Brief Commentary

Ultrasound-Guided Diagnosis and Treatment of Meralgia Paresthetica

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Meralgia paresthetica refers to the entrapment of the lateral femoral cutaneous nerve at the level of the inguinal ligament. The lateral femoral cutaneous nerve – a purely sensory nerve – arises from the L2 and L3 spinal nerve roots, travels downward lateral to the psoas muscle, and then crosses the iliacus muscle. Close to the anterior superior iliac spine, the nerve courses in contact with the lateral aspect of the inguinal ligament and eventually innervates the lateral thigh. The entrapment syndrome is usually idiopathic but can also ensue due to trauma/overuse, pelvic and retroperitoneal tumors, stretching of the nerve due to prolonged leg/trunk hyperextension, leg length discrepancies, prolonged standing, external compression by belts, weight gain, and tight clothing. The diagnosis of Meralgia paresthetica is usually clinical, i.e., based on the following symptoms: paresthesia, numbness, burning sensation, dysesthesia, and pain over the anterolateral aspects of the thigh. These complaints may be worsened by walking or prolonged standing and typically disappear after weight loss, abdominal muscle strengthening, or elimination of the underlying cause. Although there are several reports on the confirmatory role of electrodiagnostic studies in the diagnosis of Meralgia paresthetica, electromyographers would usually prefer/suggest not to perform nerve conduction studies in daily clinical practice. Herewith, due to its several advantages, ultrasound imaging has been proposed as an alternative diagnostic method in the recent literature. It not only confirms the entrapment morphologically, but also uncovers a likely underlying cause and provides immediate interventional guidance. The pertinent sonographic findings would be hypoechoic and swollen lateral femoral cutaneous nerve.

Key words: Meralgia paresthetica, ultrasound, diagnosis, treatment

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Meralgia paresthetica (MP) refers to the entrapment of the lateral femoral cutaneous nerve (LFCN) at the level of the inguinal ligament. The LFCN – a purely sensory nerve – arises from the L2 and L3 spinal nerve roots, travels downward lateral to the psoas muscle, and then crosses the iliacus muscle (Fig. 1A). Close to the anterior superior iliac spine (ASIS), the nerve courses in contact with the lateral aspect of the inguinal ligament and eventually innervates the lateral thigh (1).

The entrapment syndrome is usually idiopathic but can also ensue due to trauma/overuse, pelvic and retroperitoneal tumors, stretching of the nerve due to prolonged leg/trunk hyperextension, leg length discrepancies, prolonged standing, external compression by belts, weight gain, and tight clothing (1,2).

The diagnosis of MP is usually clinical, i.e., based on the following symptoms: paresthesia, numbness, burning sensation, dysesthesia, and pain over the anterolateral aspects of the thigh. These complaints may be worsened by walking or prolonged standing and typically disappear after weight loss, abdominal muscle strengthening, or elimination of the underlying cause (3). Although there are several reports on the confirmatory role of electrodiagnostic studies in the diagnosis of MP, electromyographers would usually prefer/suggest not to perform nerve conduction studies in daily clinical practice (4). Herewith, due to its sev-

