BOXER'S FRACTURE: AN EXPERIENCE REPORT

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ABSTRACT
Objective: To report a case of neck fracture of the 5th metacarpal treated conservatively with plaster in the shape of a boxing glove and to analyze the clinical result with the proposed treatment. Materials and Methods: Patient with pain in his right hand after delivering a punch. Radiographs were taken and a fracture of the neck of the 5th metacarpal was diagnosed. As treatment, fracture reduction was performed by means of the Jahss maneuver and then immobilization was made with plaster in the shape of a boxing glove. Results: After 12 weeks, the patient was asymptomatic, with restored range of motion and strength, comparable to the contralateral side. Conclusions: Boxer's fracture does not tolerate rotational deviations, but with angular deformities of 30° to 45°, shortening up to 5 mm, it can be treated non-surgically and present an adequate functional outcome.

KEYWORDS: FRACTURE, METACARPAL, ORTHOPEDICS, HAND, BOXER

INTRODUCTION

Fracture of the neck of the fifth metacarpal is also known as fracture of the boxer. Its trauma mechanism is almost always the result of a direct collision of the closed hand against a rigid surface, resulting in a fracture with a dorsal apex[1]. It represents about 5% of upper limb fractures and 20% of hand fractures[1]. Boxer fractures occur predominantly in the dominant hand of young male adults and can be associated with anxiety disorders, impulsive personality and alcohol consumption. The volar angulation of the neck of the intact metacarpal is about 15 degrees[1] and the action of the intrinsic and extrinsic muscles predisposes to angular deformity in fracture flexion[1].

Its diagnosis is made by hand X-ray in AP and Oblique profile views. Hand ultrasound can also be used to assess the angular deviation of these fractures.[2]

The treatment of boxer's fracture usually depends on the degree of angulation and rotation of the metacarpal head. It is described in the literature that the fracture of the neck of the fifth metacarpal with angular deformities of up to 45° can be treated non-surgically and present an adequate functional outcome.[2] The fracture is reduced by means of the Jahss maneuver.

Conservative treatment options can be divided into methods that involve immobilization and functional treatment methods that do not restrict movement. Treatment options include: plastered ante-brachio digital immobilization in the James safety position (POSI), ulnar plaster cast immobilization, soft wrap and buddy taping between the ring and little fingers, elastic or compressive bandage at the level of the metacarpophalangeal joint, functional brace with 3 supports and no use of immobilization (full dynamic treatment). The duration of immobilization varies in the literature, but it should occur during the first 3 to 5 weeks and some authors recommend that there is no need to wait for radiographic consolidation to remove the immobilization, as well as in phalanx fractures. We can cite complications of conservative treatment, superficial infection, sensory deficit and cold intolerance. However, the complication rate is minimal.

Surgical treatment is indicated for patients with open fractures, severe soft tissue injury, multiple fractures of the hand and wrist, fracture with intra-articular extension, rotational deviation and pseudo-bar. Classically, angular deviations of up to 45 degrees and shortening of up to 5 mm are accepted, with no tolerance for rotational deviations.

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The selection of the best treatment for this fracture must be individualized and depends on other parameters (in addition to the fracture deviation and morphology), such as age, profession, leisure and daily activities, comorbidities, cooperation and the patient's functional demand and experience and skill of the surgeon.

The main methods of fixation of the fractures of the neck of the fifth metacarpal are: interlocked antegrade Kirschner wires, crossed wires, transverse wires anchored in the fourth metacarpal, intramedullary nails, interfragmentary plate and screws and external fixator.

CASE REPORT

Patient, S.P.M, 44 years old, male, night watchman, right-handed, arrived at the emergency room with severe pain in his right hand, edema + 1/+4, deformity in the 5th metacarpal region, absence of skin lesions or neurovascular deficit.

He said that he got into a fight and punched someone in the face. Radiographs of the right hand were taken in anteroposterior, oblique and lateral views, and a fracture of the neck of the 5th metacarpal of the right hand was diagnosed (Figure 1). The fracture was reduced by means of the Jahss maneuver and then immobilized with a plastered glove on a closed fist, shaped like a boxing glove (Figure 2).

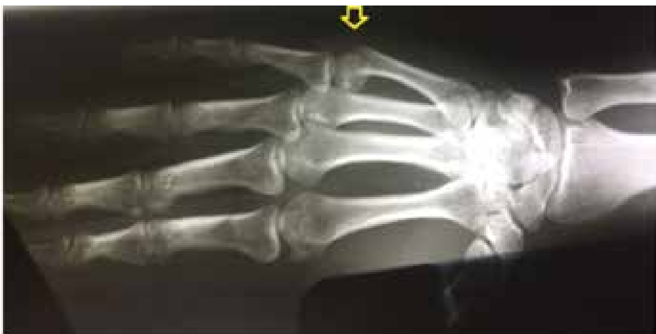

Figure 1 - Anteroposterior X-ray of the hand.

Figure 2 - Plaster cast immobilization in boxing glove.

After 1 week of immobilization, a new x-ray was requested, showing that the reduction had been maintained; the patient had no complaints of pain and was instructed to return in 7 days for a new evaluation. After 2 weeks of fracture and plastered immobilization, the reduction was still adequate; the patient was therefore instructed to return in 15 days. After 4 weeks of immobilization, the reduction continued to be maintained and on the x-ray it was already possible to see bone callus formation (Figure 3).

Figure 3 - X-ray of the hand in plastered immobilization.

After 6 weeks of immobilization, the plastered glove was removed and 10 physiotherapy sessions were prescribed. After 8 weeks of fracture and having undergone 10 physiotherapy sessions, the patient had no pain complaints, no edema, preserved neurovascular, with 80% strength gain, 100% wrist flexion and 70% finger extension. Another 20 physiotherapy sessions were prescribed. After 12 weeks of the fracture, the patient was asymptomatic, with restored range of motion and strength, comparable to the contralateral side.

DISCUSSION

Boxer's fracture does not tolerate rotational deviations, but with angular deformities of 30° to 45 °, shortening up to 5 mm, it can be treated non-surgically and present an adequate functional outcome. The different methods of conservative treatment for fracture of the neck of the fifth metacarpal are limited in methodological quality and sample size, therefore, no method of conservative treatment can be considered superior to the others regarding the functional outcome. It is concluded that there is a lack of adequate studies to solve this clinical doubt. The conservative treatment technique adopted in the patient in this study proved to be satisfactory.

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