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SYNOVIAL CHONDROMATOSIS OF THE METACARPOPHALANGEAL JOINT

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Synovial chondromatosis is extremely rare in the small joints (Lewis & Marshall 1974). In the case reported here, a metacarpophalangeal localization of synovial chondromatosis was found.

CASE REPORT

A 48-year-old woman presented with a 6-month history of a slowly growing tumour at the fourth metacarpophalangeal joint of her left hand. There had not been any trauma in connection with appearance of the tumour and pain.

At the examination a plum-sized, mobile tumour was found in the dorsal region and two smaller ones in the palmar region of the joint. The roentgenogram of the left hand revealed an erosion of the cortical layer of the fourth metacarpal bone at the distal portion (Figure 1). At the operation, the tumour was exposed in the dorsal region. Under the skin the tumour was covered with the thin layer of the joint capsule (Figure 2). The articular cartilage seemed to be intact at the phalangeal as well as the metacarpal sides.

At the macroscopic examination the bisected tumour showed a large solid cartilaginous body and some smaller ones attached to the synovial membrane by thin pedicles. Low-power light microscopy revealed several nodules within the synovial layer, some of which were free in the joint cavity (Figure 3). At higher magnification the tumour could be characterized as cartilaginous tissue without any sign of malignant transformation (Figure 3, inset). All of the cartilaginous nodules were uncalcified and unossified.

Figure 1. The roentgenogram illustrates a destructive lesion in the distal portion of the fourth metacarpal bone (arrow).

DISCUSSION

According to Lewis's review (Lewis & Marshall 1974), only six cases of synovial chondromatosis localized in the small joints of the hand have been reported in the literature. The present report was undertaken partly because of the marked rarity of this disease and partly because of the detailed microscopic examination we could carry out. In making the differential diagnosis, osteochondritis dissecans, osteoarthritis, osteochondral fracture, neuropathic joint and rheumatoid arthritis had been excluded.

The light microscope showed different-sized cartilaginous nodules localized in the hole of an enlarged synovial cavity. At the same time, smaller islands of cartilaginous tissue could also be found inside the synovial layers. This appearance of the tumour suggests that the cartilaginous bodies could originate from deeper parts of the synovial layer. When the tumour grows, the nodules will be extruded more and more into the hole of the joint cavity. The enlarged cartilaginous bodies are attached to the synovial membrane only by thin pedicles or might be

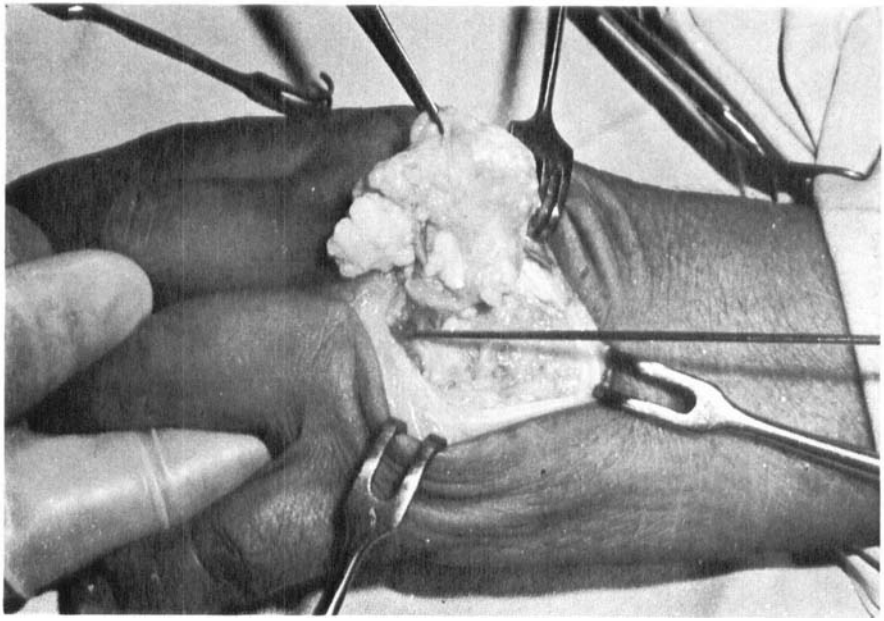

Figure 2. Gross photograph taken at the time of surgery shows the tumour in the dorsal region of the hand. The tip of the pointer is inserted into the joint cavity.

completely free inside the cavity. From the light microscope pictures we could see the steps in development of the nodules, and the multifocal localization of the small cartilaginous cell-groups within the synovial membrane supports the hypothesis of a multifocal metaplasia as the aetiological factor of the synovial chondromatosis (Aegerter & Kirkpatrick 1968, Jaffe 1968, Jeffreys 1967, Lewis & Marshall 1974, Salter 1970). Naturally, the cause of the metaplasia is still unknown (Anderson 1966).

