

## PRISON HEALTH CARE IN IMAGES

# Patellar burst fracture

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The patella is the largest sesamoid bone in the human body, and it serves as a mainstay between the quadriceps tendon and the patellar tendon, therefore increasing the quadriceps' torque or moment in 30% when completely extended <sup>1</sup>.

Patella fractures are most frequently found in adults between 30 and 60 years old, they are extremely rare in old people and exceptional in children. They entail a small percentage- between 0.5 and 1.5%- of all bone fractures <sup>2</sup>. Their evolution is determined by three anatomical reasons:

- Since it is a superficial bone, fractures are frequently open
- Due to its implication in the extensor mechanism, impaired consolidation will disrupt movement.
- Since it belongs to the knee joint, vicious callus will entail joint stiffness and osteoarthritis.

There are three main mechanisms of injury <sup>3</sup>:

- Fractures may result from forceful muscular contraction, as in a false step on a staircase or in acute foot shock during the development of sport activities (soccer).
- Falls onto a flexed knee
- Direct forces: kicks, blows, or as in motor vehicle accidents (dashboard fracture).

Within the prison environment the percentage of trauma emergencies is actually not very high. The last studies published on hospital resources used by imprisoned population in the Autonomous Community of Valencia, reveals a percentage of about 2-2.5% <sup>4-5</sup>, with other pathologies demanding more emergency assistance.

Due to all the aforementioned, it must be noted that patella fractures are a rare emergency in

prisons, which is why we herewith present the following case.

A 36 year old male reports direct contusion of the right knee against the wall while playing soccer in the sports centre at our facility. He was urgently assisted at the centre's infirmary, where the right patellar region presented traumatic ecchymosis, a gap in the extensor mechanism, pain upon palpation, crackling and functional impairment for the elevation of the knee, in extension against active gravity (see Figure 1), all of which very clearly suggested patella fracture.



Fig. 1.

He was derived to the reference hospital where he was diagnosed from comminuted fracture of the right patella (see Figure 2) with severe joint effusion (4/5). Open reduction of the fracture was then carried out by means of placing two 2mm-diameter longitudinal and one 2 mm-diameter transversal Kirschner Needles. Cerclage with circular wire and lag screws was also carried out (see Figures 3 and 4). Surgical levels were then closed and immobilization with an ischiopedic plaster cast was achieved.

Postsurgical evolution was highly favorable. The patient received antithrombotic prophylaxis for 4

weeks with enoxaparin (Clexane®) and two months after surgery the fracture is reported to have consolidated. Currently such knee is fully functional and the patient awaits consultation to schedule the extraction of osteosynthesis material.



Fig. 2.



Fig. 3.



Fig. 4.

#### CORRESPONDENCE

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#### BIBLIOGRAPHICAL REFERENCES

1. Blog.slideshare.net [Internet]. San Francisco: Fractura de rótula. 4 Nov 2011. [citado 10 dic 2012]. Disponible en: <http://www.slideshare.net/EquipoURG/fractura-de-rtula>
2. Galla M, Lobenhoffer P. Patella fractures. *Chirurg.* 2005; 76(10): 987-97. PMID:16170504.
3. Georges Rieunau. *Traumatología*. 4ª ed. Barcelona: Masson; 1984.
4. García-Guerrero J, Vera-Remartínez EJ, Planelles-Ramos MV. Cambio en el uso de recursos hospitalarios desde la prisión: un estudio de 16 años. *Rev Esp Sanid Penit* 2012; 14: 41-9.
5. Abad-Pérez I, Carbonell-Franco E, Navarro-García E, Roig-Sena FJ, Salazar A. Evolución de los principales diagnósticos al alta hospitalaria de la población penitenciaria de la provincia de Valencia, 2000-2009. *Rev Esp Sanid Penit* 2011; 13: 38-43.