

## CARPAL OSTEITIS

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HEREWITH are presented eight cases of osteitis of the carpal bones. Three are definitely traumatic in etiology; three are apparently occupational; in one the cause is unknown, and one, occurring in a child of twelve years, seems to be comparable to Köhler's tarsal scaphoiditis. The clinical signs, symptoms, and course in all have been the same. All began with pain and swelling in the wrist, tenderness on pressure over the bone or bones involved. Stiffness was present in all: in some, slight, in others, marked. Dorsal extension was limited to a greater degree than palmar flexion and passive movement in these directions caused pain. There have been periods of complete and comparative freedom from clinical symptoms, followed by an aggravation of disability, usually without cause.

Of the bones involved the scaphoid and semilunar predominated, but in one here classified as occupational, both wrists were affected and all bones showed X-ray evidence of the destructive process.

The name Kienboch's disease has been applied to this condition when the semilunar alone is affected. Goldsmith has recently reported three cases, and noted one hundred more listed by Finsterer prior to 1909, and later Henderson described two cases and stated that the disability as a clinical entity is usually not recognized, and the objective symptoms may be so slight that a suspicion of malingering may well be entertained. He says: "The syndrome in typical cases is characterized by three stages: (1) the acute, lasting possibly only a few hours, coming on immediately after the injury, rarely lasting more than a few days, and generally not more than a few weeks; (2) the period of freedom from pain and disability, sometimes lasting as long as two months, and (3) the period of actual disease in which the osteitis definitely assumes form and persists with symptoms for years." The X-ray picture is quite typical, but varies as the condition progresses. If taken immediately after injury, or soon after symptoms are noted, no particular change is seen. Early, however, there is an increase of density in the bone. Later, when malacia begins, clear areas appear. The articular cartilage may retain its outline for years before complete crumbling takes place. Disease of the scaphoid has been known as Preiser's disease. Preiser described a post-traumatic osteitis which led to spontaneous fracture of the scaphoid. He concluded that rarefaction preceded the fracture.

It is well known that fracture of the scaphoid and semilunar are followed by osteitis, but in none of the following cases was the original injury severe enough to cause fracture. Two X-rays taken later showed definite fragmentation.

Buchman, in reporting seven cases, calls this disease osteoporosis of the carpal bones. He has found the scaphoid, semilunar, or magnum and unciform involved.

CASE REPORTS

CASE I.—Miss V. W., twenty years of age. This patient stated that when she was eleven years old she fell on an outstretched hand, injuring her wrist. The only disability she remembers was the inability to play the piano for six months. For seven years the wrist caused no trouble. Then, on account of pain and swelling, she consulted a physician, who diagnosed her condition as chronic sprained wrist. She wore splints for six weeks and has had recurring attacks since that time.

Examination revealed swelling in the dorsum of the wrist, pain on pressure over the semilunar and a marked degree of muscle spasm. The hand was fixed in slight palmar flexion. The X-ray revealed an ovoid rarefaction in the dorsal tip of the semilunar.



FIG. 1.—CASE III.—Showing cavity formation in all of the carpal bones and bilateral involvement.

There was no evidence of fracture. The bone about the punched out area was denser than normal bone.

CASE II.—Mr. J. K., fifty years of age. While scuffling six months previously patient fell on extended hand. The wrist swelled slightly and was painful, but this soon subsided, and he thought nothing more of it. Four months later he again noticed swelling and had an X-ray taken of the wrist. He was told that the X-ray was negative and that he had a chronic sprain of the wrist.

Examination revealed slight swelling of the affected wrist, pain on pressure over the scaphoid in the anatomical snuff-box, and limitation of movement in extreme limits. He brought his X-ray, taken two months before, and it showed two definite areas of rarefaction in the bone of the scaphoid. A year later definite fissure has taken place and the bone is now divided.

