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Non-obvious and obvious signs of the thoracic spine pathology: a clinical study

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Abstract

Background The thoracic spine pathology can lead to severe disability and discomfort.

This study aims to identify determinant characteristics in patients with thoracic spine pathologies who present with non-regional complaints such as lumbar/cervical pain and others.

Methods A prospective observational descriptive study was conducted at Basrah Teaching Hospital from March 2020 to December 2021, enrolling 114 patients categorized into two groups. Group A included patients with thoracic spine pathology and thoracic pain, while Group B consisted of patients with thoracic spine pathology and non-local symptoms (such as lower lumbar pain, pain in extremities, etc.). Comprehensive clinical evaluations were performed using a specially designed questionnaire.

Results The majority of patients were in the 60-79 age group, with females comprising 55 % in Group A and 60 % in Group B. Smoking was observed in 28.98 % of Group A and 26.66 % of Group B. Symptomatic patients with solitary back pain commonly exhibited dorsal root compression symptoms (49.27 %), lower limb weakness (18.84 %), and sphincter dysfunction (7.24 %). Patients with thoracic plus lower and/or neck pain frequently reported paraesthesia (42.22 %) and cervical root symptoms (48.38 %). Kyphotic deformity was present in 20.28 % of Group A and 11.11 % of Group B, while tenderness was observed in 23.18 % of Group A and 13.33 % of Group B. Plain radiograph changes, including disk space narrowing (44.44 %), subchondral sclerosis (29.63 %), curve alterations (29.63 %), and facet arthropathy (25.9 %), were more prevalent in those with symptomatic thoracic back pain (Group A).

Conclusion Non-local symptoms in thoracic spine pathologies are common, with complicated and multi-site low back pain being more prevalent than isolated back or thoracic pain. Elderly individuals, females, obesity, and comorbidities appear to be predictive risk factors for low back pain development. Paraesthesia emerges as the most common neurological manifestation, while kyphosis and scoliosis are primary presentations of thoracic pathologies. Multi-modalities of imaging, including plain radiographs, MRI, CT scan, and DEXA scan, can aid in detecting back pathologies. The mainstay of managing symptomatic thoracic pathologies is surgical intervention.

Keywords: spinal pathology, thoracic spine, symptomatic thoracic pathology, spinal deformity

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Неочевидные и явные признаки патологии грудного отдела позвоночника: клиническое исследование

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Аннотация

Актуальность. Поражение грудного отдела позвоночника может привести к тяжелой инвалидности и дискомфорту.

Цель работы — выявление определяющих характеристик у пациентов с патологией грудного отдела позвоночника, которые предъявляют нетипичные жалобы, такие как боли в поясничном/шейном отделе и другие.

Материалы и методы. В период с марта 2020 г. по декабрь 2021 г. в клинической больнице Басры проведено проспективное обсервационное описательное исследование, в котором приняли участие 114 пациентов, разделенных на две группы. В группу А вошли пациенты с патологией грудного отдела позвоночника и грудной болью, в группу В — пациенты с патологией грудного отдела позвоночника и нелокальными симптомами (такими как боль в поясничном отделе позвоночника, боль в конечностях и др.). Комплексная клиническая оценка проводилась с использованием специально разработанной анкеты.

Результаты. Большинство пациентов относилось к возрастной группе 60–79 лет, причем женщины составляли 55 % в группе А и 60 % в группе В. Курение отмечено у 28,98 % пациентов группы А и 26,66 % пациентов группы В. Пациенты с болью только в пояснице обычно имели симптомы компрессии дорсальных корешков (49,27 %), слабость нижних конечностей (18,84 %) и дисфункцию сфинктера (7,24 %). Пациенты с болью в грудной клетке, пояснице и/или шее часто сообщали о парестезиях (42,22 %) и симптомах, характерных для компрессии шейного корешка (48,38 %). Кифотическая деформация присутствовала у 20,28 % группы А и 11,11 % группы В, болезненность наблюдалась у 23,18 % пациентов группы А и 13,33 % группы В. Изменения на обзорных рентгенограммах включали сужение дискового пространства (44,44 %), субхондральный склероз (29,63 %), искривления (29,63 %). Артропатии фасетчатых суставов (25,9 %) более распространены у пациентов с симптоматической болью в грудном отделе спины (группа А).

