FROM THE ORTHOPEDIC CLINIC OF KAROLINSKA INSTITUT (CHIEF: PROF. PATRIK HAGLUND).

A PREVIOUSLY NOT DESCRIBED INJURY TO THE WRIST SUSTAINED DURING BOXING

BY

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During athletics bones and joints are sometimes exposed to strains which prove beyond their strength. Fractures may arise but usually it is a question of contusions or dislocations which, however, by virtue of their prolonged incapacitating functional disturbance prove to be quite as troublesome as, indeed often more troublesome than injuries which are productive of more obvious radiographic discontinuity of bone. In the literature of recent years papers have been published which, though not claiming to present any complete account of the subject, yet exemplify various injuries arisen through athletics. (*Baetzner, Heiss, Knoll* and others). One of these papers (*Baetzner*) described and depicted an injury to the base of the I metacarpal bone sustained during boxing. The ordinary injury from boxing is a fairly transversely placed oblique fracture of some metacarpal bone, usually the 2nd or 3rd, just proximally to the head of the bone. The present case is that of an injury to the dorso-radial part of the articulation between the 2nd metacarpal bone and the multangulum minus. As minor injuries to joint and bone localised to this region only do not seem to be referred to in the literature, the case would seems to be of some interest.

There is a statistical and descriptive publication of the material of carpal and metacarpal fractures of the Swiss Accident Assurance for the years of 1919—1920.[1]) According to

[1]) J. Blumer, Zürich. Archiv für Orthopädie *XX*, 1922.

this account the relative proportions of carpal and metacarpal fractures and the sum of fractures of the forearm are as 1 : 4 : 8. If the fractures of the ulna, the olecranon and the head and diaphysis of the radius are excluded the material in question comprises about 400 »typical« fractures of the radius, 303 metacarpal fractures and 79 carpal fractures. Of the metacarpal fractures six-sevenths of the cases show injury to one metacarpal bone only while the remaining cases had fractures of several metacarpal bones simultaneously. The material includes 50 fractures of the II metacarpal of which 39 had no other injury to metacarpal bones. With regard to localisation and appearance the following table was computed for 28 of the latter cases for which complete data had been obtained.

Localisation	Elong. fract.	Torsion fract.	Oblique fract.	Transverse fract.	Commin. fract.	Disrupting fract.
head	—	—	3	—	3	—
M II diaphysis	—	3	3	7	2	—
base	—	3	1	1	2	—

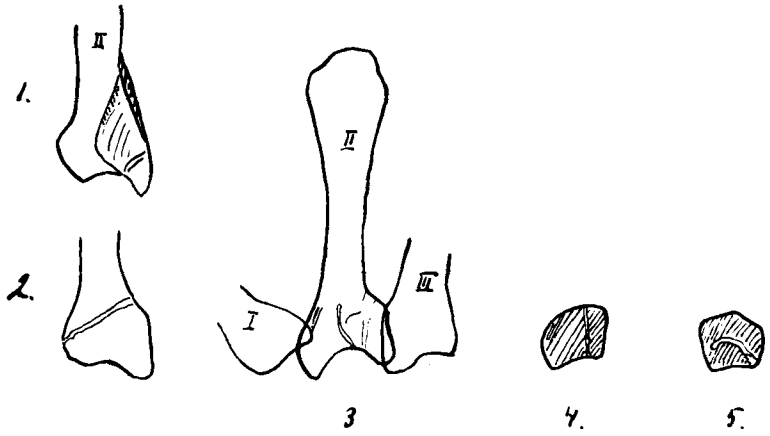
Of the basal fractures there are thus three torsion fractures, two comminuted, one oblique and one transverse but no disrupting fracture.

