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Letter to the Editor

Ultrasound-guided dry needling for chronic low back pain: A case report targeting the quadratus lumborum muscle

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Low back pain (LBP) can arise from various potential causes, although only a few are commonly encountered in routine medical care. Among patients with chronic LBP (CLBP), myofascial pain syndrome (MPS) emerges as the most prevalent issue, accounting for approximately 85% of cases and often presenting with persistent or recurrent symptoms.[1]

Myofascial pain syndrome refers to a condition affecting one or more muscles or muscle groups, characterized by the presence of trigger points (MTrPs). These MTrPs manifest as hyperirritable regions within taut bands of skeletal muscle or muscle fascia. Despite its prevalence, there remains a significant gap in clinician understanding of MPS, leading to a high rate of misdiagnosis or underdiagnosis, subsequently resulting in inadequate treatment of the disorder. Myofascial pain syndrome, which usually goes undiagnosed, is thought to be the source of CLBP in up to 80% of patients.[2,3] Chronic overload or overuse of the quadratus lumborum (QL) muscle stands as a prominent cause of CLBP.[4]

Dry needling (DN) is a cost-effective and minimally invasive therapeutic approach that offers a low-risk treatment option. Extensive research and systematic reviews have consistently demonstrated its efficacy.[5] Utilizing ultrasound guidance, DN has shown favorable outcomes in various painful musculoskeletal conditions.[6] Herein, we present a patient who underwent multiple treatments for CLBP without experiencing significant improvement. The focus is on the successful management of the patient's condition using ultrasound-guided DN therapy specifically targeting the QL muscle.

A 48-year-old male patient who presented to our clinic with persistent low back pain. The patient reported a five-month duration of pain without any history of trauma. The pain was described as radiating from the lower back to the right side of the buttock and coccyx, with exacerbation occurring during coughing or sneezing, resulting in a stabbing sensation. Lifting weights, twisting or turning motions, and prolonged periods of sitting were identified as activities that triggered the pain. Notably, there was an absence of night pain, radiation of pain to the legs, and accompanying symptoms such as numbness, tingling, or muscle weakness. The patient rated his pain intensity as 7 on the Visual Analog Scale (VAS). Furthermore, there were no associated systemic symptoms such as fever, weight loss, urinary or bladder incontinence, or numbness reported. The pain was found to be relieved with rest and exacerbated by activity. The patient had sought medical attention from various clinics previously, experiencing only partial relief from medication treatments. The patient was prescribed naproxen sodium orally at a dose of 75 mg and thiocolchicoside orally at a dose of 8 mg, administered twice daily for a duration of 7 days, which resulted in mild improvement.

Systemic examination revealed no abnormalities. In the musculoskeletal examination, flexion and lateral flexion range of motion was limited on the right side.

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paravertebral spasm on the right side and tenderness over the right iliac crest were detected on palpation. The straight leg raising, femoral stretching, Gaenslen's test; flexion, abduction, external rotation (FABER) test; flexion, adduction, internal rotation (FAIR) test, Pace's test and Freiberg's tests were negative. Neurological examination revealed no motor or sensory deficit. Lumbosacral vertebral X-rays revealed decreased lumbar lordosis. The magnetic resonance imaging (MRI) of lumbosacral region showed decreased lumbar lordosis and minimal discopathy in L4-L5 disc which did not explain his complaints. The MRI images did not demonstrate any discernible pathology specifically associated with the facet joints.

The absence of nocturnal pain, leg radiation, and associated neurological symptoms, coupled with findings of limited range of motion, paravertebral spasm, and tenderness over the right iliac crest, suggests a localized musculoskeletal origin. These clinical manifestations are consistent with QL muscle involvement, known to refer pain to the buttock and coccyx region. Negative results on tests assessing nerve compression and disc-related pathology, along with the absence of motor or sensory deficits, discount nerve impingement as the etiology. Radiographically, decreased lumbar lordosis and minimal discopathy at L4-L5 do not sufficiently account for the patient's symptoms, further bolstering the diagnosis of myofascial pain syndrome as the primary pain source. Based on the comprehensive evaluation and clinical evidence, we concluded that the patient's presentation was compatible with the diagnosis of MPS affecting the QL muscle. Consequently, the decision was made to initiate DN treatment targeting the MTrPs of the QL muscle.