Заключение. Нелокальные симптомы при патологии грудного отдела позвоночника встречаются часто, причем осложненная и многолокальная боль в пояснице встречается чаще, чем изолированная боль в спине или грудном отделе позвоночника. Пожилой возраст, женский пол, ожирение и сопутствующие заболевания являются прогностическими факторами риска развития болей в пояснице. Парестезии являются наиболее частыми неврологическими проявлениями, тогда как кифоз и сколиоз являются первичными проявлениями грудной патологии. Мультимодальные методы визуализации, включая обычные рентгенограммы, МРТ, КТ и сканирование DEXA, могут помочь в обнаружении патологии позвоночника. Основой лечения патологии грудного отдела позвоночника с явными клиническими проявлениями служит хирургическое вмешательство.

Ключевые слова: патология позвоночника, грудной отдел позвоночника, симптоматическая патология грудного отдела позвоночника, деформация позвоночника

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INTRODUCTION

The thoracic spine, while often overlooked, plays a crucial role in the vertebral column. Afflictions of the thoracic spine can lead to significant disability and pain, exacerbated by its inherent stiffness due to structural disparities when compared to the cervical and lumbar spine [1]. This region is susceptible to a spectrum of conditions, including inflammatory, degenerative, metabolic, infective, and neoplastic, all of which contribute to pain and disability [2]. The concept of 'regional interdependence' elucidates the interrelation wherein seemingly unrelated impairments in one anatomical region can influence the development or persistence of pain in another [3].

Although thoracic intervertebral discs and facet joints can act as pain generators, thoracic radicular pain is uncommon. Similar to the lumbar spine, degenerative changes visualized in thoracic spine imaging may not necessarily correlate with pain, highlighting the prevalence of non-specific thoracic spine pathology [4]. Therefore, it is imperative to scrutinize the reliability of clinical methods for thoracic spine evaluation.

Pathological afflictions impacting the thoracic spine encompass osteoporotic fractures (most prevalent), spinal tumors, thoracic spinal canal stenosis, vertebral osteomyelitis, tuberculosis, lateral recess stenosis, and arthritis [5–11]. Radiological imaging, including X-ray (revealing disc space narrowing, subchondral sclerosis, curve changes, and facet arthropathy), MRI (detecting disc abnormalities, bony changes, dura, or other anomalies), and CT scans (evaluating disc condition, canal size, osteophytes, and other factors), along with electrical impulse testing such as EMG to assess nerve function, provide comprehensive insights [12].

This study endeavours to uncover potential determinants and characteristics of thoracic spine pathologies, exploring patient and pathology specifications along with their outcomes. By delving into these aspects, we aim to enhance our understanding of this often-neglected region, paving the way for more effective clinical evaluation and management strategies.

METHODS

Study Design: A prospective observational descriptive study was conducted at Basrah Teaching Hospital from March 2020 to December 2021. A total of 114 patients were enrolled and categorized into two groups.

Study Population and Sampling:

Group A: Comprising 69 patients with chronic thoracic pain attributed to thoracic spine pathologies, confirmed through clinical and radiological examinations, irrespective of complaint duration.

Group B: Consisting of 45 patients presenting non-regional extra-thoracic symptoms (lumbar, cervical, etc.) subsequently diagnosed with thoracic spine pathologies.

Exclusion Criteria:

- Patients with acute traumatic back pain were excluded from the study (They were insignificant findings).
- Patients with organic pathology of the lumbar and cervical spine visible on MRI or CT or RG were also excluded.
- Patients with chronic medical conditions that may cause pain or numbness, such as anaemia, vitamin B deficiency or neuromuscular disease, should also be excluded.

