Letter to the Editor

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Orphan muscle of groin pain: ultrasound imaging of the pectineus muscle

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Groin pain can be caused by a wide range of etiologic factors, from urologic problems to muscular pathologies, and it is a complex condition in terms of diagnosis and treatment. Some researchers have investigated myofascial trigger points by considering muscles in the etiology of pelvic pain and found myofascial tenderness was present in up to 88% of cases with palpation. However, the literature has somewhat neglected the pectineus muscle and has not emphasized its role in the etiology of groin pain. On the other hand, the pectineus muscle trigger points may be involved in the etiology of many chronic pelvic and groin pains[1–3].

The pectineus muscle, located in the groin area, is a small muscle. It plays a role in hip flexion and adduction by originating from the superior pubic ramus and adjacent fascia, moving inferolaterally, and adhering to the pectineal line of the femur. Despite its small size and relatively minor role in movement, trigger points in the pectineus muscle can be an important source of pain and dysfunction in the pelvic region[1].

Dry needling (DN) is highly effective in treating myofascial pain syndrome, which is characterized by trigger points. DN is a practical, effective, and minimally invasive treatment. Research has demonstrated the effectiveness of dry needling in reducing pain and promoting healing in various musculoskeletal disorders, including chronic pelvic pain[1,4,5].

In the literature, one reason for the limited discussion on trigger points in the pectineus muscle and their treatment with dry needling may be that it is a deep muscle, difficult to palpate and assess manually. However, advances in diagnostic imaging and other diagnostic tools have facilitated the identification and targeting of the pectineus muscle and its trigger points in cases of chronic pelvic and groin pain. In this article, we aim to discuss ultrasound-guided DN treatment for the pectineus muscle, which is a neglected cause of groin and pelvic pain[3].

The ultrasonography probe is positioned transversely to the hip joint (Fig. 1A). By shifting the ultrasound probe medially, the pectineus muscle, which adheres to the superior pubic ramus medial to the femoral vein, is visualized (Fig. 1B). Then, the probe is shifted distally, brought to the longitudinal plane, and tilted to identify the borders and body of the muscle (Fig. 1C). Once the boundaries of the muscle are determined and the muscle is visualized, the trigger points within the muscle can be visualized using ultrasonography.

The sonographic pattern of myofascial trigger points is defined as hypoechoic (painful) nodules within the muscle tissue. The nodules may appear in shapes such as elliptical, fusiform, or rounded, with or without spatial distortion of the hyperechoic perimysium[6]. Guided by this identification, trigger points within the pectineus muscle can be confirmed by palpation with the ultrasound probe. DN treatment for these trigger points can then be performed using either an in-plane or out-of-plane technique, in a way that avoids damaging important structures such as the femoral artery, femoral vein, and the interfascial plane between the obturator externus and the pectineus muscle, which houses various neurovascular structures. During DN treatment, local twitch responses are targeted[1,5].

In conclusion, the pectineus muscle is an important yet often overlooked muscle in the management of pelvic and groin pain. With increased myofascial awareness and targeted treatment techniques, it may be possible to address dysfunction in this muscle through a non-surgical approach, such as ultrasound-guided DN therapy, to achieve significant improvements in pain and function. We hope that this article raises awareness of the importance of the pectineus muscle and encourages further research and exploration into its role in pelvic and groin pain.

