OSTEOCHONDROSIS OF THE CAPITULUM HUMERI

(*Panner's Disease*)

By

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Osteochondrosis (o.c.) of the capitulum humeri was first described by H. J. Panner in 1927. The disease occurs in children from 4 to 10 years of age and recovery takes place within two to three years without any special treatment. The roentgenologic changes in the capitulum humeri resemble those occurring in other sites of o.c., such as, for instance, the femoral head (Legg-Calvé-Perthes' disease) and the tarsal scaphoid (Köhler's I disease). Recently J. Lange (1954) reported 8 recorded cases. We found several more, a perusal of the literature up to 1955 revealing 21 recorded cases (E. Busch, J. F. Elward, J. F. Hagen & F. Bishop, G. Hegemann, W. Kohlbach, C. Krebs, J. Lange, H. C. March, E. E. Nijst, H. J. Panner, R. L. Schaefer et al., H. Semmelroch, L. A. Smith). Presumably the disease is not so rare but owing to the mildness of the clinical symptoms it often remains undiagnosed (C. Hegemann, and others). In all but two of the above-mentioned cases (C. Hegemann, W. Kohlbach) the patients were boys, the male sex thus highly predominating. The average age was 8 years. O.c. occurring simultaneously both in the capitulum humeri and elsewhere in the same patient has been described by L. A. Smith and H. Semmelroch (the femoral head and the patella).

In the following, we present two cases, one followed up for seven years and the other for two and a half years. The first patient exhibited bilateral o.c. in the capitulum humeri. As far as we are aware, such a case has not hitherto been described.

Case 1. K.A. (Case observed by Lindström). A 9-year-old boy treated in the Department III of Surgery, Allmänna Sjukhuset, Helsingfors (Chief: Prof. Väinö

Fig. 1.
K.A. Dec. 30, 1947. Right elbow joint. Peripheral area of radiotranslucency and irregular density in the capitulum humeri.

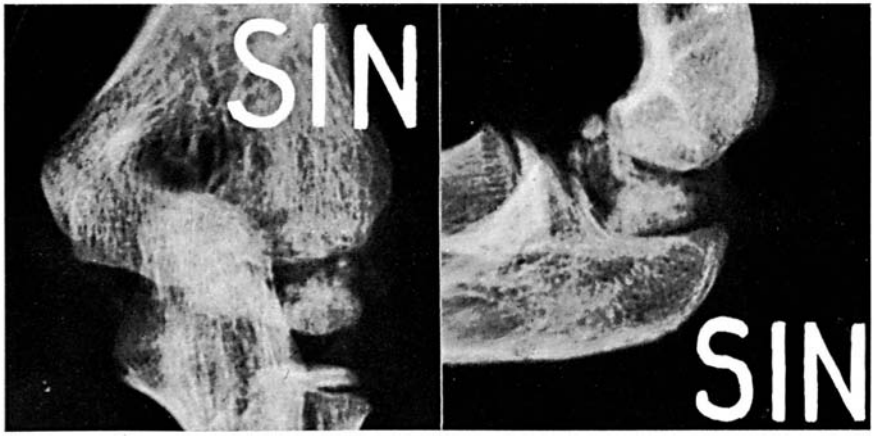

Fig. 2.
K. A. Jan. 5, 1948. Left elbow joint. Small area of radiotranslucency and irregular density in the capitulum humeri. Slightly irregular contours.

Seiro, M.D., Professor of Surgery, University of Helsingfors). For some months he had periodically felt pain in his right elbow after strain. No known injury. For a fortnight the joint had been slightly swollen and tender. Examination on Dec. 30, 1947, showed the right elbow to be tender and slightly swollen. Roentgenograms of Dec. 30, 1947, (Fig. 1) showed a peripheral zone of radiotranslucency in the right capitulum. The contour was somewhat irregular and there was increased density. The patient had never had any trouble from his left elbow, which was clinically

