Non discogenic lumbar radiculopathy
((A study of 104 cases))

Ali T. AbdulWahid* FIBMS

Abstract:

Background: All though the most common etiology of lumbar radiculopathy is herniated disc or spinal stenosis, however there are several intraspinal or extra spinal pathogenic processes that may cause lumbar radiculopathy.

Objective: To assess how often, and review the pathologies that cause non discogenic lumbar radiculopathy.

Patients and Methods: A prospective study was conducted on 600 patients who had lumbar radiculopathy. During one year period we examined 600 patients in outpatient clinic with presumed diagnosis of lumbar disc herniation. Through history and comprehensive physical and neurological examination were performed for all patients. Diagnostic test were done including laboratory, electrophysiological and radiological assessments. In this study Patients with non discogenic lumbar radiculopathy, were referred patients to other specialist to deal with cases.

Results: There were 104 patients (17%) with non discogenic lumbar radiculopathy out of 600 patients presented with lumbar radiculopathy. There were peripheral neuropathy in 28.8%, peripheral vascular diseases in 19.25%, osteoarthritis or osteonecrosis of hip joint in 19.25%, extra spinal tumors in 14.5% of patients, osteodiscitis in 11.5%, entrapment neuropathy in 6.5% of the patients.

Conclusions: The most common causes of lumbar radiculopathy are herniated disc but there are 17% with non discogenic lumbar radiculopathy with broad list of pathologies.

Key Words: discogenic, lumbar, radiculopathy, nondiscogenic, spine.

Introduction:

Lumbar radiculopathy (L.R) means pain in the back or gluteal area radiating down to the leg in a dermatomal distribution. (1) The prevalence of true L.R in the general population is about 3% to 5% .( 1,2) Although the most common causes of this presentations are herniated disc or spinal stenosis, many other causes mimicked lumbar radiculopathy (L.R) including peripheral neuropathy, hip and pelvis pathology, vascular, traumatic, infectious, entrapment neuropathy and iatrogenic causes.(3,4,5).

A symptomatic lumbar disc herniation or bulge is a common finding in MRI, so the presence of such changes must be correlated with the patient symptoms and signs.(3) If the diagnosis of L.R is presumed, this action may result in misdiagnosis, unnecessary tests and treatment , ultimately and delay of appropriate care.(2,3) These issues highlight the importance of the clinician to think and work from a broad list of differential diagnosis, especially when the symptoms and signs are atypical for radicular pain.( 4,5,6,7).

Intraspinal or extraspinal pathogenic processes along the course of sciatic nerve may causes backache and lumbar radiculopathy L.R .(7,8,9,10) Lumbar spine imaging reveals the causes of intraspinal non discogenic L.R , where extraspinal L.R is often misdiagnosed because routine diagnostic test focus on the lumbar spine.(11,12,13,14)Extrapelvic causes affect the sciatic nerve as it emerge distally from the sciatic notch.(15,16,17) A delicate history with proper physical examination and further diagnostic imaging are important in clarifying the correct diagnosis.(18,19,20) In malignant causes of plexopathies, the ache onset is usually insidious, and the pain pattern is one of major factors suggesting a non- discogenic causes of sciatic radiculopathy (21,22,23).

Patients and methods:

During one year period from Jan.2014 to Jan. 2015 we reviewed prospectively 600 patients presented with lumbar radiculopathy in medical city – Baghdad. All patients were examined in outpatient clinic including detailed history and comprehensive physical examination followed by laboratory, radiological and electromyography (E.M.G) studies. Imaging included plain X-Ray of lumbar spine, pelvis, hip joint, and chest, ultrasound of the abdomen and pelvis, M.R.I of lumbar spine. Laboratory tests included blood test, ESR, biochemical, serological and virological tests.

86 patients had lumbar discectomy out of 496 patients with discogenic L.R who were excluded from the study. Inclusion criteria were 104 cases out of 600 who were diagnosed as non discogenic L.R.
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All cases with a diagnosis of non discogenic L.R were referred to other specialist like orthopedic, vascular, general surgery and neurology.

Results:
There were 104 patients (17%) had non discogenic L.R out of 600 cases who presented with L. R during one year period.

Table 1 : gender distribution in non discogenic L.R

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<th>male</th>
<th>female</th>
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<td>Nondiscogenic L.R</td>
<td>68(65, 3%)</td>
<td>36(34, 7%)</td>
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Age of patients ranged from 25 y. to 60y, including 68(65, 3%) male and 36 (34, 7%) female. 86 patients (15%) had lumbar disorder out of 496 cases with discogenic L.R treated surgically while 410 patients (85%) received non surgical management with good results.

Table 2: incidence of discogenic and nondiscogenic L.R

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<th>discogenic L.R</th>
<th>Nondiscogenic L.R</th>
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<tr>
<td>600 PATIENTS</td>
<td>496 (83%)</td>
<td>104 (17%)</td>
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From 104(17%) cases of nondiscogenic L.R, 30 patients (28.8%) had peripheral neuropathy Guillain- Barre syndrome, diabetic neuropathy, and 20 patients (19.2%) had peripheral vascular disorders.

