CASE REPORT

Ulnar sesamoid's fracture of the thumb: An unusual injury and review of the literature

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Abstract

Background: It concerns an unusual injury which is the result of a violent hyperextension or abduction of the pollex and even less frequently by direct injury.

Aim: To increase our sensitivity and observation regarding thumb's injuries, because it is possible a fracture of the sesamoid not to be diagnosed.

Material and Method: We present a case of an adult man, 35 years old, who suffered a violent hyperextension of the right pollex. The contribution of digital X-ray examination, which demonstrated a fracture of the ulnar sesamoid of the pollex was very important. The fracture was treated with fixation with elastic bandages for two weeks.

Results: Follow up of the patient six weeks and six months after the injury, demonstrated a total recovery of the function of the pollex and callousness of the fracture, respectively.

Conclusion: Fracture of sesamoid bones of the thumb is a rare injury, not usually diagnosed, but it has good prognosis when treated properly. *Hippokratia 2007; 11 (3): 154-156*

Key- words: *bipartite sesamoid, metacarpophalangeal joint, pollex, sesamoid bone, sesamum indicum, thumb.*

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The term "sesamoid" originates from the oval seeds of the plant "sesamum indicum", of eastern India, which were used in ancient Greece for purification[1].

The mechanism of the damage of the sesamoid bones of the pollex could be a violent hyperextension or an abduction of the pollex and less frequently a direct injury[2,3].

Fractures of the sesamoid bones of the pollex, are treated with immobilization of the thumb for a short period, and this results to a quick recovery of the injury[4,5]. Only two cases are reported in the literature in which the pain lasted for several months[6].

We report a case of a patient, with a fracture of the ulnar sesamoid of the metacarpophalangeal joint (MCPJ) of the pollex, in order to increase sensitivity and observation regarding thumb's injuries, because it is possible a fracture of the sesamoid not to be diagnosed, since it is not always visible on standard X-Rays.

Case report:

A 35 years old male patient arrived at the Emergency Department complaining of pain at the base of the right thumb after a violent abduction injury during a football game. On examination, there was oedema around the thumb and pain at the ulnar side of the palmar aspect of the MCPJ. Passive and active range of movements of interphalangeal and MCP joints were reduced with no neurovascular problem.

Ecchymosis was not detected, because the patient used ice directly after the injury. It is difficult to evaluate stability in the acute phase unless one uses local block for pain. The anteroposterior and the obligue digital X-ray of the region demonstrated a transverse fracture of the ulnar sesamoid of the MCPJ of the thumb. (Picture 1 a, b).

The patient was treated with immobilization of the pollex and the hand with elastic bandages and was given anti-inflammatory drugs for five days. He was advised to have his arm elevated.

Results:

Two weeks after the injury the clinical examination of the patient demonstrated no instability of the MPCJ and he was advised to start its mobilization. The clinical examination six weeks after the injury demonstrated a full recovery of the function of the pollex. During six months follow-up, no complications were reported and we noticed callousness of the fracture at the X-ray (picture 2 a, b). The patient is successfully employed as a manual worker two years after his injury.

Discussion:

In adults there are usually 4-5 sesamoid bones in the hand, the function of which is controversial. Two of them are located in the MCPJ of the thumb. Possibly their function relates to the stabilization and protection of the flexor tendons of the joint[7].

Their ossification is completed during adolescence.

Failure of this procedure leads to bipartite sesamoid bones[4]. The most frequent mechanism of injury is a violent hyperextension of the pollex[2, 6, 7]. A fracture may be caused also by a violent abduction of the thumb[6] and less frequently from direct trauma[3]. In our case the injury was the result of a violent abduction of the pollex.

The diagnosis is establised with anteroposterior and lateral or oblique X-ray examination of the region, since in the regular anteroposterior X-ray examination, the fracture may not be visible.

Dong et al[4], reported that the fracture is not visible in the anteroposterior X-ray. However in our case the fracture was visible and we believe that digital X-ray contributes the most in diagnosing this kind of small fractures, comparing to the regular X-ray examination. The differential diagnosis of the fracture of the sesamoid bones includes rupture of the joint lateral ligament, rupture of the palmar plate, which leads to a debility of flexing the MCPJ of the pollex, fractures close to the joint and a bipartite sesamoid.

