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A CASE OF SCLERODERMA WITH L.E. CELLS AND PROLONGED REMISSION ON CORTISONE THERAPY*

ROBERT VOLPÉ, M.D.† and
JOHN T. HAUCH, M.D., Ph.D.,‡ *Toronto*

A CONTROVERSY currently exists regarding the specificity of the L.E. cell phenomenon for disseminated lupus erythematosus. The L.E. cell may be defined as a polymorphonuclear leukocyte containing a large homogenous inclusion body which is stained with basic dyes and is Feulgen-positive. In the experience of a number of observers, the L.E. cell is apparently specific for disseminated lupus erythematosus and not found in other conditions, including the allied collagen diseases.[1-11] However, evidence is now accumulating that the specificity of the L.E. cell is not complete, and that conditions other than disseminated lupus erythematosus may be associated with the phenomenon. The L.E. cell has been observed in hæmolytic anæmia,[12] multiple myeloma,[13] leukæmia,[14] miliary tuberculosis,[15] pernicious anæmia,[16] dermatitis herpetiformis,[16] severe penicillin reactions,[17] and some cases of diffuse systemic rheumatoid disease.[18] The actual correlation of the L.E. cell with disseminated lupus erythematosus is undoubtedly high, but it would appear that more experience with the test is necessary before a complete evaluation of the significance of the L.E. cell is reached.

Evidence has been advanced that many of the collagen diseases bear a relationship to the hypersensitivity state,[19, 20] and thus the difference between the various collagen diseases may be in part a matter of degree rather than actual structural changes. If this is correct, further search for L.E. cells in collagen diseases other than disseminated lupus erythematosus, and also in hypersensitivity states, may be productive in at least a few of the cases.

The demonstration of the L.E. phenomenon in the case of scleroderma described below suggests that this viewpoint may be worthy of further consideration.

*From the Department of Medicine, St. Joseph's Hospital, Toronto.
†Senior Intern in Medicine, 1951-52, St. Joseph's Hospital, Toronto.
‡Physician-in-Chief, Department of Medicine, St. Joseph's Hospital, Toronto.

CASE REPORT

Mrs. G.B., a 28-year-old white woman, has been followed both as an in-patient at St. Joseph's Hospital, Toronto, and as a private out-patient of one of the authors, for several years. She was in fairly good health until the age of 21. She stated that she had had intermittent bouts of eczema since infancy, and sinusitis and bronchitis since childhood. Then in February 1945 (at age 21) she gradually developed hoarseness, as well as pain, stiffness, and limitation of movement in the knees, ankles, wrists, shoulders and fingers. The skin of her hands and feet became thin, glazed, dusky and reddish blue in colour. She also developed anorexia, weight loss, malaise, fatigue, and occasional paroxysmal tachycardia. Her hands would become pale and painful on exposure to cold. She was finally admitted to hospital in January 1946.

On physical examination on that first admission, significant findings were as follows:

The skin of the hands and feet was thin, glazed, and taut over the subcutaneous tissues, with a reddish-blue hue in these areas. The feet appeared puffy. The skin of the remainder of the body was normal and unaffected, and there was no facial rash. The metatarso-phalangeal joints of both great toes were tender, painful and swollen. There was painful limitation of movement of the small joints in both feet, and of the ankles. Both wrists were stiff and painful, with marked limitation of movement in the small joints of the fingers. Numerous tender nodular swellings were noted along the course of the long tendons. The knees, shoulders and elbows did not appear to be involved clinically at that time. There was no lymphadenopathy, and neurological examination was negative.

Admission temperature was 98.4° F. Leukocyte count 8,000, hæmoglobin value 78%, E.S.R. 25 mm. in one hour. Fasting blood sugar 81 mgm. per 100 c.c. The intracutaneous tuberculin (O.T.) test was negative.

Laryngoscopic examination revealed atrophy and induration of the vocal cords. Roentgen examination of the right hand demonstrated moderate decalcification of the bones, but no proliferative or destructive lesions. The joint spaces appeared normal. Biopsies were taken of the skin of the left hand, and of a nodule in proximity to a tendon. Sections through the peritendinous nodule showed dense fibrous tissue, with fibrinoid necrosis in the central area. Towards the periphery were small clusters of large cells having the appearance of an Aschoff nodule. The appearance was that of a chronic inflammatory reaction, and was interpreted as resembling that of rheumatoid nodules. Sections through the skin showed atrophy of the epithelium and collagenous thickening of the corium. The appearance was compatible with a diagnosis of scleroderma.

The patient was in hospital for seven weeks on that occasion. She was given a course of penicillin without avail, and was afebrile throughout her stay.