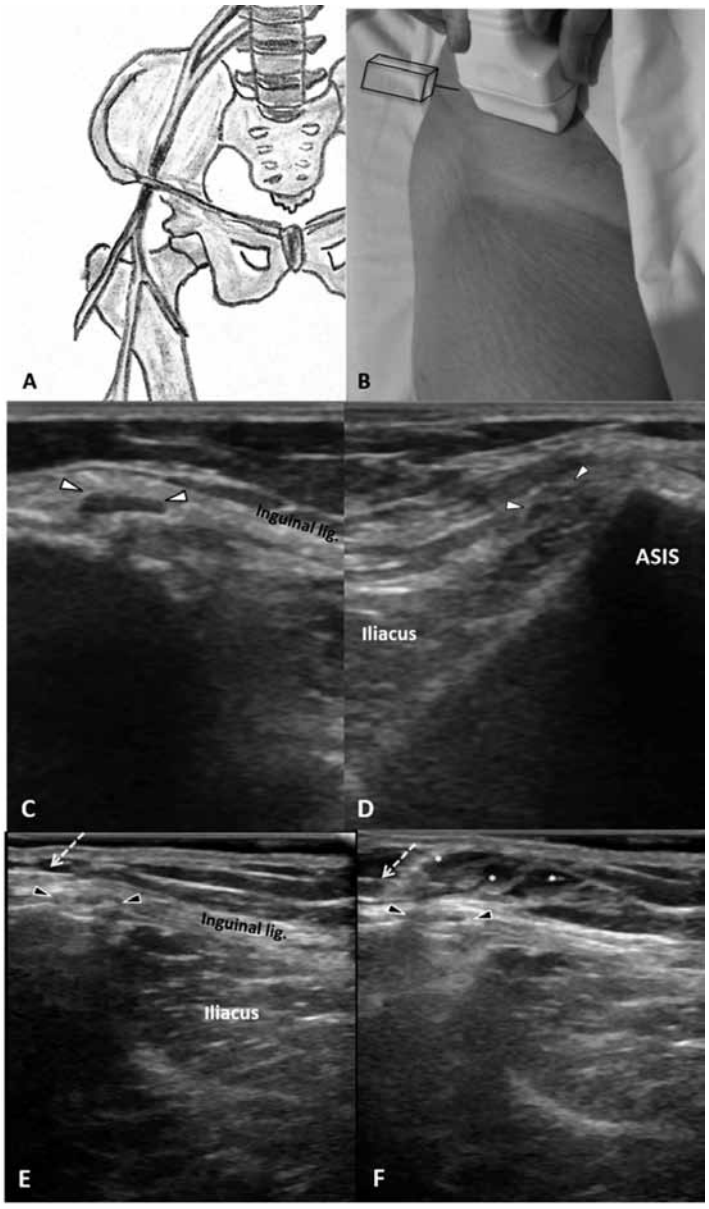

Fig 1. *A: Anatomic position of the lateral femoral cutaneous nerve. B: Photograph that shows transducer positions for ultrasonographic imaging axial scanning over the inguinal ligament. C and D: When compared with normal side (small white arrowhead) (D), ultrasonographic imaging revealed swollen, edematous lateral femoral cutaneous nerve (big white arrowhead) (C). ASIS: anterior superior iliac spine, inguinal lig.: inguinal ligament. E and F: Direct in-plane technique during axial scanning injection, the sonographic image (axial view) of injection around lateral femoral cutaneous nerve. Dashed arrow: needle, black arrowhead: lateral femoral cutaneous nerve, asterisks: injectate, inguinal lig.: inguinal ligament*

eral advantages, ultrasound (US) imaging has been proposed as an alternative diagnostic method in the recent literature (4). It not only confirms the entrapment morphologically, but also uncovers a likely underlying cause and provides immediate interventional guidance (5). The pertinent sonographic findings would be hypoechoic and swollen LFCN (4).

Imaging Technique

The patient is placed in the supine position. Use of a high-frequency linear array transducer is suggested. Axial scanning of the nerve is easier for initial localization. The transducer is oriented parallel/over the inguinal ligament whereby the outer edge is placed on the ASIS (Fig. 1B). With cranio-caudal fine movements of the probe, the nerve (a small anechoic ovoid structure) can be localized passing over, under, or through the inguinal ligament (Fig. 1C). It is not uncommon to visualize it as 2 fascicles that bifurcate while tracing distally.

Injection of the LFCN

While the conservative treatment comprises removal of the source of compression, physical therapy, nonsteroidal anti-inflammatory drugs, tricyclic antidepressants, and anticonvulsants (4); for patients irresponsive to initial treatment, local anesthetic and/or corticosteroid injection may be necessary/therapeutic.

Although the injection of the LFCN has been classically described using anatomic landmarks, owing to the anatomic variability of the nerve, failure rates have been reported as high as 60% (1). On the other hand, similar to any other US-guided injections, real-time imaging with US definitely avoids such an untoward eventuality.

US-guided injection can be performed either using the direct or indirect approach (5). The former refers to either in-plane (long axis) or out-plane (short-

axis) technique and the latter refers to a blind injection after precise sonographic measurements have been acquired. The injection can be performed using the direct in-plane technique whereby the long axis of the needle is visualized during the whole injection (Fig. 1E,F).

In daily clinical practice, the use of static/dynamic US imaging for the diagnosis and treatment of MP is noteworthy.

Conflict of interest

Each author certifies that he or she, or a member of his or her immediate family, has no commercial association (i.e., consultancies, stock ownership, equity interest, patent/licensing arrangements, etc.) that might pose a conflict of interest in connection with the submitted manuscript.

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