Ethical Committee:

Approval from the Basrah Health Directorate and the scientific research ethical committee of the scientific council of the Arabic Board of Orthopaedics was obtained prior to data collection.

Clinical Evaluation:

Each patient underwent a comprehensive clinical assessment, including a medical history, comorbidity evaluation, and BMI calculation using the formula (kg/m^2).

Follow-up of Patients:

Selected cases requiring surgery underwent monitoring during hospitalization, detailing procedures, surgeries, and treatments. Monthly visits over six months included updated history, examinations, and investigations.

Data Collection:

Information was gathered using a meticulously designed questionnaire with three essential sections:

1. Socio-demographical characteristics (name, age, gender, BMI, occupation, and address).
2. Patient history and examination related to the complaint.
3. Subsequent investigations and applied managements.

History:

Patient complaints were thoroughly analyzed, considering pain characteristics (site, onset, radiation, aggravating and relieving factors). Full medical and surgical histories covered chronic illnesses, social history, and relevant habits (smoking, alcohol and sports).

By employing this comprehensive approach, the study aimed to not only identify determinant characteristics but also establish a robust foundation for understanding and managing thoracic spine pathologies.

Investigations

Laboratory tests included hematological tests (Complete Blood Count), biochemical tests (glycosylated hemoglobin (HbA1c), estimated sedimentation rate (ESR), and C-reactive protein (CRP)).

Imaging studies included **X-rays** (narrowing of the disc space, subchondral sclerosis, curve changes, and facet arthropathy), **MRI** (disc abnormality, bony changes, dura, and cord, or others), **CT-scan** (disc, size of the canal, osteophytes, and others), and **DEXA-scan**.

Statistical analysis

Statistical calculations were done using Statistical Package for the Social Sciences version 25 (SPSS Inc.) in which categorical data were expressed as numbers and percentages, the differences between the groups were analyzed using the Chi-square test (X^2). Adjusted standardized residuals were used to explore which variable is considered a contributor to the chi-square results (> 3 adjusted standardized residuals). Continuous data expressed as mean ± SD and the differences between the groups were analysed by non-parametric Kruskal – Wallis H test for abnormally distributed data and ANOVA test for normally distributed data. Shapiro – Wilk test was used to test the normality of the data, and outliers were detected using Boxplot methods. Confidence intervals of 95 % were applied as the dependent interval in statistics and *P*-values < 0.05 were accepted as statistically significant.

RESULTS

Among sixty-nine patients in Group A (60.52 %), 27 (39.13. %) had isolated thoracic back pain and 42 (60.86 %) presented with thoracic plus other symptoms (lower back pain and/or neck pain). Group B consisted of 45 (39.47 %) of the enrolled patients and 31 subjects (68.88 %) presented with lower back pain and/or neck pain. Most of the patients in both groups were in the age group of 60–79 years. Females were predominant in both groups. Besides, most of the patients from groups A and B were recorded as overweight or obese. In addition, in both groups, there were slightly more unemployed than employed. Regarding the medical, surgical, and social characteristics, both groups shared close results in the incidence of diabetes, hypertension, hyperlipidemia, Sickler cell disease, and renal disease. There was a significant difference in diabetes cases between group A and group B ($p = 0.047$) (Table 1).

Neurological evaluation Group A patients mostly presented with paraesthesia along the distribution of radicular nerve 34 (49.27 %), and dorsal root symptoms 17 (56.34 %). Nineteen out of 45 (42.22 %) of group B had paraesthesia which was significantly lower than that found in the group A ($p = 0.009$). Cervical root pain found in 8 (19.04 %) cases of group A and 6 (23.27 %) cases of group B. Weakness of the lower limb was reported by 13 (18.84 %) in group A and 5 (11.11 %) in group B. The urinary and stool sphincters uncontrolled reported by 5 subjects (7.24 %) of group A and 3 (6.66 %) of group B (Table 2).