After discharge from hospital, the patient was allowed to return to secretarial work, although greatly restricted in her activities. She continued to have unabated malaise and fatigue. In December 1948 (age 24), she developed coryza and sore throat, and then rigors, feverishness, anorexia, diarrhœa, crampy abdominal pains, and a frequent cough productive of moderate amounts of mucoid sputum. She was readmitted to St. Joseph's Hospital two weeks later. On admission she was acutely ill, flushed, markedly dyspnœic and cyanotic. Her posterior pharynx was injected. Movements of the chest were not impaired, and resonance and fremitus were normal throughout. Diffuse fine rales were heard throughout both lung fields. The cardiovascular system appeared normal, but the apex rate was 120 and regular. The abdomen was slightly distended, but the remainder of the findings were as above described.

She ran a "spiking" temperature as high as 105° F. for 48 hours after admission, and was thereafter afebrile. Penicillin therapy was instituted on admission, and continued for two weeks.

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Laboratory investigation then revealed a leukocyte count of 8,600, hæmoglobin value 82%, red cell count 4,000,000, erythrocyte sedimentation rate 98 mm. in one hour on admission and 76 mm. two weeks after admission (day of discharge). Her urinalyses were negative.

She continued to do poorly after discharge, with gradual loss of weight, weakness, malaise, fatigue, anorexia, abdominal cramps, and polyarthralgia and did not return to work. In October 1949, she attended the Mayo Clinic, Rochester, Minnesota, where a sternal bone marrow aspiration revealed L.E. cells in large numbers. On that basis, a diagnosis was there made of disseminated lupus erythematosus despite the absence of cutaneous signs, leukopenia, or anæmia. Roentgen examination of the chest at that time revealed only a Ghon lesion on the left, and radiographs of the hands, elbows and knees showed osteoporosis only.

soon objective as well. The pain in affected joints became greatly diminished within two days, and the range of movement of these joints increased. She became active, and walking caused her little distress.

On this therapy, her sedimentation rate dropped to 30 mm. in one hour 12 days after starting therapy, and to 22 mm. in another 10 days. On December 9, 1950, her total protein was 7.52, albumin 3.55, globulin 3.97 gm. %. Her hæmoglobin value had risen to 90%, and her leukocyte count had decreased to 12,200.

She was discharged on December 15, 1950, and has been maintained on 75 mgm. cortisone daily orally, and a low-sodium diet. She continued to improve, gained weight, and returned to a vigorous active life. The skin manifestations improved considerably over a period of a few months. Slight limitation in movement of the previously affected joints persisted, but this was not incapacitating. In January 1951, she fell and suffered a

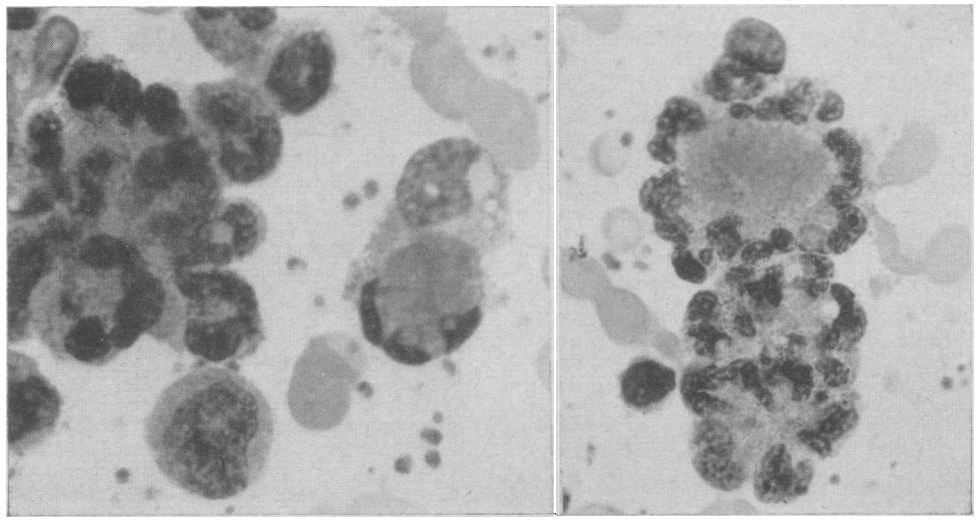

Fig. 1 Fig. 2

Fig. 1.—L.E. cells in patient's bone marrow.
Fig. 2.—Rosette from the same bone marrow preparation.

After returning home from this visit, she confined herself to bed most of the time. On November 11, 1950, she was again admitted to St. Joseph's Hospital because of the gradual progression of her disease. She had lost 28 pounds in the last two years before admission (from 120 to 92 pounds). In addition, for 18 months before admission, she had been experiencing severe night sweats, intermittent periods of feverishness, and stiffness of the back and neck. Physical findings were essentially unchanged, except that she was very pale and appeared more severely ill than previously.

