

A CASE OF OCULAR LEPROSY TREATED WITH AUTOSERUM FROM CANTHARIDES BLISTERS

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Ocular manifestations are common in advanced leprosy cases, especially those of the lepromatous type. Stitt (4) gives the high figure of 90 per cent, saying that the lesions are usually concentrated in the conjunctiva or iris. Harley (2) has reported 90 per cent involvement among 150 cases in the Panama Canal Zone leprosarium, with 13 per cent of total blindness; only patients in the early stages of the disease were completely free. He found the anterior segment of the eye to be the most frequently involved, by far, and expressed the opinion that the infection proceeds to the eye from the nasal mucosa. Mendonca de Barros (3) established, among 826 lepromatous cases, corneal complications in 540 (65%), whereas only 19 (10%) of 192 cases of the "incharacteristic" group presented eye lesions, and none of the 261 tuberculoid cases showed any direct involvement of the eye.

The prognosis of ocular involvement is bad. The lesions tend rapidly to incapacitate the patients, partially or completely, depending on whether one or both eyes are affected. Therapy, so far, is merely symptomatic and—or so it appears from the literature—the results are unsatisfactory.

The following report is of a case in which there was tried a new method of treatment which seems worthy of further investigation.

REPORT OF CASE

The patient, a woman 35 years of age, was born in Jaffa and spent her 5th to 7th years in Tiberias, in either of which places she might have contracted leprosy, especially Tiberias which is one of the areas of particular concentration of the disease in this country (1). She was first seen on July 2, 1934, when she called, together with her husband, on account of a supposedly venereal skin eruption which had developed shortly after she had been married but which had not caused her any trouble. Examination of the husband yielded normal findings.

Examination.—The skin of the hands was dry, with pigmented areas, while on the arms there were hypochromic patches. Similar manifestations,

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though with a bluish-red tinge, were found on the legs. The hypopigmented areas were hypoesthetic. On the elbows and knees there were painless cutaneo-subcutaneous nodules of almost normal color, with hypoesthesia within the areas of the nodules themselves. The patient reported frequent epistaxis. A biopsy specimen taken of one of the lesions of the knees was reported as showing leprous infiltration with *M. leprae*, and the nasal secretion was also positive for bacilli.

After that time the patient appeared occasionally because of various symptoms of the disease. Treatment consisted of chaulmoogra oil by mouth and by injection, CO₂-snow freezing of the skin lesions, and intravenous injections of methylene blue. In 1935 she went to Paris and was treated at the Hôpital St. Louis. In 1937 she had her first attack of lepra fever, with a temperature as high as 40°C. and a skin rash which subsided after two weeks. Seen shortly after this attack, the nasal secretion was positive while specimens from affected skin areas and of scales were negative. During 1939 there were no reactions; bacilli were found only in the nasal secretion, and they were rather scarce.

In April 1942 she called for another check-up. In the interim, she said, she had always felt well. She presented brownish-red (rust-colored) patches of diminished sensibility all over the body—chest, abdomen, back. On the upper and lower extremities there were yellowish-brown conglomerations of subcutaneous nodules, some of them covered with sanguineous crusts. A year later (April 1943) she had a febrile reaction with a skin eruption on the extremities resembling erythema nodosum, and severe neuralgic pain. This attack lasted for a month, and after it subsided there were no leprous manifestations apart from pigmentation at the sites of former lepromata. Two months later, however, she developed kerato-conjunctivitis of the left eye with intense pain, iridocyclitis and lepromata of the cornea. Although energetic treatment was applied, including gold, CO₂-freezing, Bucky-rays, vitamin B and leeches, blindness could not be forestalled.

Four years later, in the summer of 1947, she appeared again with generalized lepromatous manifestations. Although the customary treatment (application of CO₂ snow and chaulmoogra oil injections alternating with gold) had a favorable effect on the lepromata themselves, it did not prevent the eruption of new lesions. From September to November she was given diasone (100 tablets of 0.3 gm. each). In November she was again confined to bed by a reaction, with fever and a rash, which persisted for six weeks. At the end of this attack the new rash and all earlier leprous manifestations disappeared. Nevertheless, in February 1948 she called again because of severe inflammation of the left eye with intense pain, which had gradually developed following the last attack of fever. The woman, weak, emaciated and screaming with pain, was scarcely recognizable. She was admitted to the Ophthalmic Hospital on February 18.

Ophthalmologic examination.—Left eye: Central superficial keratitis, with infiltration and vesiculation. Fluorescein test positive. Ciliary injection; pupil narrow; photophobia and epiphora. Right eye: Leucoma corneae, aplanatio corneae, symblepharon palpebrae superioris. Blood counts: Leucocytes 13,800; polymorphonuclears 73 per cent, lymphocytes 17 per cent, monocytes 8.5 per cent, eosinophiles 1 per cent. Erythrocytes 2,500,000; hemoglobin 55 per cent; color index 1.1; achromia, poikilocytosis. Sedimentation rate 70 mm. in 30 minutes, 103 mm. in 1 hour, 122 mm. in 2 hours.

Despite local treatment, and general treatment with various types of therapy including blood transfusions and vitamins (vitamin D in large doses caused adverse reactions), the eye which was in trouble—the left one—showed no improvement after two weeks. Instillations of scopolamin failed to cause dilatation of the pupil. The patient having improved somewhat otherwise, on March 4 gold treatment was instituted (myocrysin, injected intramuscularly every third day, beginning with 0.01 gm. and doubling the dose with each following injection). After a further two weeks the eye symptoms had not abated; there was still severe pain, and new blisters formed; dilatation was still impossible.

