



An Overlooked Partial Tear of Rectus Femoris Muscle: Value of Ultrasonography

Gözden Kaçırılmış Bir Rektus Femoris Kas Yırtığı: Ultrasonografinin Değeri

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Summary

To highlight the importance of musculoskeletal ultrasonography (MSUS) in the diagnosis and follow-up of partial muscle tears, we report a 32 year-old man with a previously ruptured and healed partial tear of rectus femoris muscle. Diagnosis was established with MSUS. Rupture of the quadriceps muscle is an uncommon and frequently overlooked injury. Delayed diagnosis and lack of adequate treatment will result in weakness of the extensor mechanism and joint instability. Ultrasonography (US) is not only helpful for detecting the muscle tears, but also useful in the healing period as a follow-up tool with its ability of imaging previous tears. (Turkish Journal of Osteoporosis 2014;20: 81-2)

Key words: Quadriceps, rectus femoris, muscle, tear, rupture, ultrasound

Özet

Parsiyel kas yırtıklarının tanı ve takibinde kas-iskelet ultrasonografinin (KİUS) öneminin vurgulanması için daha önceden rüptüre olmuş ve iyileşmiş parsiyel rektus femoris kas yırtığı olan 32 yaşında erkek hasta sunulmuştur. Tanı, KİUS ile konulmuştur. Kuadriseps kas rüptürü sık görülmemekle birlikte çoğunlukla gözden kaçırılabilen bir tanıdır. Gecikmiş tanı ve yetersiz tedavi ekstansör mekanizmanın zayıflaması ve eklem instabilitesi ile sonuçlanacaktır. Ultrasonografi (US) sadece kas yırtıklarının tanısında değil, aynı zamanda eski rüptürleri görüntüleyebilme kabiliyeti ile iyileşme periyodunda da yardımcı bir yöntemdir. (Türk Osteoporoz Dergisi 2014;20: 81-2)

Anahtar kelimeler: Kuadriseps, rektus femoris, kas, yırtık, rüptür, ultrason

Introduction

The rectus femoris muscle is one of the four muscle bellies that compose the quadriceps muscle which is located in the anterior compartment of the thigh. Rupture of this muscle is an uncommon but frequently overlooked injury (1). It mainly occurs in the middle-aged and elderly (2). Tears are mostly seen secondary to trauma in the middle ages, other rare causes in the elderly are systemic conditions such as diabetes mellitus, gout, systemic lupus erythematosus, rheumatoid arthritis, end-stage renal disease, prolonged systemic steroid use or hyperparathyroidism (3-5).

Musculoskeletal ultrasound (MSUS) has gained a considerable importance in the field of sports medicine and rehabilitation practitioners in identifying structural changes within tissues and joints (6).

Case

We report a 32 year-old man who presented to our clinic with a mild pain in the right anterior thigh since 3 months. Three months ago, during a football match, after a jump he felt a sudden pain in the right inguinal area spreading to the anterior region of the thigh. On detailed questioning, he declared that he was prescribed oral and topical analgesics after the initial injury. On clinical examination, there was pain in the anterior aspect of the thigh during hip flexion. Direct radiographs of the hip and femur were normal. MSUS, with a high frequency linear probe, revealed a fibrous hyper-echoic area inside the right rectus femoris muscle which was consistent with an old and healed partial tear (Figure 1). After he received 15 sessions of physiotherapy, his symptoms resolved completely.

Discussion

The main actions of the quadriceps muscle are knee extension and hip flexion. The maximum contraction of the muscle is seen during kicking and landing after a jump. Therefore, quadriceps muscle is more commonly injured in athletes, particularly in sports which require repetitive kicking and/or jumping (7,8). The rectus femoris muscle traverses two joints (hip and knee joints), thus it is more vulnerable to trauma injuries than the other quadriceps muscles (9,10).

Clinically, tears of the quadriceps muscle should be suspected in patients with pain and oedema in the anterior compartment of the thigh and with limited extension of the knee. However, the diagnosis is often overlooked as in our case. The patient presented here experienced a small tear in the first place; it limited itself with time and healed with a fibrous tissue inside the muscle. In addition to muscle rupture, sarcoma or haemangioma should also be considered in such cases, as soft tissue sarcomas are most commonly located in the lower extremities (11). In the presented case, ultrasonographic features such as size and shape were not consistent with a sarcoma or haemangioma.

As in our case, complications can develop if a muscle lesion is overlooked. The most common complications of direct trauma to a muscle are cicatricial fibrosis, calcification, fluid collections and pseudocyst formation (12).

In the treatment of partial rectus femoris muscle tears non-operative management has been suggested (13). Non-operative treatment includes non-steroid anti-inflammatory drugs, ice, range of motion exercises, protected weight bearing with crutches and gradual return to resistance training (14), whereas complete tears require surgery.

On the other hand, muscles are one of the most common application areas of MSUS. As the muscles lie over the bony

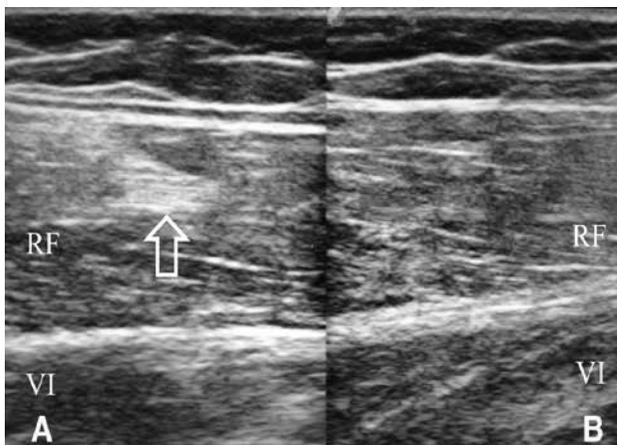


Figure 1. Longitudinal sonogram of the patient's thighs at rest, demonstrating A) an old and healed partial tear of the rectus femoris muscle and B) normal side. RF: rectus femoris muscle, VI: vastus intermedius muscle, Arrow: fibrous and healed tissue inside the rectus femoris muscle

structures, all types of injuries can technically be evaluated with ultrasonography (US) (6). Walton et al. proved that US is a reliable alternative tool to magnetic resonance imaging (MRI) in the visualization of quadriceps muscle traumas (15).

Conclusion

Sometimes, the low awareness of physicians about muscle tears makes the diagnosis difficult. Prompt diagnosis of this type of injury is essential for proper treatment. Delayed diagnosis and lack of adequate treatment will result with above-mentioned complications and as well as weakness of the extensor mechanism and joint instability. US is not only helpful for detecting the tears, it is also useful in the healing period as a follow-up tool with its ability of imaging old tears. Therefore it should be the first imaging technique for evaluating suspected tear of the quadriceps muscle.

Conflict of interest: None.

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