.



[Table/Fig-4]: Prevalence of CLBP types in males.



[Table/Fig-5]: Prevalence of CLBP types in females.

The average age of patients with the predominant symptom of low back pain was 40.1 years. Patients with the predominant symptom of leg pain had an average age of 46.4 years (46.7 years for males and 46.1 years for females) [Table/Fig-2]. The average duration of the first symptom (low back pain) and the second symptom (leg pain) for each type of CLBP is given in [Table/Fig-6].

Types	n	1st Symptom (n/%) Duration (months)		2nd Symptom (n/%) Duration (months)		Predominant symptom
Discogenic	255	LBP n=250 (98.03%)	Leg pain n=5 (1.97%)	LBP n=5 (1.97%)	Leg pain n=38 (14.9%)	LBP (100%)
		28.12	7.6	16.25	12.51	
Mechanical	114	LBP n=114 (100%)	Nil	Nil	Leg pain n=19 (16.66%)	LBP (100%)
		28.82	Nil	Nil	10.66	
Neuropathic	473	LBP n=366 (77.4%)	Leg pain n=107 (22.6%)	LBP n=20 (4.2%)	Leg pain n=363 (76.7%)	Leg pain 100%
		32.03	14.96	14.16	11.44	
Postural	56	LBP n=56 (100%)	Nil	Nil	Leg pain n=5 (9%)	LBP (100%)
		20.42	Nil	Nil	12	

Facetogenic	59	LBP n=59 (100%)	Nil	Nil	Leg pain n=8 (13.6%)	LBP (100%)
		42.70	Nil	Nil	4.85	
Instability	30	LBP n=29 (97%)	Leg pain n=1 (3%)	LBP n=1 (3%)	Leg pain n=13 (43%)	LBP (100%)
		38.62	5	3	14	
Sacroiliitis	9	LBP n=9 (100%)	Nil	Nil	Nil	LBP (100%)
		23.88	Nil	Nil	Nil	
Coccydynia	4	LBP n=4 (100%)	Nil	Nil	Nil	LBP (100%)
		8.25	Nil	Nil	Nil	

[Table/Fig-6]: Distribution of patients, 1st and 2nd presenting symptoms, predominant symptom with average duration of each type of CLBP.

DISCUSSION

Low back pain is defined as pain originating from musculoskeletal structures extending from the 12th rib to the gluteal fold, which may often extend as somatic referred pain into the thigh [34]. Based on the duration of low back pain, it can be classified as "acute" lasting upto 10 days, "subacute" when the pain is recurrent, episodic, and lasts for two to six weeks or a maximum of 12 weeks, and "chronic" when it lasts for more than 12 weeks [33,34].

The inclusion and exclusion criteria in this study were quite similar to those of Kreiner DS et al., except that they included patients from 18 years of age and excluded patients with leg pain [34]. In this study, the method used by Depalma MJ et al., was used to localise the anatomic location of pain [21]. This technique has greater accuracy in determining the type of clinical diagnosis.

Heuch I et al., in a prospective study of 25,450 patients, showed that patients with a higher range of BMI, with or without prior history or symptoms of LBP, developed a greater incidence of chronic and recurrent back pain, which was seen more in women than men [10]. Bakker EWP et al., confirmed that smoking and advanced age are factors for persistent or recurrent back pain after acute back pain, rather than mechanical loading on the spine [12].

Discogenic pain: Disc disorders were first documented by Crock in 1970, and DLBP was coined in 1979 [34,35]. It is understood as a clinical scenario characterised by CLBP with or without radicular leg pain, in the presence of radiologically confirmed Degenerative Disk Disease (DDD). Disc degeneration is seen as early as the third decade of life. It is believed that heredity, smoking, advancing age, high BMI, excessive axial loads, and vibrations from transportation are some factors responsible for accelerated degeneration of intervertebral discs [1-3]. Twin studies by Kalichman L et al., showed that disc degeneration and LBP have a genetic background, and according to Battie MC et al., 30%-46% of back pain may be hereditary [36-38]. It is also understood that disc degeneration is one of the main reasons for CLBP [39].

