

A 59-Year-Old Male with Right Lateral Knee Pain

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SECTION 2 – ANSWER

A 59-year-old male patient complained about right lateral knee pain after he crossed his legs for meditating. The pain would appear when he bent his right knee to the terminal range of knee and performed deep squatting. In addition, there was a tender point localized at the bony prominence of the fibular head. The following ultrasound images showed the long-axis view of biceps femoris tendon and lateral collateral ligament.

Interpretation

In the long-axis view of the right lateral knee [Figure 1], the lateral collateral ligament, which connects the lateral epicondyle of the femur and fibular head, showed good hyperechoic fibrillar structure. Just deep to the proximal part of the lateral collateral ligament, the popliteal tendon could be imaged. With the probe moved posteriorly, the biceps femoris tendon is visible. Hypoechoic changes with loss of fibrillar structure were found near the distal insertion part. In addition, two visible Doppler signals were documented, with one at the insertion part to the fibular head of the biceps femoris tendon, and the other one at more proximal region of the peritendinous area. The proximal Doppler signal was possibly provided by the inferior lateral genicular artery. The ultrasonographic diagnosis was a biceps femoris tendinitis.

DISCUSSION

Although posterolateral knee pain is relatively uncommon, it is somewhat challenging to many primary physicians. Many potential musculoskeletal pathologies including iliotibial band syndrome, popliteus tendinopathy, lateral collateral ligament injury, degenerative lateral meniscus, and biceps femoris tendinitis, could cause posterolateral knee pain.

Lateral collateral ligament strain was ruled out according to our presented images. Nonetheless, the lateral meniscus

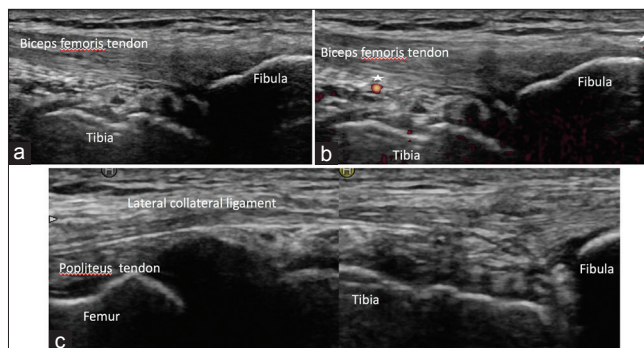



Figure 1: Ultrasound images showing long-axis view of the (a and b) biceps femoris tendon with (asterisks in image b) visible Doppler signals and (c) lateral collateral ligament

was not showed clearly. Reviewing previously published articles, ultrasound may have limited role in the evaluation of intra-articular structures due to inaccessibility.^[1] However, knee effusion could be an indirect evidence of meniscal pathology.^[2] For there was no joint effusion detected, we assumed that injury of lateral meniscus was less likely to be the cause of lateral knee pain in this case.

The features of the sonographic images of biceps femoris tendon include hyperechoic, fibrillar, and cord-like structure.^[3] Distally the tendon forms the conjoint tendon with the lateral collateral ligament and inserts to the anterolateral aspect of the fibular head.^[4] The ultrasonographic presentations of biceps femoris tendinopathy include tendon swelling and hypoechoic changes in the tendon.^[3] In addition, no visible Doppler signal should be detected in the condition of chronic tendinosis.^[3] As for our case, there is increased vascularity depicted by

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power Doppler examination at the distal insertion part of the tendon, which indicates biceps femoris tendonitis rather than tendinosis.

Isolated distal hamstring injuries are rare.^[5] Most of the injuries were located at the musculotendinous junction.^[6] The injury of biceps femoris tendon is one of the causes of posterolateral thigh pain. Local swelling, pain, and tenderness could be induced by the injury. The pain reported by our patient was more obvious in deep squatting, which may be related with the fact that the biceps femoris muscle is a strong flexor and an important dynamic stabilizer of the knee.^[6] In the present case, ultrasound was used effectively to differentiate the potential causes of posterolateral knee pain.

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Conflicts of interest

There are no conflicts of interest.

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