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Acil Ultrasonografi

QUADRICEPS TENDON RUPTURE DIAGNOSIS BY BEDSIDE ULTRASOUND IN EMERGENCY DEPARTMENT

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Introduction: The quadriceps tendon is consisted by the rectus femoris and the distal tendons of the vastus muscle group (lateralis, intermedius, medialis). This tendon which inserts to the superior part of the patella, is responsible for extension of the leg. Quadriceps tendon rupture is rarely encountered among the adult musculoskeletal soft tissue injuries. It often occurs in individuals with predisposing factors. With this case, we presented a patient referring to the emergency department with the complaint of knee pain after a fall who had quadriceps tendon rupture diagnosed by using bedside ultrasound.

Case: A 46 year old patient who had hypertension and end-stage renal failure on a dialysis program referred to the emergency department with the complaint of left knee pain and inability to walk after falling. His medication history included ASA, metoprolol, paricalcitol, hydroxyzine hydrochloride and lansoprazole. Physical examination revealed tenderness, abrasions, swelling and ballottement on the left patella. Anterior and posterior drawer, medial and lateral stress tests were negative. There was no significant limitation in passive knee motions. He could not flex the left knee. The knee radiographs were normal. Bedside ultrasound examination revealed diffuse effusion and rupture of the quadriceps tendon (figures 1 and 2). This diagnosis was confirmed with MRI after immobilization with a long-leg splint (figure 3). The patient was planned a surgical repair and thus hospitalized.

Conclusion: Quadriceps tendon rupture is rare even in among all tendon injuries. (incidence is 1.3% approximately) It is 4 times more frequent in men and the peak incidence, in the sixth decade. In 80% of cases there is a predisposing factor which gives rise to susceptibility to injury. Predisposing factors were shown in Table 1. In partial tears patient can bring the knee leg to extension but cannot do fully extension. In complete tears extension is not possible at all. Suprapatellar gap may be palpable. The physical examination being not effective and the patient being able to extend his knee may mislead the clinician. Misdiagnosis rate is between 10-50%. Plain radiography is usually normal though occasionally pieces of bone avulsed from the patella can be

viewed. The best diagnostic methods are ultrasonography and MRI. MRI is a highly sensitive diagnostic tool showing the exact localization of the lesion and differentiating the complete and partial tears. Besides it is also used in the planning of surgical treatment. However ultrasonography can be applicable at bedside, is cheaper and more accessible than MRI. In addition, it can be used for patients extremely obese or with metal implants for whom MRI can not be performed. Ultrasonography shows quadriceps tendon extending as a fibrillar structure and inserting to the patella. (figure 2) When the tendon is teared, its proper fibrillar structure and continuity is distorted. Hematoma at the area of injury and avulsed bone pieces can also be displayed. While partial tears are managed conservatively, surgical treatment is needed for complete tears.

Keywords: Quadriceps tendone rupture, ultrasonography, emergency department

Table 1. Factors predisposing to tendon rupture

Age
Obesity
Steroid therapy
Systemic lupus erythematosus
Chronic renal failure
Diabetes mellitus
Syphilis
Tuberculosis
Tumour infiltration
Chronic anaemia
Atherosclerosis
Rheumatoid arthritis
Gout
Secondary hyperparathyroidism

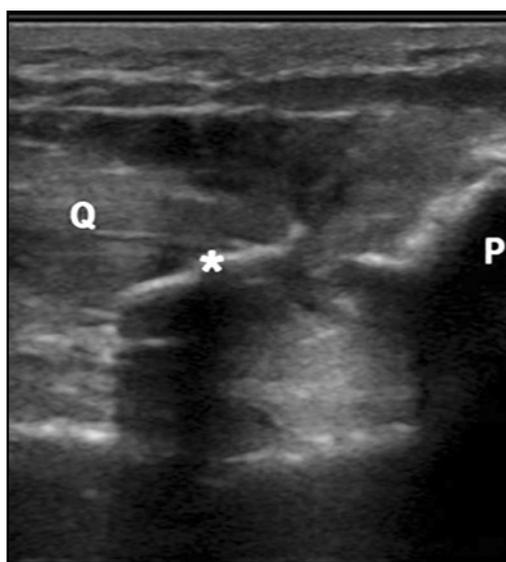


Figure 1. The ruptured quadriceps tendon and patella, Q: quadriceps tendon, P: patella, *: torn bone fragment