Heberden Society

Annual General Meeting, November, 1971

The following papers were presented at the Annual General Meeting held in London on November 26 and 27, 1971.

Multiple Nodules in Juvenile Chronic Polyarthritis. By E. G. L. BYWATERS and N. CARDOE (*Canadian Red Cross Memorial Hospital, Taplow, and Norfolk and Norwich Hospital*)

Bywaters, Glynn, and Zeldis (1958) reported that the nodule in Still's disease often resembled that of rheumatic fever histologically; this was based on biopsies of eleven cases compared with 57 with rheumatic fever and 22 with adult rheumatoid arthritis. We now report a small series of six children followed for 3 to 5 years, where multiple small nodules as seen clinically in rheumatic fever were the predominant clinical feature and were biopsied. Two were histologically of adult type and associated with the serum rheumatoid factor. Four histologically resembled the rheumatic fever nodule and, of these four cases, two were persistently seronegative and two seropositive. Five out of six survived for a mean follow-up of 4 to 6 years, all but one being then in the top functional grade. It is concluded that:

- (1) Nodule formation in juveniles is not always dependent on seropositivity;
- (2) It may be independent of joint involvement;
- (3) The histological appearance is no guide to the presence of rheumatoid factor in serum.

Discussion

DR. F. DUDLEY HART (*London*) Massell, Mote, and Jones (1937) reported the production of rheumatic fever nodules by subcutaneous injection of the patient's serum or of saline, but I was unable to reproduce this (Hart, 1939). Schwartz and Steinbrocker (1950) were also unable to verify their results. Why do you think this is?

PROF. BYWATERS We also have not been able to produce genuine nodules in this way; even if they appeared this would not mean very much. In Still's disease we have found no correlation between length of history and the histological character of the nodules.

DR. G. D. KERSLEY (*Bath*) Can the formation of nodules be controlled by drugs, such as steroids?

PROF. BYWATERS We have been unable to affect nodule formation by steroid therapy, although we have found nodules to shrink on such treatment due to loss of lymphocytes and oedema.

DR. J. D. GOODE (*Hull and East Riding*) Is the histology consistent in different nodules in the same patient?

PROF. BYWATERS We have had only one or two patients

who have had more than one biopsy.

DR. R. GRAHAME (*London*) We have been unable to find joint or tendon lesions in patients with granuloma annulare.

PROF. BYWATERS Granuloma annulare is very common and the idiopathic type is seronegative. I have seen this lesion occurring coincidentally in patients both with genuine rheumatic fever and with Still's disease as well as in adult patients with rheumatoid arthritis. It seems a quite different and local process despite its histological resemblance to the genuine rheumatoid nodule.

References

- Bywaters, E. G. L., Glynn, L. E., and Zeldis, A. (1958) *Ann. rheum. Dis.*, 17, 278
Hart, F. Dudley (1939) *Ibid.*, 1, 196
Massell, B. F., Mote, J. R., and Jones, T. D. (1937) *J. clin. Invest.*, 16, 125
Schwartz, S., and Steinbrocker, O. (1950) *Amer. Heart J.*, 40, 100

Ultrastructure of Cartilage. By P. J. L. HOLT, S. G. PAL, R. BENNETT, C. MAUNDER, and S. LEWIS (*Royal Post-graduate Medical School, London*)

Ionic etching (radio frequency sputtering) allows the substance of suitably fixed tissues to be removed in layers in a controlled manner. The ease of tissue removal depends in part on the toughness of the tissue structures involved and the strength of their binding. Scanning electron microscopy of the successive layers revealed by ionic etching has been used to investigate the changes in femoral head cartilage with age and disease. The surface of foetal cartilage consists of shallow hollows regularly spaced and underlined by poorly developed bundles of collagen fibrils which, however, are regularly arranged. Frequent chondrocytes can be seen lying closely applied to collagen bundles. With increasing age the surface hollows, at first more clearly defined, later become irregular with patchy loss of their margins. The surface layer of flattened collagen bundles is initially more pronounced but later becomes irregularly arranged and chondrocytes are rarely seen. In joints developing degenerative changes, the surface layer is first lost and later the deeper collagen bundle becomes separated and, at the margins of ulcers, individual bundles lie free and are fractured. Discrete areas of calcification can be seen increasingly with age. These changes will be correlated with light microscopy and discussed.

Discussion

DR. J. T. SCOTT (*London*) Where exactly were these samples taken from and to what extent were the rheumatoid lesions related to the actual presence of granulation tissue?

DR. HOLT Most were taken from the head of the femur