

Unilateral Absence of the Quadratus Femoris Muscle: Case Report

Kuadratus Femoris Kasının Tek Taraflı Yokluğu

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ABSTRACT Hip pain is one of the most frequently encountered and disabling pain of the lower extremity, especially in the elderly patients. Although osteoarthritis, trauma, and some rheumatologic diseases are considered as the main etiological factors of hip pain, anatomical variations can also be the reason. Complete absence of the quadratus femoris muscle is a rarely reported entity. Although it is rare, it may be the only finding in patients with hip pain complaint. Therefore, muscle groups imaged for various indications should be evaluated regarding any developmental anomaly. In this report we present a case with unilateral absence of the quadratus femoris muscle with magnetic resonance imaging findings.

Key Words: Anatomy; musculoskeletal pain

ÖZET Kalça ağrısı özellikle yaşlı hastalarda sıklıkla karşılaşılan ve kısıtlayıcı bir alt ekstremité ağrısıdır. Osteoartrit, travma ve bazı romatolojik hastalıklar kalça ağrısının ana etyolojik faktörleri olarak kabul edilmekle birlikte, anatomik varyasyonlar da buna neden olabilir. Kuadratus femoris kasının total yokluğu nadir raporlanmıştır. Nadir olmasına rağmen kalça ağrısı şikayeti bulunan hastalarda tek bulgu olabilir. Bundan dolayı farklı sebeplerle görüntülenen kas grupları gelişimsel anomaliler de gözönünde bulundurularak değerlendirilmelidir. Bu yazıda manyetik rezonans görüntüleme bulguları ile kuadratus femoris kasının tek taraflı yokluğu bulunan bir olgu sunuldu.

Anahtar Kelimeler: Anatomi; kas-iskelet ağrısı

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The quadratus femoris (QF) muscle is a quadrilateral shaped, flat muscle. It originates from the upper external border of the ischial tuberosity and attaches to the linea quadrata or quadrate tubercle of the femur.¹ The QF muscle plays a major role in external rotation and adduction of the hip and also acts to stabilize the **femoral head** in the **acetabulum**. It is innervated by a small branch of the sacral plexus (L₄, L₅ and S₁ spinal nerves).

The congenital absence of muscles is infrequent and available data have been generally derived from the studies including cadaveric dissections, clinical observations, surgical interventions, or clinical imaging.^{2,3}

Herein, in this report imaging findings of unilateral complete absence of the QF muscle were presented.

CASE REPORT

A 41-year-old male with exertional hip pain admitted to our center. Physical examination and conventional radiographic (X-ray) examination revealed no abnormality. Magnetic resonance imaging (MRI) was performed (Philips Achieva 1.5T, Philips Healthcare, Best, The Netherlands) for further detailed anatomical description of the hip and thigh. MRI showed that left-sided QF muscle was normal in size, configuration and location whereas, right-sided QF muscle was not visualized at its normal anatomical place in coronal (Figure 1) and sagittal sections (Figure 2). No variation or hypertrophy was detected in the surrounding muscle groups. There were also no associated pathological findings in MRI.

DISCUSSION

The QF muscle is one of the most important muscles of the hip. It is primarily responsible for external rotation of the thigh. The QF muscle seems to develop from a distinct rudiment running between the bud of the **ischial tuberosity** and the **greater trochanter**; however, it is close to the rudiment of



FIGURE 1: Presence and absence of the left- and right-sided QF muscles in T1-weighted coronal view, respectively (white arrows). Normally the QF muscle attaches to the ischium (I) and the femur (F).



FIGURE 2: Presence and absence of the left- and right-sided QF muscles in T1-weighted axial view, respectively (white arrows). Normally the QF muscle attaches to the ischium (I) and the femur (F). White arrowhead shows the sciatic nerve.

the obturator internus muscle and gemelli on the ischial side of the hip joint.⁴ To the best of our knowledge, unilateral absence of the QF muscle has never been previously reported. In previous studies, the most common lesions of the QF muscle have been found to be myotendinous strains, partial tears or impingement of the QF.⁵ These pathophysiological entities become evident as groin pain or posterior gluteal hip pain and can be differentiated in MRI. MRI carefully analyzes and differentiates the muscle-tendon anatomy and associated pathologies such as fluid accumulation or edema.

In humans, the congenital absence, or agenesis of muscles or muscle groups most commonly affects the pectoralis major and pectoralis minor muscles.⁶ Complete absence of the QF muscle is, however, a rarely reported variation.^{7,8} Although it is rare, it may be the only finding in patients with leg and/or hip pain. Therefore, muscle groups imaged for various indications should be bilaterally evaluated regarding any developmental anomaly.

In patients with hip pain, in the absence of impingement or other muscle pathologies, anatomical variations should be considered and the muscle groups imaged should be evaluated in this regard.

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