The examination results of patients with thoracic pathologies reveal that group A presented mostly with kyphosis in 14 (20.28 %) and scoliosis in 5 (7.24 %) while group B in 5 (11.11 %) and 1 (2.22 %), respectively.

We felt tenderness in 16 subjects (23.18 %) of group A and 6 (13.33 %) of group B. There were 30 (43.47 %) of group A with a limited range of motion of the thoracic spine and 19 (42.22 %) of group B.

Hyperreflexia of the upper limb was found in 1 (1.44 %) in group A and 1 (2.22 %) in group B. Hyperreflexia of lower limbs was found in 12 (17.39 %) of group A and 6 (8.88 %) of group B. There were 3 (4.34 %) cases of spastic gait in group A and one case (2.22 %) in group B. (Table 3).

Table 1

Comparison between group A and group B regarding the demographical parameters

Variables		Group A (*n* = 69)		Group B (*n* = 45)		*P* value
		Thoracic back pain (*n* = 27)	Thoracic + Lower back pain and/or Neck pain (*n* = 42)	Lower back pain and/or Neck pain (*n* = 31)	Other symptoms (*n* = 14)	
		No.				
Age (years)	< 20 years	2	1	1	0	0.245
	20–39	3	4	2	3	0.35
	40–59	7	12	9	4	0.124
	60–79	10	17	15	4	0.75
	⩾ 80	5	8	4	3	0.057
Gender	Male	11	20	13	5	0.68
	Female	16	22	18	9	
BMI (kg/m^2)	Normal weight	7	12	8	2	0.87
	Overweight	12	19	13	5	0.23
	Obese	8	11	10	7	0.48
Occupation	Employee	12	15	13	6	0.17
	Non-employee	15	27	17	8	0.59
Medical history	Diabetes mellitus	10	18	14	4	0.047
	Sickle cell anemia	2	1	3	1	0.24
	Renal disease	2	1	3	0	0.421
	Hypertension	11	10	9	2	0.64
	Hyperlipidemia	9	11	9	2	0.15
Surgical history	Previous surgery	3	5	3	1	0.78
	Previous trauma	0	7	2	1	0.98
Social history	Smoking	8	12	9	3	0.365
	Alcohol	1	0	1	0	0.27
	Active sport habit	2	4	3	1	0.25

Table 2

Comparison between group A and group B regarding the neurological evaluation

Neurological evaluation	Group A (*n* = 69)		Group B (*n* = 45)		*P* value
	Thoracic back pain (*n* = 27)	Thoracic + Lower back pain and/or Neck pain (*n* = 42)	Lower back pain and/or Neck pain (*n* = 31)	Other symptoms (*n* = 14)	
	No.				
Paresthesia	12	22	15	4	0.009
Cervical root	0	8	5	1	0.078
Dorsal root	12	5	3	0	0.82
Lumbosacral root	0	9	7	3	0.091
Lower limb weakness	6	7	4	1	0.26
Sphincter uncontrolled	2	3	2	1	0.054

Table 3

Comparison between group A and group B regarding the examination parameters of the thoracic spine

Variables		Group A (*n* = 69)		Group B (*n* = 45)		*P* value
		Thoracic back pain (*n* = 27)	Thoracic + Lower back pain and/or Neck pain (*n* = 42)	Lower back pain and/or Neck pain (*n* = 31)	Other symptoms (*n* = 14)	
		No.				
Look	Kyphosis	6	8	4	1	0.078
	Scoliosis	2	3	1	0	0.68
	Mass	0	1	1	0	0.58
	Ulcer skin lesion	0	1	1	0	0.245
	Rash skin lesion	0	1	0	0	0.35
Feel	Tenderness	9	7	5	1	0.18
Move	Limited range of spine motion	10	20	13	6	0.65
Reflexes	Lower limb Hyperreflexia	5	7	4	2	0.65
Spastic gait		1	2	1	0	0.14

Complete blood count, HbA1c, and ESR were recorded higher values among group B compared to others, while CRP recorded higher results mostly among group A, which was statistically non-significant ($p > 0.05$) (Table 4).