The pathology of discogenic pain is complex and multifactorial. Some recognised pathogeneses of discogenic pain include disc degeneration, end plate damage, fissuring of the annulus, and leakage of proteoglycan and inflammatory mediators such as Interleukin-6 (IL-6), which influence nociceptive receptors on the annulus [5]. As the disc degenerates, the perception of pain increases until the disc completely degenerates around the age of 60 years. Therefore, discogenic pain is rare after the age of 60 years. Studies by Zhang YG et al., Donelson R et al., and Long AL have reported prevalence rates of discogenic pain as 39%, 50%, and 47%, respectively [5,40,41]. However, the present study showed a prevalence of 25.5% (n=255, M-144, F-111) of cases with discogenic pain. The average age of presentation in present study population was 36.2 years, with no difference between males and females, which was comparable to the studies by Donelson R et al., (37 years) and Long AL (39 years) [40,41]. The male-to-female ratio in studies by Donelson R et al., and Long AL was 1:1.35 and 1.76:1, respectively. Comparatively, the present study has a male-to-female ratio of 1.23:1, which was similar to that of Long AL. 98% of patients presented with low back pain as their first symptom, whereas 2% presented with leg pain as their first symptom. The average duration of LBP was 28.12 months, and for leg pain, it was 7.6 months.

Mechanical pain: Mechanical CLBP is a chronic disorder in which any anatomical structure and its alterations can be a source of pain [2,7]. It is a clinical diagnosis, and often the radiology remains normal. It may be a diagnosis of exclusion, either clinically or by multimodal diagnostic blocks. Minimal studies have been conducted specifically for the prevalence of mechanical CLBP solely on clinical evaluation; hence, no comparison has been made in this study.

Neuropathic pain: The prevalence of neuropathic pain in low back pain varies from 16-55%, as shown in studies by Hassan AE et al., and Kaki AM et al., [42,43]. This discrepancy is most likely due to differences in methodology, with respect to the definition of neuropathic pain, pain assessment tools, and the body area taken into consideration. Attal N et al., investigated the neuropathic component of low back pain in patients with or without leg pain using the Douleur Neuropathique 4 Questions (DN4) and concluded that the relative contribution of neuropathic mechanisms increased with the degree of distal pain radiation [44].

Radiculopathy is defined as an objective loss of sensory and/or motor function resulting from damage to the nerve root. It can occur with or without associated pain, and when pain is present, it is referred to as painful radiculopathy. Painful radiculopathy meets the criteria for definite neuropathic pain when the diagnosis is based on sensory signs, and probable neuropathic pain when it is based only on motor signs, according to the proposed neuropathic pain grading system developed by the Special Interest Group on Neuropathic Pain (NeuPSIG). Radiculopathy and radicular pain often coexist and may be a result of the same lesion, but they can also exist independently [44,45].

Cook C et al., used a diagnostic support tool for LCS that included a cluster of patient history and observational findings: bilateral symptoms, leg pain more than back pain, pain during walking/standing, pain relief upon sitting, and age over 48 years [23]. A similar criterion was used in the present study, except for the presenting age of the patients.

Neuropathic pain typically occurs after nerve compression, and various conditions can cause radiculopathy, such as disc prolapse, spondylolisthesis, and LCS. The final diagnosis of neuropathic CLBP includes patients clinically diagnosed with lumbar radiculopathy, with or without deficit, and LCS, with or without deficit. In this series, there were a total of 473 cases (47.3%) of neuropathic pain. Patients with lumbar radiculopathy accounted for 84.77% of all those diagnosed with neuropathic pain and made up 40.1% of the entire study population (n=401, M-230, F-171). Among those with lumbar radiculopathy, 25.43% (n=102) had deficits, while 74.56% (n=299) did not. Cases of LCS contributed to 15.23% of those classified under neuropathic pain and 7.2% (n=72) of the entire study population. Of these, 61 cases were without deficit and 11 were with deficit. The average age of presentation for neuropathic CLBP was 46.6 years, with no difference between males and females. However, LCS was seen in a slightly older age group compared to the radiculopathy group of patients (53.95 years vs. 45.6 years). Neuropathic pain was the most common type of CLBP in this study, with a male predominance of 1.23:1. This may be attributed to the principal author being a specialist spine surgeon and the fact that

most Indian patients with back and leg pain are initially treated at local primary hospitals, with only surgical cases being referred to spine surgeons.