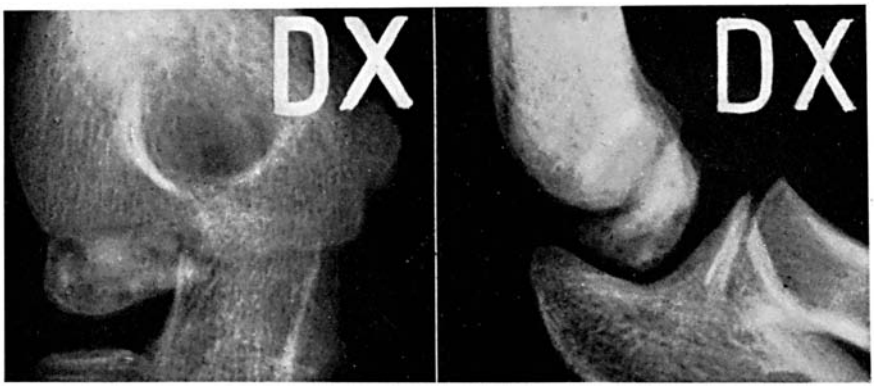

Fig. 3.
K.A. Apr. 6, 1948. Right elbow joint. Reparative changes occur. Density increased.

normal. However, on Jan. 5, 1948 (Fig. 2), roentgenograms showed signs of o.c. here, too, although to a lesser degree. The nucleus showed multiple small clear areas, and the contour was slightly irregular. The patient was asked not to strain his right arm. The symptoms from the elbow were slightly alleviated but three months after the first examination acute impairment took place, the joint again becoming swollen and tender. Sedimentation rate (SR) 25. A circular plaster bandage was applied. At check-up one month later there was an extension deficiency of 15°; subjectively the patient was symptom-free. The plaster cast was removed. Roentgen check-up on Apr. 6, 1948 (Fig. 3), of the right capitulum still showed peripheral rarefaction but the changes were less marked than in the previous pictures. The left elbow joint was still subjectively and objectively symptom-free. Follow-up roentgenograms (unsuitable for reproduction) of the left elbow showed that reparative changes had taken place in the capitulum. At follow-up examination seven years later the elbow joints appeared clinically and roentgenologically normal. Roentgenograms of June 11, 1955 (Fig. 4), showed normal conditions. The patient worked as a sexton and had had no trouble from his elbow joints.

Case 2. I.A. (Case observed by Laurent in the Surgical Department, Maria Hospital, Helsingfors. Chief: Prof. P. Tuovinen, M.D.). An 8-year-old boy. For one month the boy complained of pain in his right elbow. For one week the joint had been swollen. No known injury. Examination on Febr. 17, 1953, showed the right elbow joint to be somewhat swollen. There was slight pain on the radial side and slight extension deficiency. SR 21. The joint was immobilized for three weeks in a plaster cast. At check-up on March 12, 1953, the pain and the swelling had disappeared. SR 11, leuc. 5600, hemoglobin 65/71 Sahli. Roentgenograms of March 12, 1953 (Fig. 5), showed a large peripheral area of radiotranslucency in the capitulum. The contour was flattened and somewhat irregular, there were small clear areas in the nucleus and areas with increased density. The plaster cast was removed and the patient was asked not to strain his arm. Follow-up examination three months later showed slight extension deficiency in the right elbow joint which was otherwise clinically normal. Subjectively the patient was symptom-free. Roentgenograms on June 4, 1953 (Fig. 6), showed