The synovial chondromatosis can produce articular damage, so surgical treatment is always recommended (Geschickter & Copeland 1949, Jeffreys 1967, Salter 1970, Silver & Simon 1971, Spjut et al. 1970). At the operation, removal of the free bodies as well as partial synovectomy also should be performed because of the danger of recidivation and malignant transformation of the synovial chondromatosis (Geschickter & Copeland 1949, Jaffe 1968, Lichtenstein 1965).

In the case reported here the operation was successful in respect of function of the hand and relief of the pain. No recidivation has developed during 2 years since the operation.

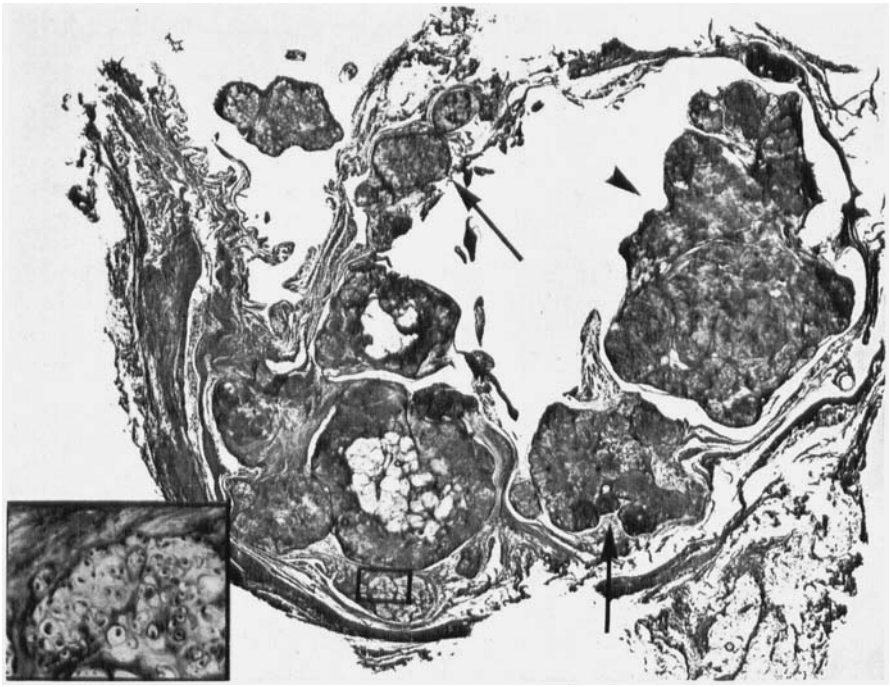

Figure 3. The low power microphotogram demonstrates several nodules in the cavity (pointer) and in the layers (arrows) of synovium. Toluidine blue staining (× 6). The inset corresponds to the region indicated by a rectangle and shows an island of irregularly arranged swollen chondrocytes (× 250).

SUMMARY

The authors present a case of synovial chondromatosis localized on the left hand of a woman and discuss the pathogenesis, histology and treatment of the synovial chondromatosis. The patient has been free of complaints for the 2 years since the operation.

REFERENCES

Aegerter, E. & Kirkpatrick, J. A. (1968) *Orthopaedic diseases*, 3rd ed., pp. 794–797. W. B. Saunders, Philadelphia.

Anderson, W. A. D. (1966) *Pathology*, 5th ed., Vol. 2, p. 1361. C. V. Mosby, St. Louis.

Geschickter, Ch. F. & Copeland, M. M. (1949) *Tumors of bone*, 3rd ed., pp. 699–700. J. B. Lippincott, Philadelphia.

Jaffe, H. L. (1968) *Tumors and tumorous conditions of the bones and joints*, pp. 558–566. Lea & Febiger, Philadelphia.

Jeffreys, T. E. (1967) Synovial chondromatosis. *J. Bone Jt Surg.* **49**-B, 530–534.

Lewis, M. M. & Marshall, J. L. (1974) Synovial chondromatosis of the thumb. *J. Bone Jt Surg.* **56**-A, 180–183.

Lichtenstein, L. (1965) *Bone tumors*, 3rd ed., pp. 386–387.. St. Louis.

Mussey, R. D. (1949) Osteochondromatosis. *J. Bone Jt Surg.* **31**-A, 619–627.

Salter, R. B. (1970) *Textbook of disorders and injuries of the musculoskeletal system*, pp. 329–330. Williams & Wilkins, Baltimore.

Silver, C. M. & Simon, S. D. (1971) Synovial chondromatosis of the temporomandibular joint. *J. Bone Jt Surg.* **53**-A, 777–780.

Spjut, H. J., Dorfman, R. D., Fechner, R. E. & Ackerman, L. V. (1970) Tumors of bone and cartilage. In: *Atlas of tumor pathology*, 2nd Series, Fasc. 5, pp. 391–396. Armed Forces Institute of Pathology.

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