Table 4

Comparison between group A and group B regarding the laboratory parameters

Parameters	Group A (n = 69)		Group B (n = 45)		P value
	Thoracic back pain (n = 27)	Thoracic + Lower back pain and/or Neck pain (n = 42)	Lower back pain and/or Neck pain (n = 31)	Other symptoms (n = 14)	
	Mean ± SD				
CBC	10.32 ± 1.47	9.84 ± 1.21	10.87 ± 0.92	10.2 ± 1.13	0.541
HbA1c	8.56 ± 2.7	7.53 ± 1.62	9.82 ± 2.96	7.89 ± 1.8	0.068
ESR	37.68 ± 7.42	42.28 ± 5.36	46.52 ± 7.9	35.34 ± 6.8	0.059
C-reactive protein	8.72 ± 3.7	9.59 ± 3.45	8.98 ± 3.18	8.56 ± 2.61	0.47
Hypercholesterolemia	270.29 ± 50.67	279.67 ± 54.98	260.72 ± 42.31	254.39 ± 70.21	0.098
Hypertriglyceridemia	280.7 ± 40.36	285.3 ± 65.47	290.74 ± 62.15	289.47 ± 36.25	0.074

Plain radiograph changes including narrowing of disk space in 28 (40.5 %), subchondral sclerosis in 19 (27.5 %), curve change in 19 (27.5 %), and facet arthropathy in 17 (24.6 %) were registered in group A. In group B, the narrowing of disk space was found in 14 (31.11 %), subchondral sclerosis in 9 (20 %), curve change in 6 (13.33 %), and facet arthropathy in 7 (15.6 %).

MRI changes in group A included disc abnormality in 20 cases and bony changes in 16 cases. Cord and dural pathology were found in two patients and primary bone tumor in one patient. Additionally, there was metastasis in 3 (4.3 %) cases and Pott's disease in 4 (5.7 %) cases. In group B, there were 2 (4.44 %) metastatic cases and 2 cases (4.44 %) of Pott's disease.

In CT scans, the canal stenosis was found in 3 patients for each group. Primary thoracic bone tumors were reported in one patient in group B (giant cell tumor) and one case in group A (osteoid osteoma). The osteophytes were recorded in 19 patients in group A and 9 patients in group B. Osteomyelitis and discitis were recorded in 2 (4.34 %) cases in group A. Spine TB was found in 3 patients in group A and 2 patients in group B.

DEXA scans were performed in 25 cases in group A and 24 patients in group B, revealing that osteopenia presented in group A in 12 (17.4 %), whereas in group B, there were 7 (15.5 %) cases. Osteoporosis was recorded mostly in group A in 15 cases (21.7 %) and only 6 subjects of group B (13.3 %), but the findings were statistically not significant ($p > 0.05$) (Table 5).

Table 5

Comparison between group A and group B regarding the radiological parameters

Parameters		Group A (n = 69)		Group B (n = 45)		P value
		Thoracic back pain (n = 27)	Thoracic + Lower back pain and/or Neck pain (n = 42)	Lower back pain and/or Neck pain (n = 31)	Other symptoms (n = 14)	
		No.				
Plain X-ray	Narrowing of disk space	12	16	9	5	0.25
	Subchondral sclerosis	8	11	6	3	0.64
	Curve change	8	11	5	1	0.09
	Facet arthropathy	7	10	5	2	0.07
MRI	Disc abnormality	8	12	9	2	0.21
	Bony changes	7	9	8	1	0.2
	Cord and Dural pathology	1	1	0	2	0.35
	Primary bone tumor	0	1	0	1	0.08
	Metastatic disease	1	2	1	1	0.056
	Spinal TB	1	3	1	1	0.59
CT	Canal Stenosis	1	2	2	1	0.08
	Osteophyte	7	12	6	3	0.12
	Dural calcification	2	1	1	0	0.21
	Osteomyelitis and discitis	1	1	0	0	0.23
	TB spine	1	2	1	1	0.45
	Primary thoracic bone tumor	0	1	0	1	0.87
	Metastatic disease	1	2	1	1	0.61
DEXA	Osteopenia	5	7	5	2	0.058
	Osteoporosis	7	8	4	2	0.08