Postural pain: Postural low back pain is caused by poor posture, such as prolonged sitting, repeated forward bending, and prolonged standing. The diagnosis is simple and is based entirely on history. Clinical examination may reveal paraspinal spasm and decreased range of movement. Postural control is closely related to core stability, and lack of core stability can lead to non specific pain [29,30]. The transversus abdominis (TrA) and multifidus (MF) muscles play an important role in core stability. MF has been shown to have a major role in stabilising the lumbar spine and finely adjusting the vertebrae during movement. MF primarily counteracts unwanted flexion produced by the abdominal muscles. The contractility of TrA and MF is considered essential for core stability and lumbopelvic stability.

In this study, 5.6% of the population (n=56, M-39, F-17) presented with postural CLBP. The average age of the patients was 29.6 years, with no significant difference between genders. Postural pain was the fifth most common type of CLBP and occurred in much younger individuals compared to other types of CLBP. The average duration of presentation was 25.82 months.

Instability pain: Clinical spinal instability is controversial and not well understood. According to White AA and Panjabi MM, clinical instability is defined as the loss of the spine's ability to maintain its patterns of displacement under physiological loads, without causing incapacitating pain, initial or additional neurological deficits, or major deformity [46]. Mechanical instability refers to the spine's inability to carry spinal loads, while clinical instability refers to the clinical consequences of neurological deficit and/or pain. Clinical instability of the spine has been studied invivo since 1944 by Knutsson, using functional radiographs.

Instability pain occurs in adults following spondylolisthesis, disc degeneration, post laminectomy, or major trauma to all three columns of the vertebrae. Typical clinical presentations include back pain during loading of the spine, worsening when getting up from bed, turning on bed, and walking, and relief with rest. The clinical diagnosis of instability pain is often difficult. It can be suspected when there is a palpable/visible step, as in spondylolisthesis, or a demonstrable increase in interspinal distance on flexing the spine [47]. Instability pain is primarily a radiological diagnosis but can be suspected based on history and clinical examination. It often has a significant component of discogenic pain, with or without radiculopathy, as disc degeneration is almost always seen in all cases of instability pain, especially in older age groups.

Clinical instability tests include the Prone Instability Test (PIT), Passive Lumbar Extension Test (PLE), Aberrant Movement Pattern (AMP), Posterior Shear Test (PST), Active Straight Leg Raise Test (ASLR), and Prone and Supine Bridge Test (PB and SB). A meta-analysis by Ferrari S et al., on clinical tests for evaluating CLBP found that the PLE test was the most accurate and informative, with high sensitivity (0.84, 95% CI: 0.69-0.91) and specificity (0.90, 95% CI: 0.85-0.97) [47].

In addition to symptoms, changes in interspinal gap were used as diagnostic criteria for instability CLBP. Only 3% of cases (n=30) were classified as instability pain, but the actual number may be higher as this study relied solely on history and clinical examination. In this category of CLBP, females were more affected than males (9:1). The average age at presentation was 50.8 years, and 97% of patients presented with low back pain as their first symptom, with a mean duration of 38.62 months.

Facetogenic pain: Lumbar spinal facet joints were first suggested as a source of low back and lower extremity pain in 1911 [48]. Facetogenic back pain is now widely accepted, although still controversial, in the medical and orthopaedic literature. Osteoarthritis features in facet joints can appear early, with over half of adults under 30 years old showing signs. Estimates of the prevalence of lumbar facet joint pain based on diagnostic blocks range from 7.7-75% among patients with back pain complaints [49]. CT scans can demonstrate and categorise abnormalities of the facet joints due to their precise display of osseous details.

