

Case Report

Meralgia Paresthetica-Like Syndrome May Be Caused by Transient Lumbar Nerve Root Injury without Definite Compression: A Case Report

Pornpatr Dharmasaroja MD*,
Permphan Dharmasaroja MD, PhD**

* Division of Neurology, Faculty of Medicine, Thammasat University, Pathumthani, Thailand

** Department of Anatomy, Faculty of Science, Mahidol University, Bangkok, Thailand

Meralgia paresthetica is a well-known sensory syndrome describing paresthesia and/or anesthesia in the anterolateral aspect of the thigh that is supplied by the lateral femoral cutaneous nerve. Compression of the nerve usually occurs at the point where it passes between the anterior superior iliac spine and the inguinal ligament. Proximal lesions such as lumbar radiculopathy, lumbar disc herniation, and spinal stenosis have been reported to cause meralgia paresthetica-like syndrome. These proximal lesions directly injure L2 and L3 spinal nerve roots and cause a constant compression of the nerve roots. The presented paper introduces a hypothesis that this syndrome can be caused by transient injury to the L2 and L3 nerve roots by the upper adjacent disc bulge without definite compression. This hypothesis is supported by lumbar spine magnetic resonance imaging of a patient presenting with a meralgia paresthetica-like symptom during bending forward and twisting of the body, showing no L2/L3 herniated disc but mildly posterior bulging of T12/L1 disc. This hypothesis emphasizes an importance of appropriate postures in patients with meralgia paresthetica-like symptoms in order to prevent long-term morbidity.

Keywords: Lumbar radiculopathy, Spinal stenosis, Disc herniation

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Meralgia paresthetica is a well-known sensory syndrome describing paresthesia and/or anesthesia in the anterolateral aspect of the thigh that is supplied by the lateral femoral cutaneous nerve (LFCN)⁽¹⁾. The incidence rate of meralgia paresthetica is approximately 4.3 per 10,000 person years⁽²⁾. Most patients usually complain of persistent burning or tingling sensation, and aching pain. Originally, meralgia paresthetica is described as an entrapment neuropathy involving the LFCN⁽³⁾. Compression of the nerve usually occurs at the point where it passes between the anterior superior iliac spine and the inguinal ligament. Several factors have been described as a predisposing factor such as obesity, tight belt, and prolonged periods of the prone position⁽⁴⁻⁶⁾. These factors are related to direct compression of the nerve. Increased intra-abdominal

pressure such as pregnancy and ascites also contributes to this condition^(2,7). Proximal lesions such as lumbar radiculopathy, lumbar disc herniation, and spinal stenosis have been reported to cause meralgia paresthetica-like syndrome^(8,9). A malignant tumor of the psoas muscle has also been reported to cause this syndrome⁽¹⁰⁾. These proximal lesions directly injure L2 and L3 spinal nerve roots, which constitute the LFCN, and cause a constant compression of the nerve roots.

Case Report

A 23-year-old man presented with a two-week period of persistent burning sensation in the anterolateral aspect of his left thigh. This symptom occurred rather suddenly while he was exercising in the lumbar flexion position with reaching of the left hand to the toes of the right foot. The patient was not obese and had no systemic diseases such as diabetes, alcoholism, and hypothyroidism, which can be a contributing factor of meralgia paresthetica^(2,11,12). On physical examination, paresthesia of burning in quality over the L2-L3 dermatome on the left thigh was expressed by the patient. Deep palpation just below

Correspondence to:

Dharmasaroja P, Department of Anatomy, Faculty of Science, Mahidol University, Rama VI Road, Rajthevi, Bangkok 10400 Thailand.

Phone: 0-2201-5402, Fax: 0-2354-7168

E-mail: tepdm@mahidol.ac.th

the anterior superior iliac spine and extension of the left hip did not provoke the pain. The patient had no muscle weakness of the left hip and knee muscles. He denied low back pain when the symptom occurred, and percussion on the lumbar spine did not produce pain. Magnetic resonance imaging (MRI) of the lumbar spine was performed to exclude lumbar disc herniation with L2-L3 root compression, and a tumor of the psoas muscle. MRI revealed no herniated disc at the L2/L3 and L3/L4 vertebral levels, but at the L5/S1 level (Fig. 1 and 2). However, anterior wedging of the L1 vertebral body, compatible with an old compression fracture, was seen (Fig. 1). This wedge compression caused mild posterior bulging of the T12/L1 intervertebral disc, with grade 1 spondylolisthesis of the T12 over the L1 vertebra. Mild stenosis of the spinal canal was also seen.

Discussion

In this case, the patient did not have a direct compression of the L2 and L3 spinal nerve roots. The posterior bulge that was seen at the T12/L1 level did also not compress the corresponding nerve roots. What causes paresthesia over the L2-L3 dermatome in this patient? A hypothesis is 'transient' L2 and L3 root compression by this posterior bulge at the L1/L2 level.

This phenomenon might occur when a patient bends forward, and particularly, with twisting of the body. In this case, the patient performed lumbar flexion with reaching of his left hand to the toes of his right foot. This kind of movement might stretch lumbar spinal nerve roots of the left side of the spinal cord (in this case, L2 and L3 roots), and together with the rather narrow spinal canal, turn the T12/L1 bulge to the left side, resulting in transient compression of the L2 and L3 nerve roots that descend pass this vertebral level before exiting at the corresponding intervertebral foramina. Severity and duration of symptoms might be dependent on the severity of the nerve compression.