In this study pelvic, hip, and upper femur pathologies were diagnosed in 20 patients (19.2%) like osteoarthritis of hip joint, osteonecrosis of femoral head and sacroiliac joint lesions.

Table 3: Causes of nondiscogenic lumbar radiculopathy

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<tr>
<td>Peripheral neuropathy</td>
<td>30 (28.8%)</td>
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<tr>
<td>Peripheral vascular disorders</td>
<td>20 (19.2%)</td>
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<tr>
<td>Pelvic, hip, and femur pathology</td>
<td>20 (19.2%)</td>
</tr>
<tr>
<td>Extraspinal tumor</td>
<td>15 (14.5%)</td>
</tr>
<tr>
<td>Infections</td>
<td>12 (11.5%)</td>
</tr>
<tr>
<td>Entrapment neuropathy</td>
<td>7 (6.5%)</td>
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Extraspinal tumor were diagnosed in 15 patients (14.5%) like two cases osteogenic sarcoma of upper femur, two cases with schwannoma of the lumbar sacral plexus, two cases with malignant peripheral nerve sheath tumor of the sciatic nerve at the sciatic notch, one case with liposarcoma of upper thigh, two cases of chondrosarcoma of iliac bone, and six patients had L.R due to complication of chemotherapy and radiotherapy for malignancy. Infections were included 12 cases (11.5%) like discitis, epidural abscess with or without osteomyelitis of lumbar vertebra. Seven patients (6.5%) presented with entrapment neuropathy of lower limb like common peroneal neuropathy in 4 cases and 3 cases with compression of the lateral femoral cutaneous nerve of thigh.

Discussion:
Lumbar radiculopathy is a common symptom causes by intraspinal or extraspinal pathologies processes along the lumbar nerve root and/or sciatic nerve. (1)
The most frequent intraspinal disease causing L.R. are herniated disc or spinal stenosis in (83%) (4), as a confirmed in this study were (85%).
In (20%) of case of sciatic pain both discogenic and nondiscogenic in origin presented at same time but in this study no such cases founded. (4, 5)
Extraspinal causes of L.R. were misdiagnosed because diagnostic test focus on lumbar spine which agree with this study. (14, 15, 16)
In this paper 104 patients 17% were diagnosed nondiscogenic L.R. and two most common group of nondiscogenic L.R. were peripheral neuropathy (28.8%) and peripheral vascular disease in (19.2%) which compatible with previous studies by Lipetz JS and Jeon CH,Han SH. (10,11,12) Musculoskeletal disease around the pelvis, hip joint and upper femur like osteoarthritis of hip joint, necrosis of femur head and sacroiliac joint lesion are not uncommon causes of nondiscogenic L.R. (7, 13, 14) and were diagnosed in 20 patients in this series (29.2%). Also osteomyelitis, osteodiscitis and epidural abscess were diagnosed in 12 patients(11.5%). Infectious etiologies should be considered in different diagnosis of L.R. mostly in diabetic and immunocompromized patients. (15, 16, 17) Entrapment neuropathy like common peroneal nerve neuropathy and compressed of the lateral cutaneous nerve of thigh were studies in the studies causes L.R. (18, 19, 20, 21) Jeon CH et al and were presented in 7 cases (6.53%) in this paper. Extraspinal tumors were founded in 15 patients (14.5%) in this series like osteogenic carcinoma of the upper femur, chondrosarcoma of the pelvis, malignant peripheral nerve sheath tumor of sciatic nerve at greater sciatic notch, liposarcoma of the upper thigh and schwannoma of the lumbar sacral plexus so high index of suspicions is required to rule out these pathologies causing L.R. (22,23,24,25) Pelvic and femoral pathogenesis can coexist with lumbar disc herniation like intrapelvic tumors, psosas abscess, hematoma, endometrioses, tuber ovarian, gluteal abscess, trochanteric bursitis and piriformis syndrome (25,26,27,28) in this study no pelvic or femoral pathologies coexist with lumbar disc herniation.

Conclusions:
The most common causes of lumbar radiculopathy are herniated disc but it is not the only one, however there is a broad list of differential diagnosis os nondiscogenic lumbar radiculopathy in 17% of the cases. The pathologies of nondiscogenic L.R. in
the study were in order of frequency: Peripheral neuropathy (28.8%), peripheral vascular diseases (19.2%), infectious (11.5%), hip, pelvis and upper femur lesions (19.2%), entrapment neuropathy (6.5%) and extraspinal tumors (14.5%) respectively. Those mimickers of lumbar radiculopathy can be diagnosed by detailed history, proper physical examination and appropriate diagnostic tests to avoid misdiagnosis, unnecessary investigations and treatment with ultimately a delay in delivery of appropriate care.

References: