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بالرسالة صفحات
لم ترد بالأصل

A STUDY OF ACUTE HAND INJURIES

Essay
Submitted in Partial Fulfillment for M.Sc. in Orthopedic Surgery

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1999

Dedication...

To my MOTHER and SISTER,

Who aided me and expressed their maximum effort while preparing this study...

Acknowledgement

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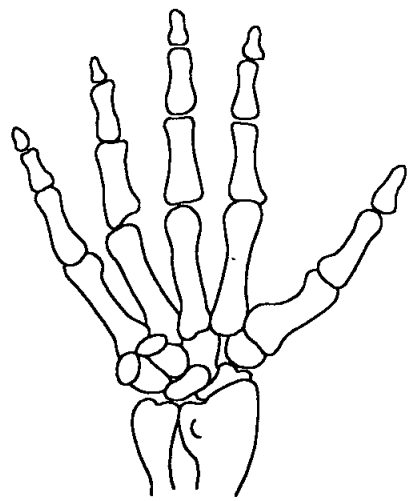


Introduction

The hand is man's prime tool. It's remarkably well designed to provide sensibility, mobility and strength sufficient for an almost infinite number of tasks. The hand is involved in many functions ranging from too much fine tasks to too much heavy ones and it is subjected to much abuse....

The usefulness of the hand depends on its control, not on its form or shape. The pattern of function and control is greatly upset and the patient with an acquired loss of hand substance is at a great disadvantage compared with the patient having a congenital deformity of similar appearance and degree.

Hand injuries are the most common injuries of the skeletal system. Series have shown that hand fractures make up to 10 percent of total fractures. *(Green DP, 1991 and Stern PJ, 1993).* These injuries often affect people during their wage-earning years and cause significant disability, particularly loss of useful motion. *(Roger Dee, 1997)*

Patients with hand injuries are rarely admitted to the hospital as these patients are usually diagnosed and treated in the Accident and Emergency department and this results, frequently, in mis-management which is complicated by deformity and stiffness which is difficult to deal with.

To overcome and avoid these complications, the first step is to decide what sort of injury has been sustained and design the method of treatment which must be selected for that particular injury in that particular patient. The importance of having a well-organized service in our hospitals for management of hand injury generally and tendon injury, specially staffed by surgeons who are interested in these problems, should not require emphasis. The process of mastering basic techniques in hand surgery can be compromised if resource material is not conveniently organized or readily available. *(W. Blair, 1997).* Surgically talking, the hand is a borderland between the fields of orthopedic and plastic surgery. Indeed hand surgery is tending to become a distinct specialty served by surgeons skilled in both these disciplines, to which an increasing number of surgeons are devoting their whole careers.

Although clinical findings are the key to the accurate diagnosis of tissue trauma, knowledge of the underlying anatomy is crucial to light all possibilities and minimizing the risk that a significant injury will be overlooked.

A quality educational experience should provide basic science and clinical knowledge, a clear understanding of indications for operative intervention, mastery of operative techniques and realistic concepts about outcomes. These concepts form the basis of responsible and effective clinical decisions.

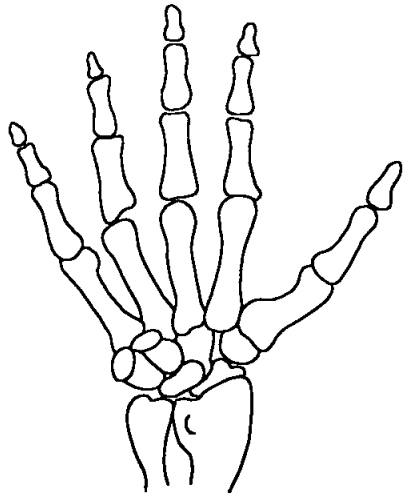
The standard of results obtained, to be acceptable to day, must be considerably higher than it was before. Improvement has often come from simplified conceptions but more complex techniques. *(Ronald Furlong, 1957)*

Hence, the importance of the hand as an instrument of work is now well recognized. Efforts are now made to spare working hands from injury and to treat injured hands more effectively. *(Ronald Furlong, 1957).*

Surgery of the hand will doubtless become increasingly important as time goes on. The aim of this study is to introduce the basic concepts of management of acute hand injuries and to describe recent and effective measures in dealing with hand injuries, and the methods that are widely used and accepted by many authors.

Our review deals with primary or early treatment rather than late or reconstructive reparative measures, which are out of scope of this study.

RELEVANT SURGICAL ANATOMY



I-Relevant Surgical Anatomy

Anatomists are apt to draw attention to the wonderful differentiation and intricacy of mechanism found in the hand. The specialization has taken place in the brain. Enhanced muscular control and improved tactile sensibility have converted, with little alteration, the hand of the lower primate in to the hand of a musician Fig. (1),(2) *(Ronald Furlong, 1957)*

A) The skeleton of the hand

The skeleton of the hand and wrist is composed of 19 tubular or long bones and 8 carpal bones. These 27 structures are arranged in to five rays, each ray having its base at the carpometacarpal (CMC) articulation. The ray then forms a ployarticulated chain that consists of a metacarpal and either two or three phalanges. *(Tubiana R., 1984)*

