

THE NASTIN TREATMENT OF LEPROSY.¹

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In 1904 Deycke Pasche and Reschad Bey² of the Imperial Hospital and Medical School of Constantinople, while attempting to cultivate the leprosy bacillus, obtained a streptothrix in pure culture to which they gave the name *Streptothrix leproides*. The culture was made by laying back a flap of skin containing a leprous nodule and excising a piece of tissue from the under surface of the flap. The tissue was placed in salt solution and kept at incubator temperature. After three weeks the filaments of the streptothrix were seen growing from the tissue in great profusion.

With the idea of determining whether or not this streptothrix bore any relationship to the leprosy bacillus, the living culture was injected subcutaneously in a very severe case of leprosy. Strange to say, this patient showed marked improvement in his subjective symptoms and requested that the treatment be continued. Accordingly injections were given at seven-day intervals and after two months the patient considered himself cured and left the hospital. Similar results were obtained in three other cases.

The streptothrix was then grown in large quantities and the protein substances of the culture separated from the fats by extraction with ether. On injecting these two portions separately into patients, the authors came to the conclusion that the ethereal extract contained the curative agent. Finally they believed that they had isolated this active principle and that it was a true fat—a glyceride of one of the higher fatty acids. To this fat they gave the name "nastin." The authors claimed that subcutaneous injections of this substance produced a specific action on leprous nodules, causing inflammation with subsequent softening. This reaction was sometimes accompanied by high fever lasting for days.

¹ Read at the Sixth Annual Meeting of the Philippine Medical Association, Manila, P. I., February 11, 1909.

² *Deutsche med. Wchnsch.* (1905), 31, 488.

The hypothesis advanced to explain this action was as follows: The leprosy bacilli contain the same fat as "nastin," or a similar one, and it is to this fat that the bacilli owe their resistance to the protective forces of the body. By spaced injections with nastin an active immunity is produced against the resistant fatty substance of the bacilli, so that these latter are destroyed.

This hypothesis is not in accord with our ideas with regard to immunity; for with the exception of the glucosides of Ford of Johns Hopkins University, immunization has not been produced with a substance known to be of non-protein nature. It is, to say the least, highly improbable that immunization could be effected against a chemically pure fat. In his lecture² delivered at the London School of Tropical Medicine, Professor Deycke makes no further mention of this hypothesis but advances another one to explain the destruction of the leprosy bacilli by the Nastin treatment. He had found that benzoyl chloride dissolves out the fatty substances from tubercle bacilli much more readily than the ordinary fat solvents, such as ether and chloroform. On mixing benzoyl chloride with his Nastin he obtained much more constant reactions than with the Nastin alone. The nastin now on the market consists of such a mixture in the proportions which he found to yield the best results. He believes—to use his own words—that—

"The nastin is carried to the leprosy bacilli, to which, owing to its near chemical and physical relation, it attaches itself, and then benzoyl can fully display its anti-bacterial action in the fat-removing sense. When deprived of fat the leprosy bacilli seem to be doomed; the human organism then effects with comparative ease the further dissolution and ultimately the complete destruction of the bacterial nuclei."

Although we did not agree with Professor Deycke's theoretical considerations, nevertheless in view of the favorable results reported by him, at Doctor Strong's suggestion I determined to give the method a trial. Four patients were selected at San Lazaro Hospital. Two were well-marked cases of the nodular type in young boys of ten years, both free from ulcerations; the other two were male patients of about twenty years of age, one with very slight lesions in which only comparatively few leprosy bacilli were found; the other was a well-marked case having both nodules and ulcers.

The injections were begun on the 8th of September, 1908, and have been continued up to the present time, being given at about seven-day intervals except for two slight interruptions due to delay in receiving the nastin from Europe.

A general febrile reaction was observed only once and then in one of the well-marked cases. About twenty-four hours after the fifth injection

² *Brit. Med. Journ.* (1908), i, 862.

the patient had a temperature of 104° and complained of a severe headache and general malaise. The fever lasted about twenty-four hours and then all unusual symptoms quickly disappeared. In this same patient some of the nodules have become soft and have broken open, the ulcers thus formed healing readily.

However, since the febrile reactions and healing of nodules sometimes occur without any treatment whatsoever in severe cases of leprosy, and especially since none of the other patients under treatment have shown similar reactions, we do not feel inclined to look upon the nastin injections as the cause of the phenomena in this case. Furthermore, in spite of the fact that a few isolated nodules have healed, it can not be said that there is any noticeable improvement in the patient.

Professor Deycke states that—

"We will be able, except in the most severe, hopeless cases, to effect at least the arrest of the leprosy process; frequently, however, far better results will be obtained."

Some of his results were obtained within two months after treatment was begun; in other instances the patients were under treatment for over twelve months. I regret that the cases here considered have been under treatment for only five months but one would have a right I believe, to expect some improvement in them in this time, judging from Professor Deycke's reports.

Two other patients who were under X-ray treatment received at their own request the nastin treatment also. One of these, a rather mild case of the nodular type who, however, has been under treatment for a shorter time than the other patients, recently developed a fresh crop of nodules. I mention this because Professor Deycke states that the nastin is able to hold all but the very severe cases in check although it can not cure all of them.

In conclusion, then—

(1) It seems to us unlikely that the *Streptothrix leproides* of Professor Deycke bears any relationship to the leprosy bacillus;

(2) The nastin treatment is not based upon any of the established principles of immunity reactions; it is not a vaccine therapy, but is a drug treatment and is purely empirical; it is claimed that nastin is a glyceride of one of the higher fatty acids and in this respect it is interesting to note that Chaulmoogra oil, one of the most well-known drugs employed for leprosy, is also a fatty substance;

(3) The nastin treatment has not produced beneficial results in the four cases which I have treated during the past five months.