CASE III.—Mrs. J. A. C., a seamstress. This patient has had pain, swelling and stiffness in both wrists for one year. No other joints are or have been involved. The pain comes and goes. The attacks are accompanied by temperature, as high as 101.5°. There is no permanent stiffness. X-ray of both wrists (Fig. 1) showed punched out

areas in all the carpal bones. This case is unusual in the number of bones involved, in the severity of the attacks which are accompanied by fever, and in the bilateral involvement.

CASE IV.—Mr. W. K., fifty-eight years of age. Automobile painter. This patient presented himself for treatment stating that he caught a steel jack as it was tipping over and sprained his wrist. He also said that the accident causing the injury was a very minor one and he could not account for the severe swelling and pain. Both wrists have been swollen at different times, but he does not recall laying off on account of this.

Examination revealed swelling and pain on pressure over the scaphoid of the right



FIG. 2.—CASE VI.—Showing two large cavities in the semilunar bone, with increased density of surrounding bone.

wrist. Both wrists were X-rayed and in both the scaphoid was found divided. The contiguous surfaces were irregular in outline, the bony structure was quite dense and several rarefied areas were seen. This is apparently an occupational condition; the patient uses both hands continuously in his work, using a cleaning brush with his left hand and painting with his right. The separation found in the X-ray is not congenital, because of the sharp outline of the fragments and the irregularity of their contour.

CASE V.—Mrs. F. B. S., fifty-six years of age. For years this woman had what was called arthritis of the wrist. There were periods of complete freedom from pain, followed by swelling, stiffness, and inability to use the right hand. Two weeks before examination she fell, injuring her wrist severely. The X-ray revealed a fracture of the styloid of the radius and a large cavity in the semilunar. This patient has apparently had an osteitis of the semilunar for a long time, which would no doubt have remained undiagnosed except for the X-ray examination incident to the severe injury.

CASE VI.—K. M., forty years of age. Typist. Pain in the wrist for years, diagnosed by a number of physicians as chronic sprain of the wrist.

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Examination revealed slight limitation of motion, no apparent swelling. Pain on pressure over the semilunar. The X-ray (Fig. 2) revealed a large cavity, involving most of the bone. This patient found it necessary to change her occupation on account of her wrist disability. Later X-rays, after prolonged physiotherapy (diathermy), revealed a filling in of this very large cavity. Clinical symptoms have not recurred for a year.

CASE VII.—Dorothy S., twelve years of age. Swelling of the right wrist noticed by mother for six months. The X-ray revealed a flattened semilunar with increased density and cavity formation. This case has the appearance of Köhler's tarsal scaphoiditis. This may be the type of case that previous authors have compared to Osgood-Schlatter's disease, Legg-Perthe's disease, Köhler's disease, and the osteochondritides. Buchman does not agree with this classification, but this case occurred during active growth and may well be placed in this group. However, I have not been able to find in the literature any case previously reported occurring in the growth period.

CASE VIII.—Miss A. P., thirty-eight years of age. Typist. Injured by falling with outstretched hand against a seat in a railway train. Inability to work at her occupation for three months. Limitation of movement in dorsal flexion. Pain on pressure over the scaphoid. X-ray findings: "There is an irregular area in the scaphoid in which the normal striations are not seen; rarefaction is present. Bone absorption has taken place."

The problem of disability entered into this case. The X-ray findings, though positive, were not clear cut. However, pressure in the anatomical snuff-box caused severe pain, and the patient continued treatment at her own expense after a settlement had been made.

*Treatment.*—Treatment has consisted of the application of heat by means of diathermy and of immobilization. In some cases treated over an extended period of time we have seen filling in of the bone cavities and the disappearance of symptoms. We have not found it necessary to remove the bones in any case.

This disease is apparently a distinct clinical entity. It is comparatively common and is often overlooked. The X-ray findings of cavity formation are positive proof of its existence, the X-ray being quite distinctive.

Trauma is not the only etiologic factor. Two cases here reported, one with febrile reactions and the other in a child, do not come under this etiologic classification. The term carpal osteitis seems a fitting term to include both the traumatic and non-traumatic types.

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