Laboratory investigation revealed a hæmoglobin value of 70%, red cell count 3,400,000, and leukocyte count 16,700 with differential count: neutrophils 71, lymphocytes 24, monocytes 3, eosinophils 2. Total eosinophil counts were performed daily, and varied from 145 to 900 per c.mm. Erythrocyte sedimentation rate was 110 mm. Total protein 9.40 gm., albumin 3.68 gm., globulin 5.62 gm. %. Determinations were repeated several times with little variation. Urine was normal, except for occasional traces of albumin.

Another biopsy of skin was taken; the sections revealed slight atrophy of the epidermis, and the corium underlying the epithelium showed thickening and slight fibrinoid degeneration. The blood vessels showed no evidence of inflammatory reaction. A sternal bone marrow smear again revealed great numbers of L.E. cells (Figs. 1 and 2).

On November 15, 1950, the patient was started on cortisone acetate 200 mgm. daily orally, and two days later this dosage was decreased to 100 mgm. daily. There was immediate marked improvement, first subjective and

fracture of the left lateral tibial condyle but made an uneventful recovery.

She was married in May 1951, and in the spring of 1952 was delivered of a normal baby without complications. At the present time (March 1954) the patient continues to enjoy good health and weighs 134 pounds.

Involvement of the interphalangeal joints of both hands persists and is typical of rheumatoid arthritis, but despite moderate deformity of the fingers there is good function. Her blood pressure is 136/85. L.E. cells are still demonstrable in large numbers. The serum protein values have returned to normal.

The case is considered to be one of scleroderma, showing L.E. cells.

DISCUSSION

The clinical manifestations of this patient's disease are most compatible with the diagnosis of scleroderma. The skin had the characteristic dull, glazed reddish-blue sheen, was taut, and could not be lifted from underlying tissues. Raynaud's phenomenon, as observed, is a frequent feature of this condition. The indurated vocal cords, the arthritis, and the pulmonary involvement are all compatible with this diagnosis. The microscopic examination of the skin specimen added further

confirmation. Thus, despite the demonstration of L.E. cells in the bone marrow and the presence of some signs and symptoms (arthritis, fever, pulmonary involvement) common to many of the collagen diseases, the clinical picture did not resemble that of disseminated lupus erythematosus. The absence of leukopenia, anæmia, or the usual cutaneous involvement characteristic of disseminated lupus erythematosus is in keeping with this view. The case is therefore considered to be one of scleroderma exhibiting the L.E. phenomenon, and is another example of the occurrence of L.E. cells in a collagen disease other than disseminated lupus erythematosus.

The beneficial effect of ACTH and cortisone in the treatment of the collagen diseases has been reported by numerous investigators. There are relatively few reports of the efficacy of these agents in scleroderma,[21-26] but these indicate that the condition may be improved by either drug, and its progression retarded. This patient, however, has been maintained in a state of remission on cortisone therapy since November 1950. Since the clinical course previous to therapy had been steadily downhill, the possibility of a prolonged spontaneous remission appearing coincidentally with therapy seems unlikely. This remission has occurred without any of the complications of prolonged cortisone therapy. It may be concluded that with judicious therapy at least some patients may be maintained in a state of remission for an indefinite period.

SUMMARY

A case of scleroderma is presented showing L.E. cells, in which cortisone therapy induced a prolonged remission. This is another example of the demonstration of the L.E. phenomenon in a disease other than disseminated lupus erythematosus.

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SURGICAL TREATMENT OF AORTIC INSUFFICIENCY

J. A. GRAVEL, M.D., F.R.C.S.[C.], M.S.,
Quebec

ONLY RECENTLY has surgical correction been used for this vascular deformity. In May 1954, an article appeared[1] reporting on the first 23 cases. In this report, it was clearly stated that the operation was performed in advanced cases. We would like to report a case of aortic insufficiency which we treated successfully by operation, using a Hufnagel valve.

CASE HISTORY

M.G., a young man of 17, first consulted us a year ago for a heart condition of long duration. At that time a diagnosis of aortic insufficiency was made. The patient was told to come back in a year's time, when possibly some type of surgery could be undertaken. Since then, he went into cardiac failure twice and nearly died. There was a definite history of rheumatic fever at age 9. Since that time, the boy had been admitted to various hospitals on an average of four times a year. He states that every admission was necessary because of episodes of pain, starting at the epigastrium and radiating to the cardiac region in a vise-like manner.

Upon examination one first noted the very strong thrust of the heart in the apical region, in this case in the left 7th interspace. With each heartbeat the whole left hemithorax seemed to lift from the bed. The carotids were pulsating strongly. Even the axillary and brachial arteries could be seen pulsating vigorously. Auscultation revealed a loud double systolic-diastolic murmur, best heard in the aortic region. The mitral area was examined carefully and it was found difficult to say whether a diastolic murmur existed or not. The blood pressure in the arms and in the legs was at the top of the manometer; it may well have been over 300 mm. Hg. The diastolic pressure was zero. Pistol shots were heard all over the arterial system. In view of the gradually de-

*From the Department of Thoracic Surgery, Hôtel-Dieu, Quebec City.