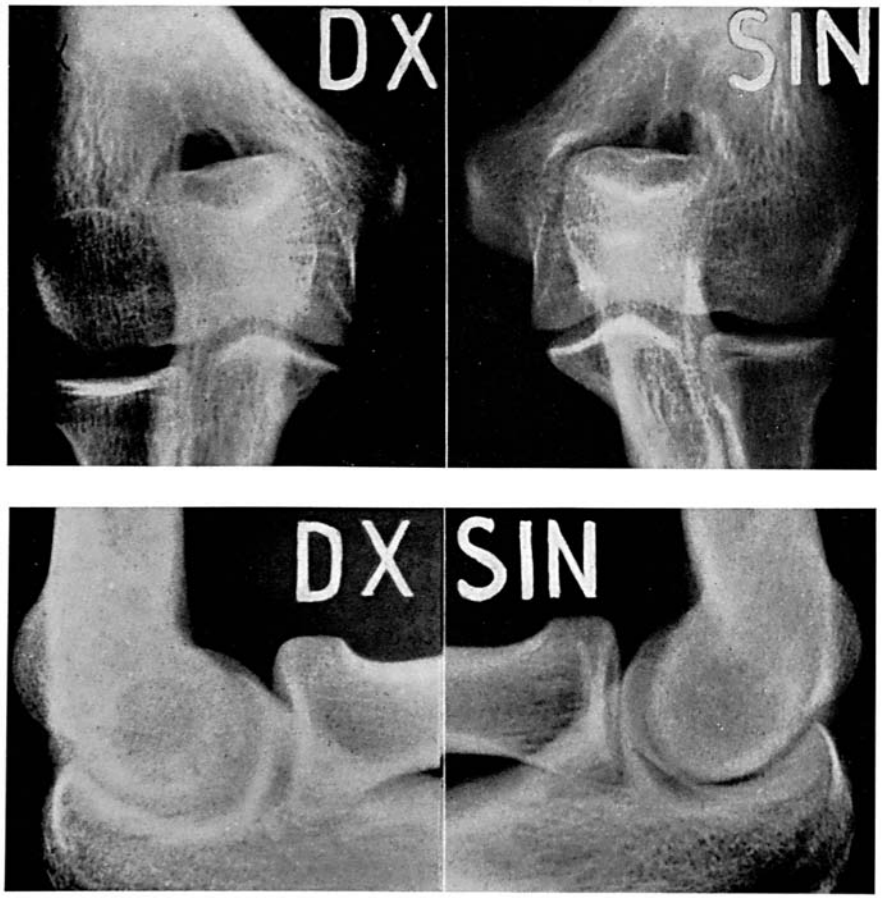

Fig. 4.
K. A. June 11, 1955. Right and left elbow joint. Normal conditions.

changes in the capitulum similar to those in previous pictures, although they were now less marked. The left elbow was normal. Follow-up examination 2½ years later showed clinically normal conditions. Subjectively the patient was symptom-free. Roentgenograms (Fig. 7) showed that the capitulum had become almost entirely normal. The radial contour showed slight unevenness. The right capitulum was somewhat larger than the left.

DISCUSSION

In H. J. Panner's three cases and in one of J. F. Elward's two cases there was a history of slight trauma. In the other reported cases no injury had been observed, neither was any injury reported in our cases.

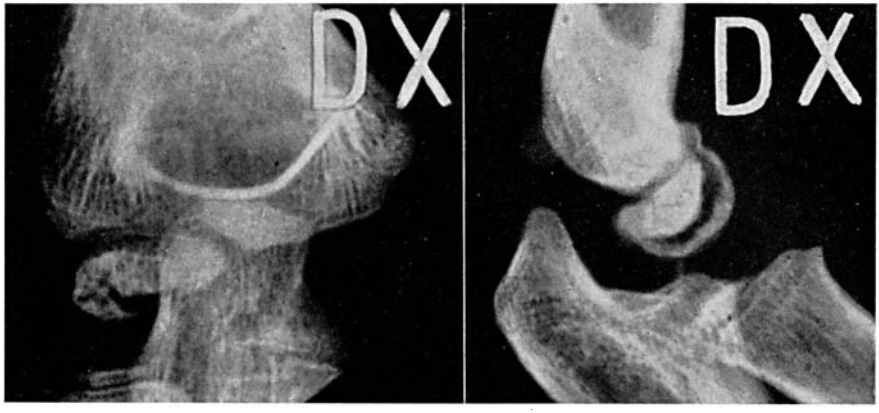

Fig. 5.
I.A. March 12, 1953. Right elbow joint. Peripheral area of radiotranslucency in the capitulum humeri. Density increased. Contours irregular.

