

DR. DAVIS I think you have missed the point. Our main concern has not been the measurement of viral antibodies as such, but antibodies against RNA; the two are not synonymous as I have explained.

References

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Abnormalities in Rheumatoid Synovial Collagen: Studies on Synovial Polymeric Collagens (PC) from Normal Individuals and Patients with Rheumatoid and other Arthropathies. By JACQUELINE WEISS, S. J. LEIBOVICH, J. A. A. HUNTER, and M. I. D. CAWLEY (*Rheumatism Research Centre, University of Manchester*)

Enzymic degradation and electron microscope studies have been used to detect abnormalities in polymeric collagen. The results indicate that rheumatoid synovia contain two distinct abnormal forms of polymeric collagen, one of which (F_2) represents only a small proportion of the total and which is also found in all inflamed synovial membranes. The other, which constitutes between 15–70% of total PC is, characteristic of rheumatoid arthritis synovia.

Methods

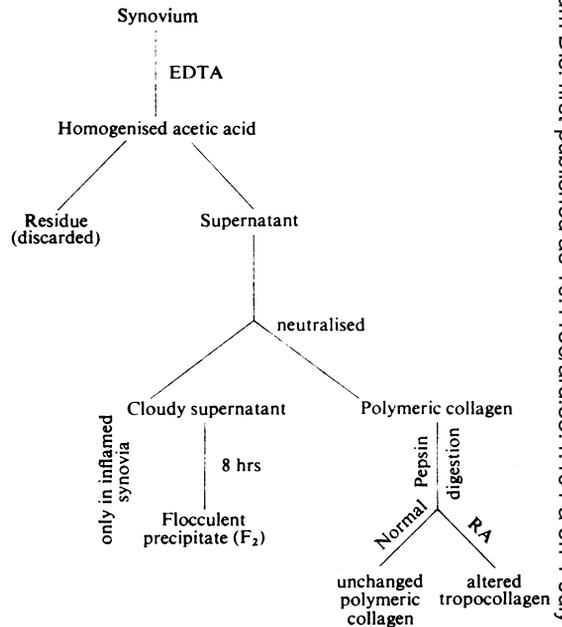
Synovial membrane samples were obtained at biopsy or necropsy from 18 patients with classical or definite rheumatoid arthritis, 18 normal controls, and 13 patients with other arthropathies. Polymeric collagens were prepared by the EDTA method (Steven, 1967). Supernatant and insoluble fractions resulting from pepsin digestion (pH 3.1, 15°C) were quantitated as hydroxyproline. Soluble collagen present in the supernatant was precipitated as fibrils and examined in the electron microscope (Figure).

Abnormality characteristic of RA

An abnormal form of polymeric collagen which was susceptible to pepsin digestion was found in all 18 patients with RA. Normal adult human PC is not susceptible to pepsin and the abnormality could not be reproduced by action of synovial collagenase (Leibovich and Weiss, 1971). The products of pepsin digestion when reconstituted and examined in the electron microscope showed that both N- and C-terminal regions of the molecule had been removed (Leibovich and Weiss, 1970). Immature normal polymeric collagen is also susceptible to pepsin digestion, but in this case only the C-terminal region is removed.

General abnormality associated with inflammation (F_2)

A polymeric collagen, different from normal in its polarity and slowness of aggregation from a neutralized acid suspension, constitutes up to 10% of total synovial collagen in acute inflammatory arthritides and less in rheumatoid arthritis depending on the degree of inflammation. This second abnormal collagen is resistant to pepsin degradation and may represent reassociated products of lysosomal degradation of collagen and matrix (Figure).



References

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Biosynthesis and Maturation of Skin Collagen in Scleroderma. By C. M. HERBERT, K. A. LINDBERG, M. I. V. JAYSON, and A. J. BAILEY (*Department of Medicine, University of Bristol, Royal National Hospital for Rheumatic Diseases, Agricultural Research Council, Meat Research Institute, Bristol*)

The aetiology and pathogenesis of scleroderma are still unknown. The main characteristic of the disease is severe rigidity and thickening of the skin. Since the mechanical stability of the skin devolves almost entirely on the fibrous protein collagen, qualitative and quantitative changes in the collagen, and particularly of the crosslinks stabilizing the fibre, could lead to the observed symptoms.

The present study was carried out on skin biopsy material obtained from 15 cases of scleroderma, 6 of whom had systemic sclerosis and 9 cutaneous scleroderma as defined by changing physical signs. Controls matched for age, sex, and site were obtained from autopsies on patients who had no disease or medication known to interfere with the metabolism of connective tissue.

The biopsy material was analysed for the presence of reducible aldimine crosslinks (Herbert, Jayson, and Bailey, 1973). Normal skin shows a pattern of maturation of these crosslinks. When collagen is newly formed during the early growth period it contains a high proportion of the aldimine bonds, which are readily cleaved by mild chemical agents. At maturity when growth ceases, the crosslinks become stabilized to an as yet unknown form and are no longer detectable by reduction.

Analysis of the sclerodermatous skin collagen from patients with active scleroderma revealed the presence of the aldimine crosslinks normally absent in adult subjects. Biopsy material from the active edge of the plaque showed