The metastasis was found in 3 cases of group A and 2 cases in group B. Intradural extramedullary tumor percentage was (2.22 %) in group B (meningioma). Intradural intramedullary tumor percentage was (2.89 %) in group A and (2.22 %) in group B. Spine TB recorded in 3 cases in group A and 2 cases in group B. Discitis and osteomyelitis were found in 2 (2.89 %) of group A. Degenerative changes were reported in 59 (85.5 %) cases of group A and 38 (84.4 %) cases of group B (Table 6).

Table 6

Comparison between Group A and Group B regarding the pathology diagnosis

Variables		Group A (*n* = 69)		Group B (*n* = 45)		*P* value
		Thoracic back pain (*n* = 27)	Thoracic + Lower back pain and/or Neck pain (*n* = 42)	Lower back pain and/or Neck pain (*n* = 31)	Other symptoms (*n* = 14)	
		No.				
Metastasis		1	2	1	1	0.59
Intradural extramedullary		0	0	0	1	0.098
Intradural intramedullary		1	1	0	1	0.08
TB, spine		1	2	1	1	0.12
Diskitis and osteomyelitis		1	1	0	0	0.23
Primary bone tumor		0	1	0	1	0.45
Degenerative changes	Degenerative disk disease	2	2	2	4	0.87
	Facet joint disease	10	14	11	3	0.61
	Spinal stenosis	2	1	0	1	0.45
	Spondylosis	9	19	16	1	0.59

Regarding surgical versus nonoperative management, all metastasis cases were treated by chemotherapy and radiation. One case underwent spine decompression. In intradural mass, all cases underwent laminectomy. Three patients with TB underwent surgery (two in group A and one in group B). Two cases of osteomyelitis and discitis in group A underwent drainage operation. Two patients with primary bone tumors underwent laminectomy. All degenerative cases were managed conservatively (Table 7).

Table 7

Comparison between Group A and Group B regarding the management non operative vs. surgery

Surgery	Group A (*n* = 69)		Group B (*n* = 45)		*P* value
	Thoracic back pain (*n* = 27)	Thoracic + Lower back pain and/or Neck pain (*n* = 42)	Lower back pain and/or Neck pain (*n* = 31)	Other symptoms (*n* = 14)	
	n (%)				
Metastasis	0	1	0	0	0.062
Intradural extramedullary	0	0	0	1	0.08
Intradural intramedullary	1	1	0	1	0.59
Spinal TB	1	1	0	1	0.074
Discitis and osteomyelitis	1	1	0	0	0.059
Herniated disk	None				
Primary bone tumor	0	1	0	1	0.098
Bulging disk	None				
Facet joint disease	None				
Spinal stenosis	None				

DISCUSSION

The clinical and epidemiologic exploration of the thoracic spine has been comparatively neglected when juxtaposed with the lumbar and cervical spine. However, our study underscores the substantial impact of thoracic spine pathology on individuals, with pain in this region proving equally disabling and burdensome.

Goh et al. delved into the influence of age and gender on thoracic spine degenerative disease, revealing an age-related increase in abnormal findings, particularly in the mid- and lower thoracic discs [13]. In our study, age and gender significantly affected the prevalence of thoracic spine pain in Group A, aligning with the trend of lesions presenting more commonly in the elderly. Conversely, a meta-analysis reported a higher prevalence of thoracic pain in young ages and children, attributing it to factors like school bag usage and workstations [14]. This is explained by risen the abnormal annuli, nuclei and disc margins in elderly age group, particularly in the mid and lower thoracic discs [13].