Of the 79 carpal fractures 4 were localised to the os multangulum minus. Of these cases 2 were at an age of 15—20 and 2 between 20 and 30. In addition one patient had a fracture of the radius and ulna and another one also another carpal fracture. These four cases sought medical advice for the first time on the 1st, 2nd, 3rd and 4th day respectively. Two of them were troubled by the fracture for 2—3 weeks but not incapable of work in the proper sense of the world while two were incapable of work for 4—5 weeks.

The following pictures collected from *Blumer*'s publication show the appearance of different fracture lesions in this region. I. Arisen through jamming. II. Through fall off a carriage. III. By blow sustained by the hand by a falling plank. IV. Trough fall during gymnastic lesson. V. Through heavy fall off a carriage.

With regard to the injuries sustained by the multangulum

minus the following is a quotation from a paper by *Schnek*[1]): »Die Fraktur des Multangulum minus. Nach Peters entsteht dieser seltene Bruch durch starke dorso-radiale Flexion, ähnlich wie die Naviculare-fraktur, was das häufige Zusammentreffen mit dem Radiusbruch beweist (*Mouchet*). Die Zertrümmerungsbrüche kommen vielleicht durch Längsstauchung vom Metacarpus 2 aus zustande. Als charakteristisches Symptom wird Schmerz bei Ueberstreckung des Zeigefingers und bei Stauchung vom 2. Mittelhandknochen aus angegeben. Die Be-



handlung besteht bei Fällen mit starker Fragmentverschiebung in Anlegung von Drahtextension am Zeigefinger.«

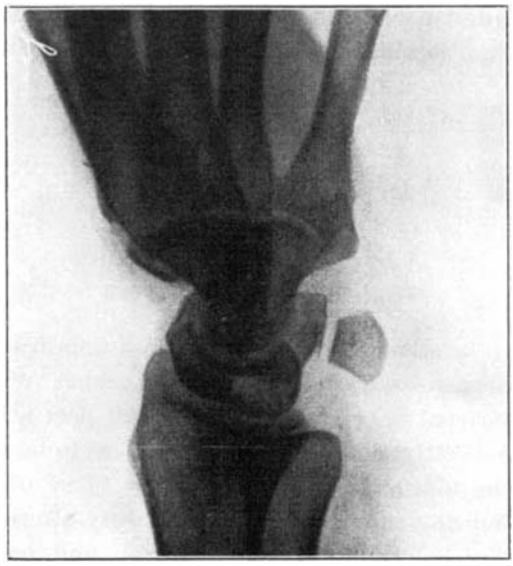
»Eine dorsale Verrenkung des Multangulum minus — die einzig sichere der Gesamtlitteratur — wurde von Franke mitgeteilt. Sie entstand durch direkten Anprall der die Lenkstange eines Zweirades haltenden Hand an einen Laternenpfahl. Nach Scheldon soll eine primäre Schwäche oder ein Fehlen des Bandes zwischen Metacarpus II und Multangulum minus die Ursache der Luxation sein.«

The following pictures show the radiographic findings in the case that is reported below.

History. — A man, aged 22, who has been one of the best

[1]) Die Verletzungen der Handwurzel. Ergebnisse der Chir. und Orthopädie Bd. 23 (1930).

boxers in Sweden of the bantam weight class, happened to contuse his right hand while boxing in Feb. 1931. On X-ray examination carried out immediately afterwards at the nearest hospital no fracture could be detected and the patient was treated with fomentations for some time. The patient had noticed that the knuckle of the right index finger had come to occupy a lower level in relation to the other knuckles of the same hand. On the dorsum of the hand just below the wrist a



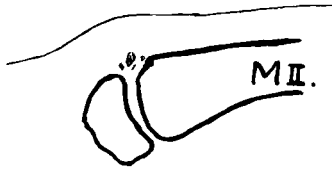
6.

painful swelling arose; this had gradually become smaller but not entirely disappeared. He has taken part in boxing with his hand bandaged but in blows hitting the knuckle of the index finger with the greatest force he has felt pains in the hand.