❖ *The wrist joint*

The wrist is the interconnecting group of joints between the hand and forearm, which include the midcrapal, radio-carpal, and distal radio-ulnar joint. *(Kauer, 1980)*

Although traditionally described as a single joint, the wrist is a composite articulation with over all motion resulting from the summation of interactions of the individual carpal bones amongst themselves and proximally with the distal articulating surface of the radius and the ulna "triangular fibro-cartilage complex". *(Richard et al., 1992)*

The radius is connected to the ulna by the triangular fibrocartilage at the distal and of the ulna and by the radioulnar capsular ligaments. Completing the proximal surface of the wrist joint, the triangular fibrocartilage serves to enhance the stability of the carpus on the forearm. *(Taleisnik, 1976)*

The triangular fibrocartilage is the ulnar continuation of the distal ulna and present a concave surface for articulation with the lunate and triquetrum .The variable length of the ulna as a positive or negative variance may influence the carpal position. *(Czitrom et al., 1987).*

The distal articular surface of the radius is inclined ulnarward for an average angle of 15 degrees and palmarward to the sagittal plane for an average angle of 11 degrees and articulates with the scaphoid and lunate.

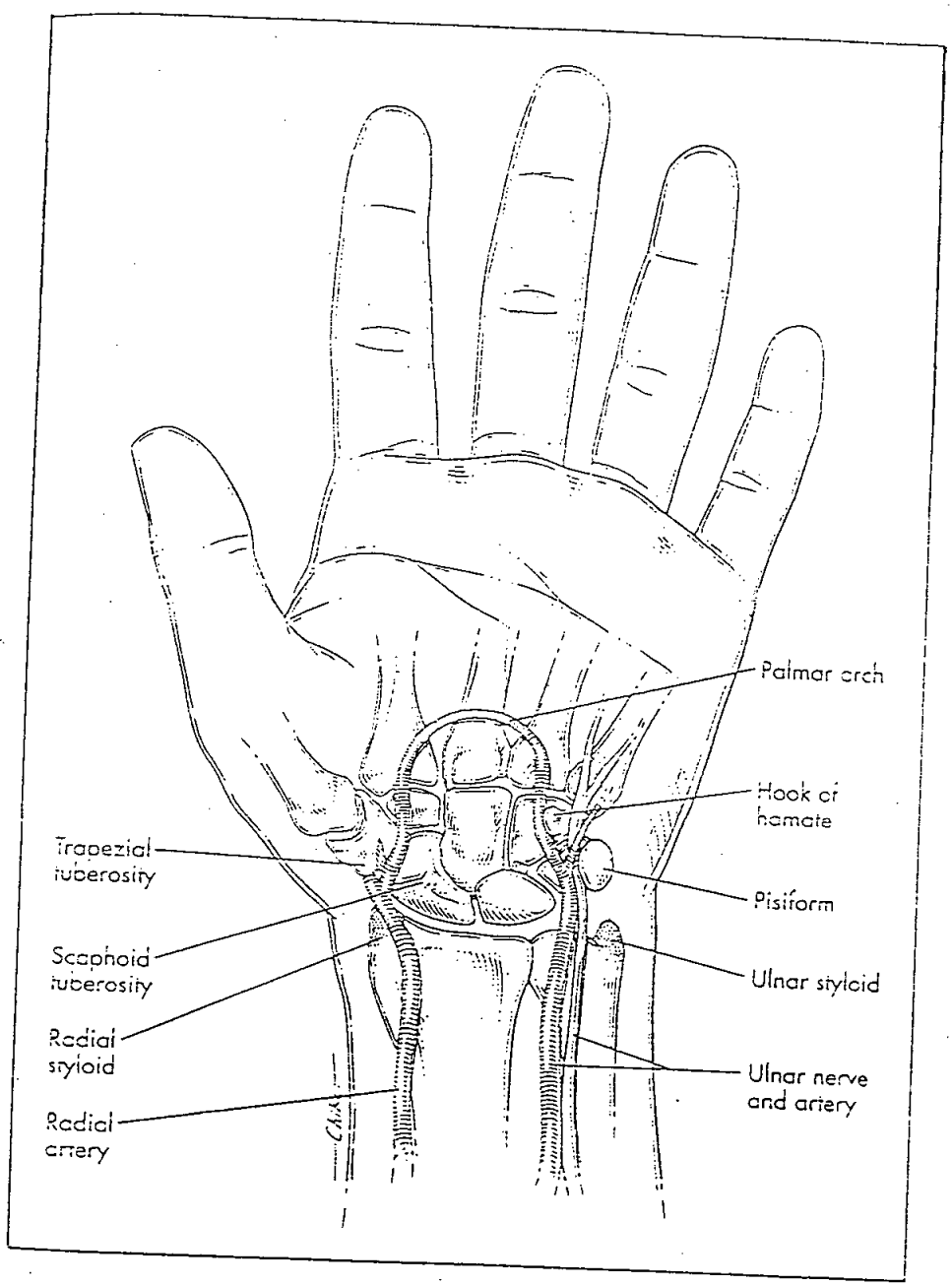


Fig. 1

Palmar view of left hand. Topographic landmarks include trapezial tuberosity, scaphoid tuberosity, radial styloid, radial artery, palmar arch and ulnar artery, hook of hamate, pisiform, and ulnar styloid.

(Tubiana R., 1984)