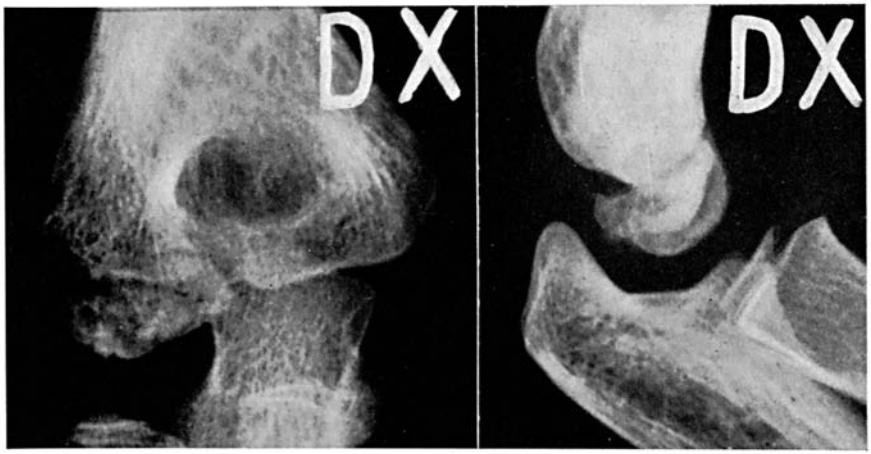

Fig. 6.
I. A. June 4, 1953. Right elbow joint. Reparative changes occur.

If injury played any decisive role in the etiology of this lesion, it would be more common. This has been pointed out by J. Lange and G. Hegemann among others. Bilateral involvement in one of our cases also constitutes evidence against a traumatic origin. Here, as also in o.c. of the femoral head and of the tarsal scaphoid, the influence of trauma on the occurrence of these changes is obscure. Many authors (H. R. Schinz, and others) believe that repeated small injuries, together with constitutional weakness in the cartilage, may cause o.c. Severe injury

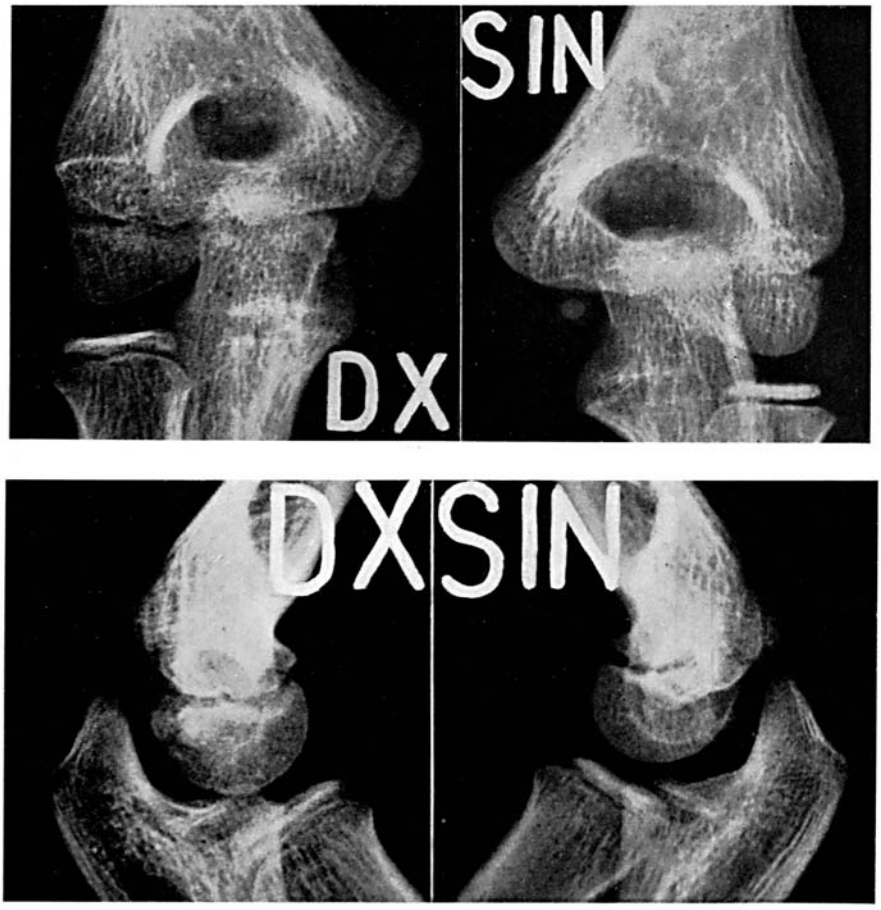

Fig. 7.