The fractures of the sesamoids of the pollex are classified according to Patel et al[8] in type I, with both palmar plate and the flexor ability of the MCPJ of the pollex remaining intact and in type II with a rupture of the palmar plate and the pollex in the position of hyperextension. Our case was a type I injury.

In type I, injuries immobilization is suggested for two weeks, with the MCPJ in a 30^0 flexion and systematic administration of anti-inflammatory drugs[4,6,7]. As observed in our case the limitation of movement with taping produces good results, as well[4,5]. There are only two reports, where the pain wasn't repressed for several months[6].

In type II, injuries surgical intervention is advisable for restoration of the instability of the MCPJ of the thumb[8]. Finally in the cases of unscoppable pain after conventional treatment removal of the sesamoid is reported[5,9].

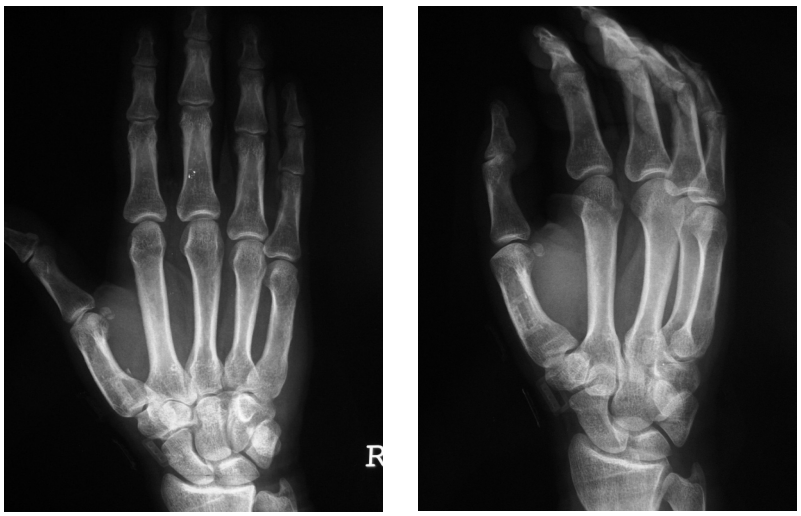

Figure 1. *Fracture of the ulnar sesamoid of the thumb* ***a.*** *Anteroposterior view* ***b.*** *Oblique view*

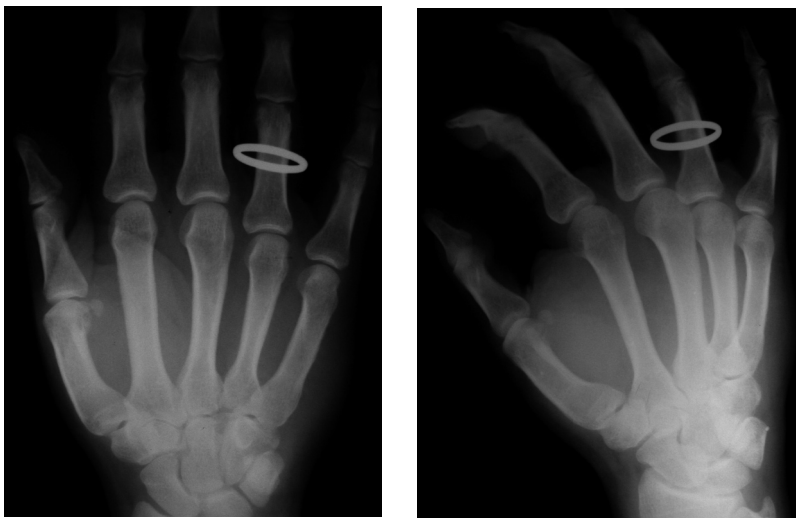

Figure 2. *Callousness of the sesamoid's fracture* ***a.*** *Anteroposterior view* ***b.*** *Oblique view*

Conclusion:

The fractures of the sesamoids of the pollex are rare injuries. The most frequent injury mechanism is the hyperextension of the thumb. The diagnosis is established with X-ray views and especially with the high resolution which is observed in digital X-rays. When instability of the joint is not detected, immobilization with taping for two weeks and afterwards progressive mobilization of the joint, is sufficient.

In most of the cases the prognosis is very good with full recovery of the function and the recession of pain.

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