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

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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

but the rheumatoid samples shown were taken from finger joints from areas where there were no macroscopic changes although there were angular erosions.

PROF. V. WRIGHT (*Leeds*) What is the mechanism by which just soaking in saline seems to strip the surface layer off? The evidence that Clarke (1971) has put forward about the depressions being lacunae that once held cells was fairly good. Would you care to comment on this? Does the pore size you have measured fit in with the figures of McCutchen (1966) and Maroudas (1967) at 12.5 Å.

DR. HOLT The last question first—the pores are much bigger than those that McCutchen described, but are below the exclusion limit of hyaluronic acid so that they should not let hyaluronic acid through.

Regarding the first question, we have on evidence, but I would like to suggest that large molecular weight substances from the synovial fluid are constantly being deposited on the surface. I think we have demonstrated a filter mechanism which produces a surface membrane formed of synovial fluid macromolecules. This can be washed off by saline. These suggestions are purely hypothesis.

ANON Why are some of the red cells in the deep layer of cartilage crenated?

DR. HOLT These are not red cells but crystals produced during drying. Crenation is not a feature of this method of preparation but slight shrinkage does occur.

References

- Clarke, I. C. (1971). *Ann. rheum. Dis.*, 30, 15
Maroudas, A. (1967) *Proc. Inst. mech. Eng.*, 181 (3J), 122
McCutchen, C. W. (1966) *Fed. Proc.*, 25, 1061

Prophylactic Synovectomy of the Rheumatoid Hand Published Clinical Trial with 5 to 8-year Follow-up. By F. V. NICOLLE and R. A. DICKSON (*Royal Postgraduate Medical School, London*)

Most of this material was published in the *Annals* in September, 1971 (vol. 30, p. 476)

Discussion

DR. A. G. S. HILL (*Stoke Mandeville*) I am a little puzzled by the figure for subsequent synovitis in the unoperated MCP joints being 8.4 per cent. whereas that in the wrist and hand elsewhere was 50 per cent. Is that correct?

MR. NICOLLE That is quite right. These MCP joints showed little evidence of clinical activity, whereas the wrist joints did show frequent evidence of rheumatoid disease.

DR. HILL Many of the MCP joints had no erosions demonstrable before operation. How many in fact had erosions when the joint was opened?

MR. NICOLLE All these cases were operated on before I took part in this study, so that I am unable to answer this question.

DR. D. A. BREWERTON (*London*) Could some of your good results be due to patient selection? They had their disease for an average of nine years and most still only had minimal radiographic changes. If the course had been so benign in the first 9 years you would not expect them to

worsen greatly in the following 6 years. This situation is surely very different from prophylactic synovectomy performed for the acute painful joint early in the disease.

MR. NICOLLE Other evidence has shown that the earlier prophylactic synovectomy is performed, the better are the results. In the earliest cases presented a great deal of conservatism was exercised so that one would have expected poorer results.

References

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Gariépy, R., Demers, R., and Laurin, C. A. (1966) *Canad. med. Ass. J.*, 94, 1349
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Assessment of Television Teaching in Rheumatology. By V. WRIGHT, D. I. HASLOCK, J. IVES, and D. HOLROYDE (*Rheumatism Research Unit, University of Leeds*)

Little work has been done on the use of television in the teaching of rheumatology and as far as we know no attempt has been made to evaluate such work. The present study concerns a programme that was constructed for the period devoted to 'Introduction to Rheumatology'. The 48 students attending were divided into two groups, one of which watched the television presentation and the other received a lecture on the same topic. Immediately after the lecture a short test was given to determine immediate recall. A month later, after a lecture on nephrology given on a snowy morning at 8.30 a.m., the same test was re-applied to ascertain delayed recall, the students being unaware that this was going to happen. This then produced three groups, those who had been to the lecture, those who had been to the television presentation, and those who had been to neither (11)!

The questions put to the students were:

- (1) What are the main symptoms relating directly to the patient's joints that must be elicited?
- (2) In what ways might a rheumatic disease affect the patient's general health?
- (3) Why is a thorough review of the systems symptomatically important in rheumatic diseases?
- (4) Name a rheumatic disease in which a family history may be helpful.
- (5) What help is a social history in rheumatic disease?
- (6) What points may emerge from the classical order of examination as far as joints are concerned (inspection, palpation, percussion, auscultation)?

The television group had a higher score on four of the questions, there was an equal score on one, and the lecture group had a higher score on one question. The standard deviation of marks was higher in the lecture group.

For delayed recall the television group maintained their superiority of marks on three of the six questions. On two questions the non-attenders equalled the marks of the lecture group.

Members of the television group were given a short questionnaire on their reaction to this presentation, and it emerged that they liked the television prepresentation, which differed from the results obtained in other disciplines in the University. The whole process was very salutary for the lecturer who came to the realization that he had