I.A. Oct. 31, 1955. Right and left elbow joint. The shape of the right capitulum has become normal. A slight irregularity of the lateral contour can still be observed. The right capitulum is slightly larger than the left.

to the epiphyses may cause changes in the roentgenograms similar to those occurring in o.c. H. R. Schinz has described such changes after a compression fracture of the tarsal scaphoid. H. Jud described a case of necrosis of the capitulum humeri after luxation of the forearm, in which healing occurred after three years. We have observed a case of o.c. of the trochlea following an open fracture of the shaft of the humerus near the joint in a 10-year-old boy. Reduction of congenital luxation of the hip is often followed by changes in the epiphysis (L. E. Laurent, and others). In these cases the changes are probably a result of impaired

nutrition of the epiphysis due to lesion of the supplying vessels. In Panner's disease, as in other forms of o.c., the changes occur at a time when the epiphyseal activity is at its greatest, the epiphysis then being highly vulnerable. This is stressed by almost all authors who have dealt with this problem. R. L. Schaefer et al. believe that changes in the epiphyses are caused by endocrinous disturbances, particularly by hypothyreosis.

The capitulum humeri is a common location for osteochondritis dissecans (o.d.). Examining 1000 men aged 15 to 74 years and chosen at random, N. A. Nielsen found o.d. in the elbow joint of 4.1 per cent. In patients with manifest o.d. the first symptoms had occurred at the age of 13 to 17 years. The question may be raised whether there exists any connection between osteochondrosis of the capitulum humeri and osteochondritis dissecans. In o.d. the epiphyseal changes naturally occur earlier than the clinical symptoms, which eventually bring the patient to the doctor. However, cases of o.c. followed for a longer period show complete regeneration of the epiphysis and this also applies to our cases. Moreover, the changes in o.c. occur considerably earlier than in o.d. Therefore o.c. of the capitulum humeri is probably not an initial stage of osteochondritis dissecans, although the primary cause of both these diseases, constitutional weakness of the epiphyseal cartilage, may be the same for both (H. Jud).

Treatment. It seems that the duration of the immobilization in o.c. is of little importance for the result, as is also the case in osteochondrosis of the tarsal scaphoid. One of our patients was immobilized for three weeks and the other for a month. H. J. Panner did not immobilize his patients. J. Lange's patient was immobilized for a half a year and G. Hegemann's for three months, while H. Semmelroch applied no immobilization at all. In these cases, as in ours, healing ensued. Immobilization at the acute stage, when patients often exhibit swelling, tenderness, an increased sedimentation rate and extension deficiency in the elbow joint, is no doubt justified. When the clinical symptoms have subsided, however, complete immobilization in a plaster cast may be abandoned and the patient should be urged not to strain his arm. In our patient showing bilateral changes, the left elbow joint was clinically symptom-free, showing roentgenological changes only. These healed completely without any treatment.

SUMMARY

Two cases of osteochondrosis of the capitulum humeri (Panner's disease), one of which showed bilateral changes, are described. A similar case has so far not been reported in the literature. Healing occurred during the time of observation.

RESUME

Deux cas d'ostéochondrose du condyle externe de l'humérus (Maladie de Panner) dont l'un montre des modifications bilatérales sont décrits. Jusqu'ici aucun cas similaire n'a été rapporté dans la littérature. La guérison a été constatée au cours de l'observation.

ZUSAMMENFASSUNG

Zwei Fälle von Osteochondrosis des Capitulum humeri (Panners Krankheit) von denen einer beiderseitige Veränderungen zeigte, werden beschrieben. Ein ähnlicher Fall ist bis jetzt noch nicht in der Litteratur berichtet worden. Während der Beobachtungszeit trat Heilung ein.

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