On March 17, when the patient had her fifth gold injection, as an additional measure we began daily instillations of serum from a cantharides blister of the skin of the patient herself. Three days later the eye was better, the pupil definitely dilated, and the irritation diminished; the patient felt improved and was enthusiastic. On March 27 the keratitis was definitely reduced. On April 3 the bulbus was almost completely without inflammation, the pupil maximally dilated, the keratitis in the stage of epithelization.

On April 18, after one full month of serum treatment and 12 gold injections, the bulbus showed no irritation at all. There were delicate small, white, superficial corneal scars; the pupil was of maximal width; vision was 7.0, 6/60. The patient now began to complain of the headache and vomiting of gold intoxication, and the injections were discontinued. The next day she showed a lichen rubber-like dermatitis of the skin (gold dermatitis). The application of serum was continued. On April 25 the general condition was good. Bacilli were not found in the nasal secretion or in any of the various skin sites examined, nor could leprous infiltration be demonstrated histologically. She was discharged from the hospital on June 22, completely free from symptoms after having been one full month without any treatment. Ophthalmological status: No irritation; delicate central macula cornea; vision 0.7, 6/36.

Summary.—A woman of 35 years had been under observation for 14 years on account of lepromatous leprosy with neural symptoms. Lepromata had alternately appeared and disappeared to assume a more generalized character with each febrile reaction attack, of which she had three or four between 1934 and 1943. In the latter year she developed keratitis and acute iridocyclitis of the left eye, and with the development of lepromata in spite of active and varied therapy it gradually grew blind. By 1947 generalization of the lepromata had taken place. Under diasone treatment she developed a severe febrile lepra reaction. Although all skin manifestations subsided after it, there followed severe ocular involvement. Therapy then consisted chiefly of intramuscular gold injections and, as an additional measure, daily instillations of autoserum obtained from cantharides blisters of the patient's own skin. The eye condition which caused her hospitalization was completely cured.

COMMENT

Ocular involvement is one of the most severe complications of leprosy. All cases which we have seen were, like the one described, of chronic nature and the affected eye invariably grew blind. The present case is characterized by two outstanding

features, namely, that it was of generalized lepromatous leprosy, although there were periods during which the patient was free from any leprous skin lesions, and that ocular involvement occurred subsequent to a febrile lepra reaction.

It can be assumed—in analogy with syphilis—that the disappearance of lesions was due to an immunity mechanism of the skin. A similar interpretation may be applied to the events of a lepra reaction: the development of new lesions, reactivation of earlier sites, nonspecific rashes, erythema nodosum-like eruptions—all this means that there are at the same time phenomena of reactivity and of sensitization of a bacterio-allergic nature. If and when the patient has overcome the attack, all these manifestations disappear; and this process is evidently connected with an immunization mechanism.

In the present case, obviously, during the reactional period of active dissemination there had developed in the eye (conjunctiva and cornea) active foci which did not disappear when the skin manifestations subsided. The immunization processes which took place in the skin failed to function in the eye. In consequence, severe kerato-iridocyclitis developed.

In view of these considerations, one of us (D.) thought of supplying from elsewhere, by a sort of passive immunization, the antibodies which evidently failed to form *in loco*. It was assumed that serum obtained from recovered skin areas where lepromata had been present would contain these antibodies. Consequently, such serum was obtained by the application of cantharides plaster to the skin for 24 hours. This serum was not applied subconjunctivally but—following a suggestion by the other of us (T.)—by direct instillation into the eye. This procedure warranted painless absorption from the conjunctiva, avoiding the pain and irritation usually following local injections.

A clearcut interpretation of the good results obtained is not easy. Three factors must be taken into account: (1) spontaneous cure, (2) the gold therapy, and (3) the autoserum. The possibility that the cure was spontaneous cannot be discarded, but since there had been no indication of improvement before the gold and serum treatment was begun it seems rather improbable. As to the gold therapy, it had already been employed in the treatment of the right eye without effect. Further, its use prior to the attack of lepra fever had not prevented the development of eye symptoms. Gold therapy was started when symptomatic measures had failed to bring relief, not because we thought it to be a specific measure but because we had no alternative. Since, however, five gold injections given in the course of a

fortnight had failed to effect improvement we undertook the additional treatment.

Three days of instillations of autoserum from cantharides blisters effected a surprising improvement of the objective findings, and the patient herself felt better. This improvement continued steadily and resulted in complete cure after gold therapy had been discontinued and only serum instillations were maintained. It therefore seems that the serum played a decisive role in the curative process. Whether the result was due to a specifically supporting effect of immunization by antibodies from the patient's own skin, or to a nonspecific action of the serum itself, cannot be said.

This report deals with only a single acute case. The method should be tried out thoroughly on a series of such cases. It should also be ascertained whether or not similarly favorable effects can be obtained in chronic ocular involvement in leprosy. In that connection it must be taken into account that an acute inflammatory affection of the anterior portion of the eyeball offers conditions quite different from those of chronic ocular leprosy with respect to the absorption of serum. In chronic conditions a different technique of application would probably be required—intraconjunctival injection after a preparatory activation of the eye lesion. Decisions on these questions, and verification of the method, will require studies of large series of patients.

SUMMARY

A case is described of ocular leprotic involvement which had developed in a patient suffering from lepromatous leprosy following an attack of lepra fever. Local instillation of serum obtained by application of cantharides blisters to the patient's own skin proved very effective.

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