The Hand Patient: Fracture of the neck of the fifth meta-carpal bone

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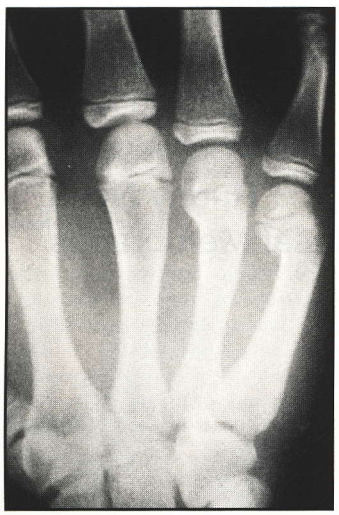

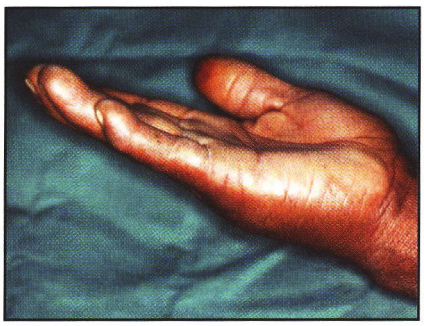

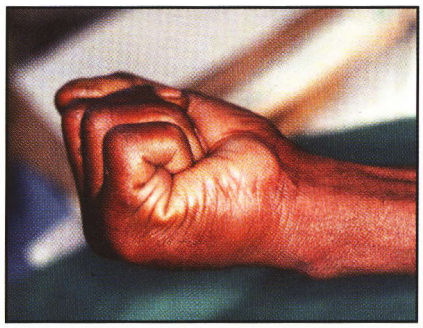

Figures 1, 2 and 3: This angulated and impacted fracture is usually stable and needs no more treatment than painkillers and mobilization.

Closed reduction or surgical open reduction and internal fixation is only indicated in the unstable case, in the severely angulated fracture when the MC head is prominent in the palm interfering with grasp or when the loss of the knuckle is of sufficient cosmetic concern that it overrides a surgical scar.

Dear Colleague,

Re: Your patient with an angulated compacted fracture on the neck of his fifth meta-carpal of his right dominant hand

Thank you for your referral of Mr. J R R an eighteen year old right handed school boy who was involved in a physical argument after school six days ago. He complains of pain with flexion and extension of the small finger and a tender swelling over the neck of the fifth meta-carpal. He is also concerned about the "disappearance" of the fifth knuckle. He has no other injuries. His main concern is the unacceptable appearance of his hand, and he has difficulty in writing because of pain.

On **examination** one can clearly see the soft tissue swelling on the dorsum of the fifth meta-carpal. The meta-carpal head is deviated downwards into the palm. There is no rotation of the finger. The flexor and extensor tendons are functional although there is an apparent extensor lag of 15 degrees of the small finger at the meta-carpo-phalangeal joint. The neurovascular examination is essentially normal.

The **special investigations** included only a plain x-ray of both hands. On the lateral it is quite clear that Mr. R has an impacted stable fracture of the neck of his fifth meta-carpal with a dorsal angulation of fifty-five degrees. The rest of the skeleton is within normal limits.

The **diagnosis** therefore is an impacted stable but angulated fracture of the fifth meta-carpal. The **treatment** could be conservative or surgical. The **conservative management** consists of a buddy strapping of the small finger to the ring finger for six weeks. It is not necessary to attempt reduction since this is a stable fracture and will not displace. The strapping helps to reduce the pain with movement as well as prevent further injury to the vulnerable small finger. By far the most of these types of fractures are treated by the method.

Should the patient however be very concerned about the "absent" fifth knuckle i.e. meta-carpal head as well as the swelling on the dorsum of the hand a reduction may be indicated. However, this is very difficult to achieve with closed reduction since this is an impacted fracture. One would attempt to reduce the fracture closed and splint the patient with the MP joint in ninety degrees of flexion. The base of the proximal phalanx lies under the meta-carpal head supporting it, and therefore preserving the reduced position. This finger should be splinted with the ring finger also in ninety degrees of flexion but not for longer than four weeks after which simple buddy strapping is applied for an additional two weeks.

Surgical intervention is indicated if the closed reduction is not possible or if the reduced position cannot be maintained. This involves an open reduction and internal fixation should be done. Internal fixation with a mini plate and screws allows for early, unrestricted movement. Kirschner wires could also be used, either intra-medullary or crossed. However the morbidity is much higher with Kirschner wires. These should also be removed after four weeks followed by two weeks of buddy strapping.

DISCUSSION

The impacted angulated fracture of the neck of the fifth meta-carpal is a typical "fight" injury. The patient hits his opponent or misses him and hits the door or wall with the impact on the fifth meta-carpal head. These are stable fractures and really do not need further management. The indication for open reduction and internal fixation is when there is bothersome extension lag of the finger, or if the meta-carpal head is prominent in the palm. This could be a severe handicap for a laborer or a handy man who needs to use tools such as screwdrivers and spanners. The third indication for surgery is the cosmetic appearance. Rotation is seldom a problem. However if this is present one has no option but to do an open reduction and internal fixation. It has been suggested in the past that the cut-off point for open reduction and internal fixation is a certain degree of angulation. This is a relative statement since the above guidelines should lead one to decide whether the patient needs surgery.

With sincere regards,
Ulrich Mennen