In the presence, herniated lumbar disc-related meralgia paresthetica is a well-known condition as being occurred by direct compression of the L2 or L3 nerve roots by the herniated disc of the same levels, and can be visualized by imaging studies^(8,9,13,14). In cases of spinal stenosis-related meralgia paresthetica, the stenosis is usually significant together with thickening of the ligamentum flavum at the corresponding levels⁽¹⁴⁾. Transient injury to the L2 and L3 nerve roots causing meralgia paresthetica-like syndrome is rarely reported. This may be due to a lack of imaging confirmation. A case of meralgia paresthetica of the right thigh has been reported as being a result of an old T12 vertebral collapse with degenerative T11/T12 and T12/L1 discs and stenosis below the



Fig. 1 Sagittal MRI shows anterior wedging of the L1 vertebral body with posterior bulging of the T12/L1 intervertebral disc. Mild spinal stenosis is present. (Left) midsagittal, (Right) adjacent image to the left.

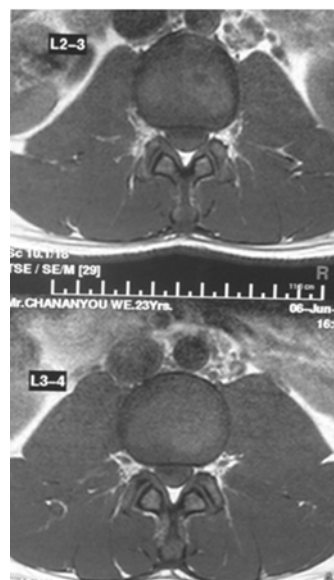


Fig. 2 Transverse MRI at the L2/L3 and L3/L4 vertebral levels shows no disc herniation.

L3 vertebral level⁽¹⁵⁾. The presented case also demonstrates a lack of definite compression of the L2 and L3 nerve roots.

Entrapment of the LFCN, which is constituted by the L2 and L3 nerve roots, cannot be excluded although the patient has no risk factor and an electrophysiological study is not performed; however, entrapment usually causes constant compression of the nerve and the symptoms are persistent. Although pathologic changes of the transiently compressed or injured lumbar nerve roots have not been studied, the abnormalities might be similar to those found in the LFCN compression at the distal regions. Studies of LFCNs in routinely autopsied cases showed local demyelination and Wallerian degeneration of the nerves at the site around the inguinal ligament⁽¹⁶⁾. Polarized intermodal swellings on nerve fibers, which suggest that mechanical factors are involved in pathogenesis, may be present⁽¹⁶⁾. In these cases, endoneurial vascular thickening confined to the inguinal ligament was observed and was believed to be involved in the symptoms of meralgia paresthetica. In the presented case, the posterior bulge at the T12/L1 intervertebral disc might be the point that directly causes a mechanical injury to the L2 and L3 nerve roots during bending forward and twisting of the trunk. At a two-week follow-up, the patient's symptoms were improved with rest in a supine position and amitriptyline. A treatment plan of transient nerve root injury may be conservative, and patients should be informed about appropriate postures to avoid repetitive injury leading to long-term morbidity.

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กลุ่มอาการคล้าย meralgia paresthetica อาจเกิดจากการบาดเจ็บชั่วคราวต่อเส้นประสาทสันหลัง
ส่วนเอวโดยปราศจากกดทับโดยตรง : รายงานผู้ป่วย

พรภัทร ธรรมสโรช, เพิ่มพินธุ์ ธรรมสโรช

Meralgia paresthetica เป็นกลุ่มอาการที่รู้จักกันดีซึ่งมีลักษณะของอาการชาหรือไม่รับรู้ความรู้สึกที่บริเวณ
ต้นขาด้าน anterolateral ซึ่งเลี้ยงโดยเส้นประสาท lateral femoral cutaneous เส้นประสาทนี้อาจถูกกดทับในตำแหน่ง
ระหว่าง anterior superior iliac spine และ inguinal ligament หรืออาจเกิดที่ส่วนต้นของเส้นประสาทเช่น จากความผิด
ปกติของ รากเส้นประสาท การกดทับจากหมอนรองกระดูกงอก หรือการตีบแคบของช่องกระดูกสันหลังซึ่งทำให้เกิดการ
บาดเจ็บ ต่อรากเส้นประสาทส่วนเอวที่ 2 และ 3 โดยตรงจากการกดทับอยู่ตลอดเวลา รายงานฉบับนี้ได้เสนอ
สมมุติฐานว่ากลุ่มอาการนี้อาจเกิดขึ้นได้จากการบาดเจ็บชั่วคราวต่อรากเส้นประสาทส่วนเอวที่ 2 และ 3 จากการ
งอกของหมอนรองกระดูกในระดับที่อยู่เหนือขึ้นไปโดยปราศจากการกดทับในระดับเดียวกัน ซึ่งสมมุติฐานนี้ถูกรองรับ
โดยการศึกษาภาพถ่ายแม่เหล็กไฟฟ้าของกระดูกสันหลังส่วนเอวของผู้ป่วยรายหนึ่งที่มีอาการคล้าย meralgia
paresthetica ในขณะที่กำลังก้มตัวไปข้างหน้าพร้อมกับบิดลำตัว โดยพบว่าไม่มีการงอกของหมอนรองกระดูก
ที่ระดับเอวที่ 2 ต่อ 3 แต่มีหมอนรองกระดูกยื่นโป่งเล็กน้อยในระดับอกที่ 12 ต่อระดับเอวที่ 1 สมมุติฐานนี้ได้ย้ำถึงความ
สำคัญ ของท่าทางที่เหมาะสมของผู้ป่วยที่มีอาการของ meralgia paresthetica เพื่อที่จะป้องกันไม่ให้เกิด
ทุพพลภาพในระยะยาว
