

Ultrasonographic Examination of Patella

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A 52-year-old female patient presented to the emergency department (ED) complaining of knee pain after falling. Upon admission to the ED, vital signs of the patient were normal. Physical examination revealed mild swelling and tenderness on the right patella, limitation of motion of the knee, and difficulty walking. Neurovascular examination was within normal limits. Bedside ultrasonographic examination (Mindray® M5, Color Diagnostic Ultrasound System, China) was performed before X-rays (Figure 1). [see page 131 for diagnosis]

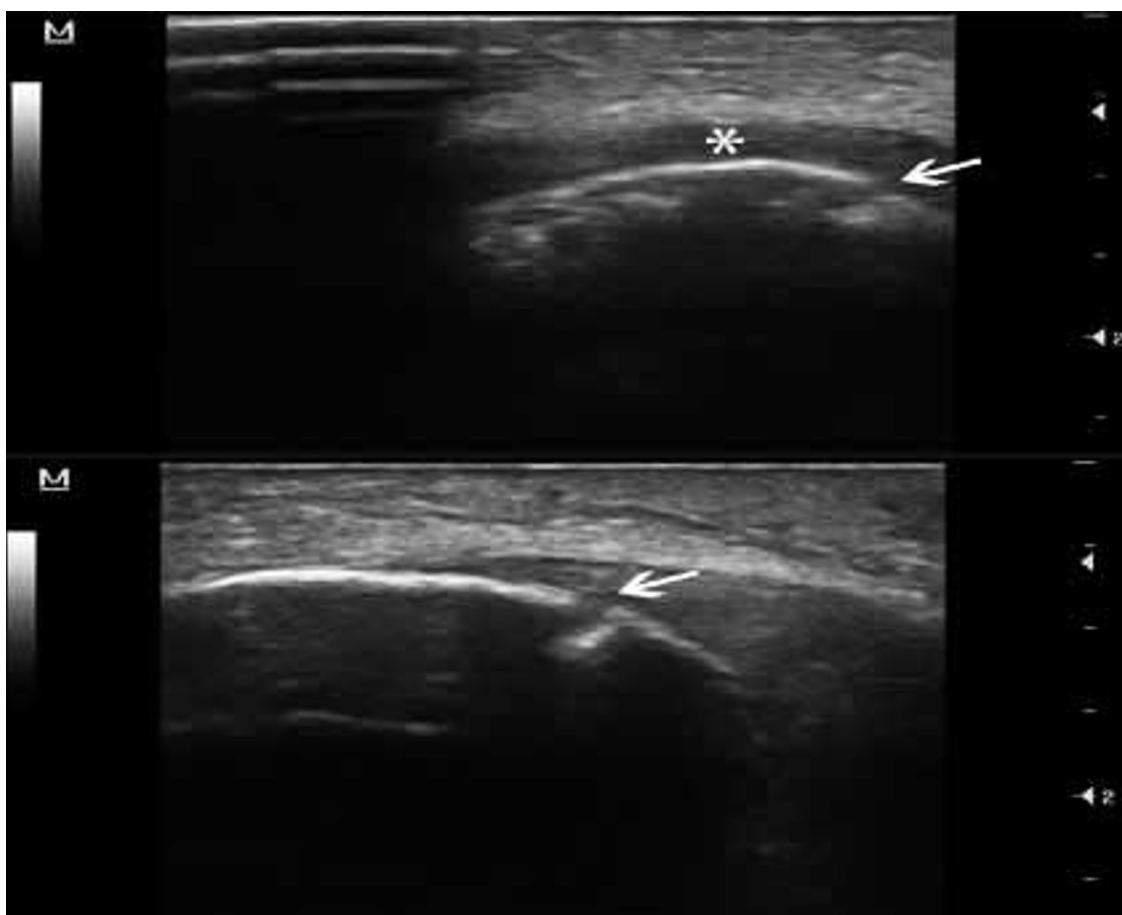


Figure 1. Cortical disruption (arrow) and hematoma (asterisk) of patella with longitudinal ultrasonography view.

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[see page 98]

DIAGNOSIS: Fracture of Patella

Patellar fractures account for 1% of all skeletal fractures and is most common between the ages of 20-50.^[1] The most observed fracture pattern is transverse. It generally occurs as a result of the implementation of direct force, fall on a flexed knee, or strong contraction of the quadriceps.

The anteroposterior x-ray helps assess the fracture pattern and the direction of displacement, while the lateral and Merchant views assist in understanding the amount and location of comminution. In case of failure of direct radiography, other techniques can be used including computed tomography, magnetic resonance imaging or scintigraphy.

Bedside ultrasonography in the diagnosis of fractures is frequently used by emergency medicine physicians.^[2,3] It may be guiding in the diagnosis of fractures especially in unstable patients. In addition, it has a major advantage in that it can be used if radiation exposure is a concern in certain situations such as children and pregnancy. Also, it can be applied in a short time and at bedside. Therefore, ultrasonography can provide rapid diagnosis in busy emergency departments. Interestingly, there was a case report demonstrating the use of ultrasonography to identify the transverse fracture of the patella.^[4] Currently, standard radiographs are being used as a first imaging modality in

patients with a suspected fracture. To our knowledge, there has been no clinical study that has diagnosed patella fractures with a bedside ultrasound. The case report presented here underscores the impact of ultrasonography on the diagnosis of patella fractures as well as bone injuries.

In our case, standard anteroposterior and lateral knee radiographs were obtained after ultrasonographic examination (Figure 2). The patient who underwent consultation at the orthopedic clinic was prescribed a conservative treatment consisting of rest, ice, immobilization with a cylinder cast from the groin to the ankle, keeping the knee in extension, and non-steroidal anti-inflammatory drugs.

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Figure 2. (a) Anteroposterior knee radiography. (b) Lateral knee radiograph shows transverse fracture of the patella.