Rheumatoid-factor-like Substance and Antistreptolysin O Antibody in Leprosy Serum

Significance in Erythema Nodosum Leprosum

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The phenomenon of autoimmunity is well recognized in a great variety of disorders (1). In leprosy, however, little is known of this phenomenon, although a role is suggested in the reactional states in leprosy (2). Recent investigations of Cathcart et al. (3) and Bonomo et al. (4) have shown that autoantibodies, such as rheumatoid factors (RF) and thyroglobulin antibodies, are found in the serum of leprosy patients, without a demonstrable relation, however, between the presence of these antibodies and clinical findings in the disease. On the other hand, Matthews and Trautman (5) have emphasized the resemblance of reactive episodes in leprosy to manifestations of collagen diseases, on the basis of positive serologic findings, including RF, thyroglobulin antibodies, false-positive serologic tests for syphilis, and cold-precipitable proteins. Our own interest was directed toward RF or RF-like substances in leprosy serum, from the point of view of a possible role of such substances as evidence in the repeated occurrence of antigen-antibody reactions in vivo associated with the course of leprosy, especially with erythema nodosum leprosum (ENL). Antistreptolysin O antibody was also investigated, in order to throw light on the serologic resemblance of ENL to collagen diseases.

MATERIALS AND METHODS

Sera. Leprosy sera were collected from leprosy patients in the National Leprosy Institute for Leprosy Research, Tokyo, Japan; Shiro Chinone, Laboratory of Serology, National Institute for Leprosy Research, Tokyo, Japan; Tadashi Hirako, National Leprosarium, Tama Zencho-en, Tokyo, Japan.

Received for publication 30 January 1967.

Mercapto-ethanol treatment of serum. One volume of 1M 2-mercapto-ethanol (ME) was mixed with nine volumes of serum, and the mixture was incubated at

INTERNATIONAL JOURNAL OF LEPROSY
Volume 35, Number 3
Printed in U.S.A.
room temperature for two hours. It was then dialyzed overnight against large volumes of saline containing 0.02 M iodoacetamide. As a control, the same serum, mixed in the proportion of 9 to 1 with saline, instead of ME, was treated in the same manner.

According to the usual technique, a special column, measuring 25 x 450 mm. (Pharmacia), was used for good separation of protein. Three to 5 ml. of the sample, mixed with sucrose (200 mgm./ml.), were applied to the column, and then the buffer solution of 0.1 M Tris HCl, pH 8.0, in 1.0 M NaCl