GENERALIZED ARTICULAR CALCINOSIS*

REPORT OF A CASE

BY

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A man aged 40 years began to notice in 1945 difficulty in walking, due to stiffness of the right knee, with slight pain, which disappeared after several days. This recurred in 1947 and a lesion of the external meniscus was diagnosed. The knee was immobilized in plaster for a month, with some relief. In 1949 the pain recurred, now in both knees and the neck, and lasted a week, recurring occasionally after this. By June, 1951, he showed transient signs of arthritis in the elbow, ankles, left knee, interphalangeal joint of the right thumb, cervical spine, shoulders and left temporo-mandibular joint. There was a diastolic apical murmur, mild fever, and an erythrocyte sedimentation rate of 60 mm./hr. The electrocardiogram and x rays of cervical spine, sacro-iliac joint, and hands were normal, but there was slight enlargement of the left ventricle. Symptoms disappeared, temperature and erythrocyte sedimentation rate returned to normal on aspirin in 12 days and he was discharged from hospital with the diagnosis of rheumatic fever and mitral disease. In 1953 he again developed arthralgia and was found to have apical systolic and diastolic murmurs; E.S.R. 63 mm./hr. The arthralgia continued and function decreased so much that he had to be admitted to hospital again in June, 1956.

There was no relevant disease in his family although his parents were cousins. Previous illnesses included appendectomy (1939) and urethral discharge twice, the last in 1941.

Examination.—Walking was impaired. Cardiac beat 1 cm. outside mid-clavicular line in fifth space: apical systolic murmur grade 2; faint diastolic murmur at left border of sternum. B.P. 130/75. Flat feet; hallux valgus; pain on movement of knees, hips, lumbar spine, shoulders, and temporo-mandibular joints, with gross limitation of movement of the hips.

Radiology.—X rays showed enlarged left ventricle, normal kidneys and skull; calcification of pubic symphysis and widespread calcific deposits on joint cartilage as illustrated in Figs 1, 2, and 3. Besides the shoulders and knees, this was seen also in the wrist joints, ankles, hips, elbows, second right metatarsophalangeal joint, and third metacarpophalangeal joint. This calcific deposit was in the superficial part of the cartilage, the

deeper part escaping. One of the lateral ligaments of the lumbar spine also showed calcification; there was some deformation of the femoral head with coxa vara and osteophytic outgrowths. The cartilage calcification had increased since the earlier x rays were taken in 1953 and 1951.

Fig. 1.—Left shoulder, showing thick calcified line over humeral head.

The six children of the patient showed no joint abnormalities on x-ray examination.

Biopsy.—A biopsy of the right knee showed no excess fluid but only a white powdery deposit covering the femoral condyles. There was some atrophy of cartilage at the periphery which was a reddish-violet colour and showed vascular synovial villi. Microscopically the meniscus showed small cavities containing grumous protein material; small calcific granules were seen surrounded by foreign body granuloma. Synovial membrane hyperplasia was present, but there was no inflammatory exudate found. Silver staining (Perdrau's modification to the double impregnation method of Bielschowsky), von Kossa's staining for calcium, and toluidine blue showed no change from normal. Bone was normal.

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Fig. 2.—Right knee (antero-posterior view), showing lineal calcification on surface of cartilage and irregular calcification of meniscus.

Fig. 3.—Left knee (intercondyleal view), showing lineal calcification parallel to articular surface, calcification of joint meniscus, and diffused calcification in intercondyleal region.

Laboratory Examinations.—Blood count normal; erythrocyte sedimentation rate normal (15 mm./hr); alkaline phosphatase 3.5 Bodansky units, serum calcium 12 mg. per cent., serum phosphatase 3.6 mg. per cent., uric acid 5.0 mg. per cent., urea nitrogen 18.5 mg. per cent., Wassermann reaction and Kahn test negative; Takata Ara negative; cephalin flocculation negative. Urine contained albumin; homogentisic acid absent. Calcium excretion 160 mg./24 hrs.

Treatment.—Aspirin and deep x-ray therapy was followed by great improvement in hip movement.

Diagnosis.—The patient was thought to have rheumatic fever with residual aortic insufficiency, coxa vara, flat feet, and a generalized joint disease with calcification of joint cartilage.

Discussion

Marziani (1953) reports a similar case of a man who developed arthritis at the age of 20 with recurrence 6 years later in whom similar x-ray appearances were seen. This patient had an alkaline phosphatase of 20 units and a serum calcium of 11 mg. per cent., and the calcium in the synovial fluid was 24 mg. per cent. It seems, therefore, that there is primary disturbance of calcium exchange in the synovial cavity and we have called this condition generalized articular calcinosis.

Summary

A male patient, 40 years of age, with rheumatism, aortic insufficiency, and bilateral degenerative joint

disease of the hips and knees, showed calcification of nearly all joint cartilages. A fine white dust was seen at biopsy.

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REFERENCE

Marziani, R. (1953). *Arch. "Putti" Chir. Org. Movimento*, 3, 220.

ADDENDUM

A similar case has recently been described by Bunje (1956). *J. Bone Jt Surg.*, 38B, 374.

Un cas de calcinose articulaire généralisée

RÉSUMÉ

Un malade, âgé de 40 ans, atteint de rhumatisme, d'insuffisance aortique et de dégénérescence articulaire bilatérale des hanches et des genoux, montra une calcification de presque tous les cartilages articulaires. La biopsie révéla une fine poussière blanche.

Un caso de calcinosis articular generalizada

SUMARIO

Un enfermo de 40 años de edad, con reumatismo, insuficiencia aórtica y enfermedad degenerativa bilateral de las articulaciones de la cadera y de las rodillas, mostró una calcificación de casi todos los cartílagos articulares. La biopsia reveló un fino polvo blanco.