Briggs et al. [14] found thoracic spine pain was significantly related to concurrent musculoskeletal pain; backpack; postural; lifestyle and social; psychological and environmental and growth and physical factors. Besides, the risk factors identified in adolescents included age (being older) and poorer mental health [14].

Our findings indicate a higher prevalence of thoracic pain among females in group A, consistent with general reports on musculoskeletal pain across different age groups [15, 16]. Exploring the reasons behind these gender-based disparities, including factors like physical activity, musculoskeletal maturity, posture, endocrine and psychosocial characteristics, warrants further investigation [17]. There are no significant differences between the groups according to your statistical analysis.

While the study suggests a higher prevalence of thoracic pain among females, attributing it to various factors like hormonal changes, pregnancy, menarche, menopauses, hormonal therapy and contraceptive pills and devices, the nuances of gender-based differences in the experience of thoracic pain might be more complex and require further exploration.

Roquelaure et al. [23] found that the incidence of thoracic spine pain (TSP) was 5.2 / 100 men and 10.0 / 100 women. TSP in men was associated with age, being tall, frequent/sustained trunk bending, lack of recovery period or change in the task and driving vehicles. Being overweight or obese was associated with lower risk (OR = 0.5). TSP in women was associated with high perceived physical workload. They concluded the TSP risk model combined personal and work-related organizational and physical factors. Trunk bending appeared to be a strong independent predictor of pain.

Smoking emerged as a potential risk factor, influencing vertebral cellular changes and exacerbating degenerative alterations. The study data align with previous findings highlighting the injurious effects of nicotine on nucleus pulposus cells and osteoblasts [18, 19]. Smoking habits were notably more prevalent in patients with dorsal back pain (group A) and lower neck pain (group B). There are no significant differences between the groups according to our analysis and we suggest further studies at cell levels to prove the relationship between smoking and spine injuries. We suggest a non-significant association between smoking and thoracic spine pathologies, citing influences on cell changes. Meanwhile, there is evidence linking smoking to general health issues.

Neurological manifestations in the thoracic spine present a unique challenge due to the multifaceted nature of thoracic myelopathy. Our study corroborates the association between back pain and neurological symptoms, with dorsal root compression symptoms, limb weakness, and sphincter dysfunction observed in group A, and paraesthesia and cervical root symptoms more prevalent in group B. There are statistical significant differences between the groups according the frequency of paraesthesias ($P = 0.009$).

The incidence of thoracic disc herniation, though rare, was higher in group B than in group A. Conservative management was predominantly employed, aligning with literature suggesting comparable outcomes to surgical interventions in mid-term and long-term follow-up [42]. The treatment approach for thoracic disc herniation may vary, and the decision between conservative and surgical management should be based on the individual case and its specific characteristics.

Other pathologies like tumors, infections and degenerative lesions have no significant differences between groups of the present study. Pathological conditions like spinal tumors, infections, and degenerative diseases were diverse, demonstrating the complexity of thoracic spine pathologies. Surgical interventions emerged as the primary management approach for symptomatic cases, consistent with studies emphasizing the efficacy of surgery in specific conditions such as spinal tuberculosis [34].

CONCLUSION

Non-local symptoms in thoracic spine pathologies are common, with complicated and multi-site low back pain being more prevalent than isolated back or thoracic pain. Elderly individuals, females, obesity, and comorbidities appear to be predictive risk factors for low back pain development. Paraesthesia emerges as the most common neurological manifestation, while kyphosis and scoliosis are primary presentations of thoracic pathologies. Multi-modalities of imaging, including plain radiographs, MRI, CT scan, and DEXA scan, can aid in detecting spine pathologies. The mainstay of managing symptomatic thoracic pathologies is surgical intervention.

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