

A 42-year-old Man with Posterior Thigh Pain: Injury of the Long Head of the Biceps Femoris Muscle

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SECTION 2 – ANSWER

Case

A 42-year-old male suffered from the right posterior thigh pain after playing baseball 1 week ago. His pain could not be relieved by nonsteroid anti-inflammatory drug and got worse when jogging. He came to our clinic where ecchymosis and local tenderness were noticed at his right proximal thigh. An ultrasound examination was, therefore, applied using a curvilinear transducer. The short-axis and long-axis views of the ultrasound images over the painful site are presented in Figure 1a and b, respectively. The short-axis ultrasound image over the contralateral asymptomatic site is provided in Figure 2. What is your diagnosis?

INTERPRETATION

At the short-axis ultrasound image over the painful site [Figure 1a], the structure marked by the white asterisk is the long head of the biceps femoris muscle, which is attached to the conjoint tendon. There is hypervascularity surrounding the conjoint tendon with petechial hemorrhage inside the long head of the biceps femoris muscle. At its long-axis view [Figure 1b], edema is identified over the myotendinous junction with less distinct muscle fascicles. No hematoma or disrupted muscle bundles are visualized.

In contrast, in the contralateral site, a clearer border can be identified between the long head of the biceps femoris muscle and conjoint tendon. The normal starry-night pattern of the biceps femoris muscle is preserved in the short-axis image [Figure 2].

DISCUSSION

Ultrasound imaging is helpful in scrutinizing limb muscle injury.^[1] Based on the classification proposed by Peetrans,^[2]

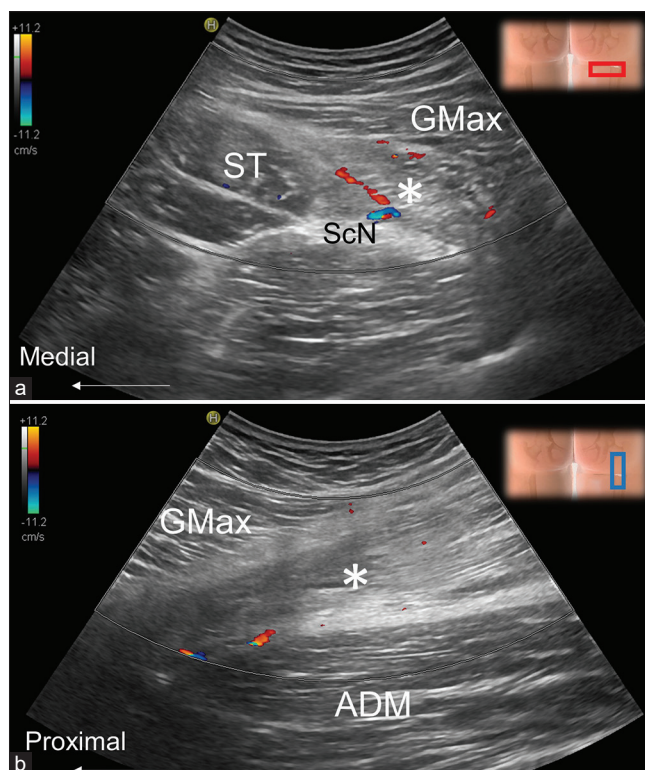


Figure 1: Ultrasound images over the proximal posterior thigh at the painful site at the short- (a) and long-axis (b) views. ST: Semitendinosus, GMax: Gluteus maximus, ADM: Adductor magnus; white asterisk, the lesion

the muscle injury can be categorized into three grades. Grade 1 indicates that <5% of muscles are damaged. On ultrasound imaging, there is edema near the intramuscular aponeurosis.

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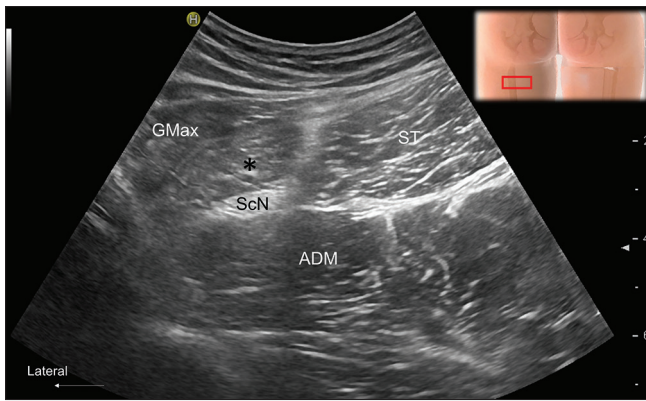


Figure 2: Ultrasound images over the proximal posterior thigh at the contra-lateral asymptomatic site at the short-axis view. ST: Semitendinosus, GMax: Gluteus maximus, ADM: Adductor magnus; black asterisk, long head of the biceps femoris

The muscle bundles remain grossly intact although the borders between each other are less distinct. Grade 2 refers to an intramuscular lesion with more than 5% of muscle involvement. On ultrasound imaging, the physicians can expect an anechoic gap inside the injured muscle. Parts of the muscle bundles are disrupted with effusion filling the cleavage. Grade 3 denotes a complete muscle rupture. On ultrasound imaging, a hematoma is seen with a complete tear extending from the superficial to the deep fascia. Retraction of the muscle bundle is evident.

The sonoanatomy of the posterior thigh can be explicitly demonstrated by ultrasound imaging.^[3] Distal to the subgluteal fold, a structure complex mimicking a Mercedes-Benz sign is shown over the posterior thigh on the short-axis view of ultrasound imaging. The upper, medial, and lateral leaflets are the conjoint tendon, semimembranosus tendon, and sciatic nerve, respectively. If the transducer is relocated to a more distal level, the muscle fibers of the biceps femoris can be seen emerging from the conjoint tendon.

The hamstring muscle is vulnerable to the indirect type of injury, induced by overstretching.^[1] The most common injured site of the long head of the biceps femoris is at its myotendinous junction, where the muscle fibers attach

to the aponeurosis. In our case, increased echogenicity the biceps femoris muscle was observed at the region in proximity to the conjoint tendon. The muscle fibers were well preserved without conspicuous disruption. Based on the ultrasound imaging, Grade 1 muscle injury was impressed, which had a favorable prognosis. The patient latter received injection of 5 mL of 25% dextrose for two times and presented with marked improvement thereafter. The case highlights the usefulness of ultrasound in differentiating various grades and involved structures in hamstring injury.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his figures and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published, and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

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Conflicts of interest

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