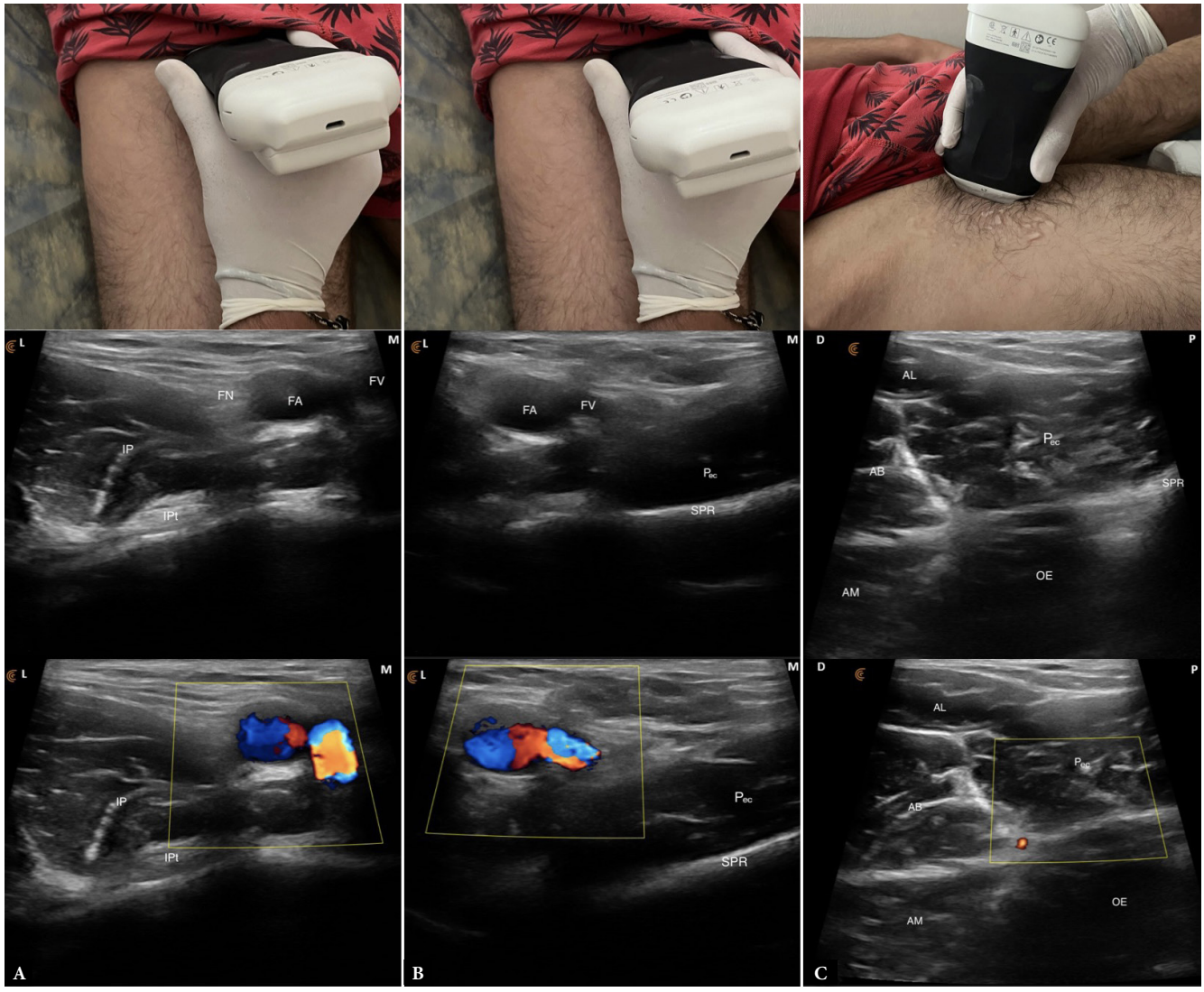

Fig. 1. A. *Transverse placement of the ultrasound probe at the hip joint, with visualization of vascular structures.* **B.** *Visualization of the superior pubic ramus and the pectineus muscle medial to the femoral vein in the transverse plane.* **C.** *Visualization of the pectineus muscle in the longitudinal plane. M – medial; L – lateral P – proximal; D – distal; AL. – adductor longus muscle; AB – adductor brevis muscle; AM – adductor magnus muscle; IP – iliopsoas muscle; Ipt – iliopsoas tendon; FA – femoral artery; FV – femoral vein; FN – femoral nerve; OE – obturator externus muscle; Pec – pectineus muscle; SPR – superior pubic ramus*

Conflict of interest

The authors do not report any financial or personal connections with other persons or organizations which might negatively affect the contents of this publication and/or claim authorship rights to this publication.

Author contributions

Original concept of study: BTD, MO, FB. Writing of manuscript: BTD, MO, BA. Final acceptation of manuscript: BTD, MO, BA, FB. Critical review of manuscript: BTD, BA, FB.

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