Condition Oct. 22, 1931. — At the estimated site of the carpo-metacarpaly (II) joint there is on the dorsal aspect a swelling, measuring about 2 cm. in diameter and of a height judged to be about 1½—2 mm. The knuckle of the index finger occupies rather a lower position than under normal conditions

as compared with the other knuckles of the hand and in comparison with corresponding parts of the other hand. In addition the knuckle of the index finger of the injured hand appears to have become somewhat retracted. There is an abnormally volar mobility of the 2nd knuckle and on carrying this movement to the extreme some pain is elicited in the corresponding carpo-metacarpal joint. At this site there is some tenderness on strong palpation from the dorsal aspect.

On a lateral radiogram taken so that the rays tangentiate the dorso-radial portion of the joint between the multangulum minus and the second metacarpal bone a few outlined calcium



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shadows can be seen at this place which in appearance resemble cortical disruptures of older date. The carpal articulation of the II metacarpal bone shows in its dorsal part a small defect causing the usually right-angled outline here to be considerably bevelled. The multangulum minus seems to be of normal appearance and does not give evidence of any altered shape. No atrophy from inactivity or sclerotization and no »traumatic bone cyst«. The antero-posterior picture shows nothing in particular.

Similar injuries to bone arison during athletics have been described. *H. Blencke*[1]) for instance reports the following clinical history. —

A weight-lifter, aged 22, when about to throw a 50 kg. weight with one arm happened to get the weight wrongly balanced wherefore he was obliged to let it fall back, all the time, however, staying its momentum. In so doing he felt a sudden pain at the inner border of the right elbow joint. Ten-

[1]) Über Sportschäden der Gelenke. Centralbl. f. Chir. 1930, p. 1170.

derness ensued here and later a swelling arose. X-ray examination showed in a certain projection a slight infraction at the inner border of the elbow.

The wrist injury reported here is to be regarded as a distorsion of the articulation between the multangulum minus and the II metacarpal bone with disruption of the corners of the latter, probably as a result of the dorsal ligaments having stood the strain on isolated depression of the II metacarpal bone. Repeated traumata have probably contributed to the nonhealing of the injury.

At the time of the patient's visit to the Out-patient Department of Vanföreanstalten (Orthopedic Hospital) he was unemployed and was thinking of becoming a professional boxer wherefore it was, financially, of great interest to the patient to have a hand that could be absolutely relied upon to withstand severe strains. Although quite capable to manage his old work he declared himself quite willing to submit to operation and also the relatively protracted after-treatment forestalled in order to get the chance of making a living out of the new profession. At a renewed visit a few days later the patient told us he had been offered a good situation in his old trade and asked advice what to do. Under such circumstances the contemplated operation was deferred. The operation was meant to be an arthrodesis of the articulation between the multangulum minus and the II metacarpal bone. As the movements in the wrist chiefly take place in the articulation between the bones of the forearm and the proximal carpal bones and also between the two rows of carpal bones while the joints between the carpal and metacarpal bones remain almost immobile in wrist movements, such an operation would scarcely bring about any conceivable drawbacks to the patient in any situation. From the point of view of boxing such a hand would almost be preferable to a normal hand as through the operation he would get some sort of internal support with augmented stability of the hand.

SUMMARY

A statement of an injury sustained during boxing with isolated clinical and skiagrammatic alterations of the joint between the os multangulum minus and the os metacarpale II of a nature not previously described.

RÉSUMÉ

L'article est le compte rendu d'une léssion du poignet encourus par un boxeur et qui présente des altérations isolées dans l'articulations de l'os multangulum minus et du second métacarpien. Ces altérations, constatées par l'examen clinique et par la radioscopie, sont d'un caractère pas encore décrit dans la littérature.

ZUSAMMENFASSUNG

Darstellung einer Boxerverletzung mit isolierten klinischen und röntgenologischen Veränderungen im Gelenk zwischen os multangulum minus und os metacarpale II von einer früher nicht beschriebenen Art.