Ultrasound-guided DN was administered to the QL muscle. The patient was positioned in a side-lying posture on the examination table. Utilizing ultrasound imaging, the probe was placed perpendicular to the muscle's longitudinal axis, proximal to the crista iliaca. A transverse view was obtained, and an in-plane technique was employed to guide the needle insertion at an angle of 0 to 60 degrees, until it reached the QL muscle (Figure 1). The needle was, then, manipulated using the peppering method to elicit multiple twitch responses. Following the twitch responses, the needle was withdrawn, and compression was applied with a cotton ball for one minute to mitigate the risk of hematoma formation. Subsequent to the ultrasound-guided DN intervention, the patient reported a reduction in pain intensity from 7 to 3 on a scale of 10. The treatment sessions were repeated every two weeks for a total of three cycles. Following the final session, the patient's pain severity further decreased to 2 out of 10. Additionally, the patient was prescribed a targeted stretching exercise regimen to specifically address the QL muscle.

In conclusion, the MTrPs of the QL muscle can cause pain radiating to the groin, iliac crest, testis, scrotum, or follow a sciatic distribution. Patients commonly describe a persistent, deep, aching pain that worsens in the unsupported upright position, sitting, or standing.[7] On the other hand, pain

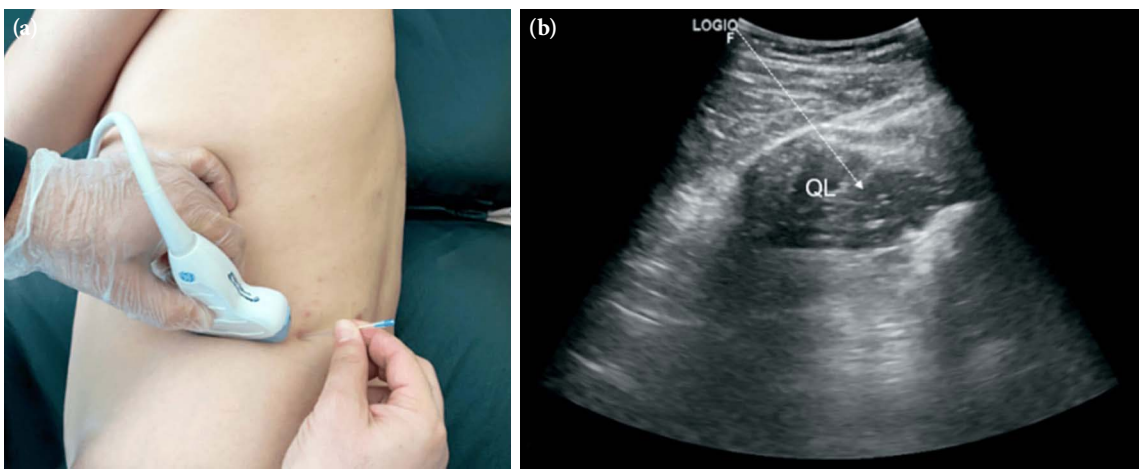

Figure 1. Ultrasound-guided dry needling technique for the quadratus lumborum muscle: probe placement, needle position and ultrasound image; **(a)** probe placement and needle position, **(b)** ultrasound image of the quadratus lumborum muscle.

QL: Quadratus lumborum; Arrow: Needle trace.

and tenderness referred by QL TrPs to the greater trochanter area can be mistaken for trochanteric bursitis, while pain caused by satellite TrPs in the sciatic distribution can mimic an S1 radiculopathy, often referred to as "pseudo-disc syndrome".[4] The QL muscle is a muscle to keep in mind for MTrPs in CLBP patients, and US-guided DN therapy may yield favorable results in patients who do not respond to conventional therapies.

Patient Consent for Publication: A written informed consent was obtained from the patient.

Data Sharing Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

Author Contributions: Idea/concept, design, analysis and/or interpretation, writing the article, materials: M.H.T.; Control/supervision, data collection and/or processing, literature review, critical review, references and fundings: F.B.

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