Facetogenic pain is often bilateral, and diagnosing it can be challenging as it needs to be differentiated from mechanical pain, discogenic pain, and pain from the sacroiliac joint. A CT-based study by Kalichman L et al., found a high prevalence of facet joint osteoarthritis (59.6% in males and 66.7% in females), which increases with age [50].

However, in this study, there were 59 cases (5.9%) of CLBP related to facet pathology. It was observed in an older age group in both males and females, with an average age of 57.3 years. There was no difference in the number of cases with respect to gender (30 vs 29). All patients presented with LBP as their first symptom, with an average duration of 42.7 months.

Sacroiliitis and coccydynia: Sacroiliitis is seen de novo or as assisted finding in conditions like ankylosing spondylitis or inflammatory bowel disease. It is often detected on MRIs when screening for lumbar spine pathology. However, this study did not consider cases of sacroiliitis associated with specific known diseases. Diagnosing sacroiliitis can be challenging as typical symptoms and signs are not always evident, and other pain generators such as the L5-S1 facet joints, L5-S1 disc, and transverse processes closer to the sacroiliac joint may mimic sacroiliitis [51].

Diagnosing sacroiliitis often involves various provocative clinical tests. However, most physicians use the Laslett rule, which includes a minimum of three out of five physical examination findings such as compression, distraction, thigh thrust, Gaenslen test, or sacral thrust. The sensitivity and specificity of these tests vary, and strict interpretation of pain location increases specificity.

On the other hand, diagnosing coccydynia is much simpler as patients' history and clinical examination are usually distinctive for this type of low back pain. In this study, there were nine cases of sacroiliitis and four cases of coccydynia. Since this study relied solely on history and clinical findings, the number of sacroiliitis cases were much lower compared to studies based on diagnostic blocks.

Upon summarising, detailed history and meticulous physical examination remain the main tools for most diagnostic guidelines [1]. This helps avoid unnecessary investigations and surgeries. Early imaging has been associated with unnecessary surgeries and poor results [1], and clinical evidence of radiculopathy is not an indication for early imaging [52,53]. In uncomplicated CLBP symptomatic relief [2], specific targeted physical therapy corresponding to the clinical picture are necessary in uncomplicated low back pain.

The American College of Radiology (ACR) Appropriateness [52] criteria for low back pain recommends imaging after six weeks of conservative treatment, unless there are red flags for malignancy, infection, or fractures [53,54]. In the present study, 47.3% of patients fell into the neuropathic CLBP category, and only 3% fell into the instability CLBP group. This suggests that approximately 50% of CLBP cases are non specific in nature and may not require any investigation. A small percentage of patients with neuropathic CLBP may require MRI evaluation, particularly if they have significant leg pain, neurogenic claudication, or neurological deficits.

McKenzie R and May S classified pain into derangement syndrome, dysfunction syndrome, posture syndrome, and other categories. However, this method has only moderate evidence of effectiveness in reducing pain and improving function [55,56]. Fairbank J et al., in a meta-analysis on CLBP, concluded that classifications are often

descriptive in nature and have limited prognostic value. They help physicians decide between surgical and non surgical treatment modalities [20].

Limitation(s)

The study had several limitations. Firstly, it was not blinded, and intra and interobserver errors were not considered. Secondly, sleep disturbances and pre-existing psychological stress or disease were not taken into consideration, and hence, psychogenic back pain or malingering were not highlighted in present study. Similarly, mixed CLBP was not included.

CONCLUSION(S)

Neuropathic CLBP was the most common type, followed by discogenic CLBP, with sacroiliitis and coccydynia being the least common. Postural and discogenic back pain were observed in younger individuals, while mechanical and neuropathic CLBP were more prevalent in other age groups. A detailed history and clinical examination were crucial in identifying the different types of CLBP. Having knowledge about the various clinical types of CLBP can help reduce early and unnecessary investigations. Diagnostic blocks and provocative tests are recommended to determine the exact pathology of CLBP for more effective treatment.

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