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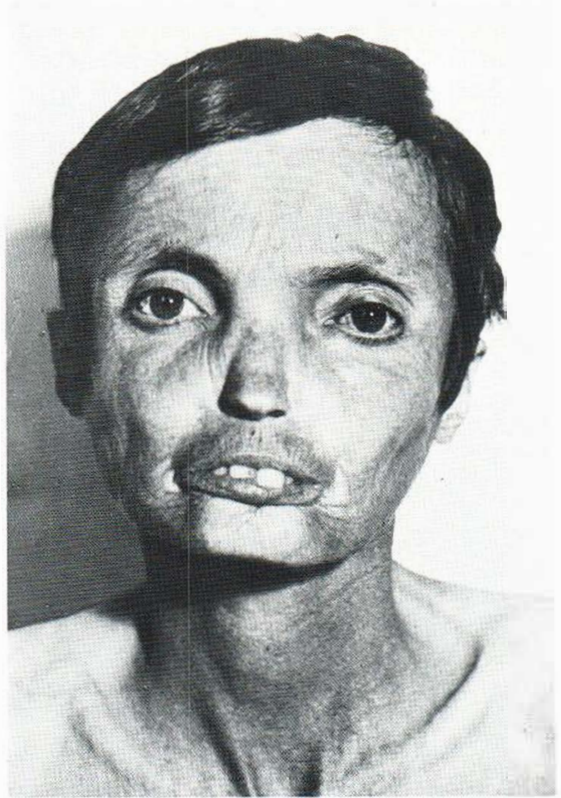


Fig. 1.

## Werner's Syndrome and the Cellular Immune Reactions

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**Abstract.** A case of Werner's syndrome in a 39-year-old man is described. PPD and trichophyton intradermally proved negative; the percentage of T-lymphocytes and the lymphocyte response to PHA were reduced. Cellular immune reactions seem to have been impaired in this case.

We describe here a case of Werner's syndrome in a 39-year-old man. 14 members of the family were examined but no other instance was found.

### CASE REPORT

The patient was 156 cm high and his weight was 38 kg. The limbs were thin. The voice was high-pitched and raspy. The radix nasi was depressed and he had

hypertelorism. Severe cutaneous changes had emerged after the age of 20. The skin was atrophic with circumoral furrows (Fig. 1). The teeth were protruding and he had a recessive chin. He had both hyper- and hypopigmented spots on the extremities and pronounced teleangiectasies on the back and the nates, which gave the appearance of poikiloderma. The subcutaneous fat was reduced (Fig. 2). Ulnar deviation of fingers II-V of both hands was prominent. Contractures of the metacarpo-phalangeal joints of the same fingers were present (Fig. 3). He had keratotic plaques on the pressure points of the soles and an ulcer on the right big toe. Hair and nails were normal, but he had no axillary or pubic hair. Histological examination of a skin lesion on the back was compatible with usual findings in Werner's syndrome.

X-ray examination of the skeleton showed osteoporosis. Ophthalmological examination revealed teleangiectasies and aneurysms of the blood vessels of the sclerae, subcapsular cataracts, vitreous opacities and degenerative macular changes. Leukokeratosis of the vocal cords was found. The patient was not mentally retarded. The velocity of the conductivity of the peripheral nerves was decreased. Hypogonadism with low excretion of androgens in the urine was found. Heart and lungs were normal.



Fig. 2.

### MATERIAL AND METHODS

Lymphocytes were isolated from peripheral blood by flotation on Ficoll-Isopaque. T-lymphocytes were identified by slight modifications of the method by Jondal et al. (1). In brief, 0.5 ml with  $3 \times 10^6$  lymphocytes in Hanks' solution was mixed with 0.5 ml of 0.5% sheep red blood cells and incubated at 37°C for 10 min. The cell suspension was spun at 800 r.p.m. for 5 min and then incubated on ice for 2 hr. The pellet was gently resuspended by shaking. One drop of the cell suspension was mounted on a glass slide, covered with a coverslip and sealed. 200 lymphocytes were counted and the lymphocytes binding more than three red cells were considered positive.

Identification of B-cells was performed according to Jondal et al. (1). 0.1 ml with  $2 \times 10^6$  lymphocytes was incubated with 0.1 ml of FITC rabbit anti-human IgG+IgA+IgM (Behring) on ice for one hour. The cells were washed three times with ice-cold, phosphate-buffered saline. The pellet was resuspended in one drop of glycerol-PBS. 200 cells were counted under a Leitz Orthoplan microscope (fluorescence vertical illuminator, lamp housing 100, BG 38, BG 12 and K 510 filters). The cells displaying more sharply stained spots were considered positive.



Fig. 3.

### RESULTS AND DISCUSSION

The following laboratory findings were of particular relevance, hyperlipoproteinemia with increased pre- $\beta$ -2-fraction. No aminoaciduria. The mineralogram was normal. The levels of immunoglobulins G, M, A and D were increased. IgE was present in trace amounts. Skin tests with PPD (3 and 10 units) and trichophyton (1:50 and 1:10) were negative).

The lymphocyte response to PHA was reduced. T-lymphocytes were 39% (normal >66%). B-lymphocytes were 11% (normal >20%).

The results suggest a defective cellular immune response in this case of Werner's syndrome. About 10% of patients with Werner's syndrome develop neoplasms of the connective tissue and other tissues of mesenchymal derivation. It is suggested that the development of the malignancies of this syndrome could be partially determined by disturbed immunological functions.

### REFERENCE

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