

MALARIA AND THE SEROLOGICAL REACTIONS FOR SYPHILIS IN BRITISH SOLDIERS.¹

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THE discovery that malaria is capable of inducing apparently positive serological reactions for syphilis in the serum has given rise to a number of investigations. Conflicting results, however, have been recorded and, by employing different techniques, varying numbers of positives have been obtained from the same sera (Harmsen and Hauer, 1943, Kaplans and Brightman, 1943). In addition it has been found that the species of parasite is of importance, *Plasmodium vivax* being more likely to produce positive reactions than *P. falciparum* (Kitchen *et al.*, 1939). *P. vivax* is also more active in this respect than *P. malariae*. A further difficulty in assessing the true importance of positive syphilitic reactions in the sera of patients with malaria lies in the fact that much of the work has been carried out either on patients whose previous history did not entirely exclude syphilis or on non-syphilitic psychoneurotics in whom malaria had been induced for therapeutic purposes.

Comparatively few observations have been made on persons living in hyperendemic malaria zones who, despite the taking of suppressive drugs, have succumbed to a clinical attack of malaria.

In attempting to assess the extent of syphilis in a malaria-ridden community Fellows and Perry (1941) working in North Carolina have pointed out that false positives due to malaria may vitiate the results. Possibly in West Africa, where among the native population the finding of a positive Kahn is invariably attributed to antecedent yaws or syphilis, chronic malaria may play some part in causing the high rate of positive serological reactions.

In the British soldier the finding of a positive Kahn may easily lead to a course of anti-syphilitic treatment. It therefore appeared to be of interest to determine whether British soldiers without a history of syphilis but suffering from malignant tertian malaria and resident in a hyperendemic area would show a positive reaction when examined by the Kahn test as carried out by the standard technique used in British Army laboratories.

The patients were all young British soldiers who had not been more than eighteen months in a hyperendemic malarial zone; there was no previous history of syphilitic infection in any case. The Kahn reaction was carried out by the standard technique used in Army laboratories; the first test was usually made within twenty-four hours of the demonstration of *P. falciparum* in the blood. At least two subsequent tests were planned but owing to troop movements it was often difficult to obtain blood samples after the patient had once left hospital.

At the same time as the Kahn reactions, Ide tests were carried out.

The results show that of 80 patients, 23 showed a positive Kahn reaction, but only 4 showed a positive Ide. No case exhibited a positive Ide and a negative Kahn reaction. One case was possibly syphilitic for, after having two negative Kahns, he suddenly became strongly positive fifty-eight days after he had shown malignant tertian rings in the blood; at the same time he developed a profuse rash of a syphilitic type.

If this case be eliminated, 22 out of 79 patients, or 27.0 per cent, at some period showed a positive Kahn reaction, a far higher percentage than that found in the British military population in this area.

¹ Owing to pressure on space detailed tables of results have had to be omitted from this article.—ED.

In the majority of cases the positive Kahn was only temporary but, in some, the positive reaction was still present forty-two days after the first demonstration of parasites in the peripheral blood.

DISCUSSION.

It is obvious that in assessing the value of a positive Kahn reaction in British soldiers it is essential to take into account their malarial history. The Ide test in the present series gave considerably fewer "false positives" when carried out at the same time as the Kahn test. Recently also Kahn (1940) has shown that true syphilitic sera show more marked precipitation at 37° C. than at 1° C. while non-syphilitic sera giving positive reactions show, under the same conditions, more marked precipitation at 1° C. than at 37° C. (general biologic or non-syphilitic type of reaction). This is known as the Kahn verification test. Kahn, McDermott and Marcus (1941), Jacobsthal (1941) and DeGroat (1943) have all shown that this test is of value in differentiating false positives from those actually due to syphilis.

CONCLUSIONS.

An examination by the Kahn test of the sera of 80 British soldiers serving in a hyper-endemic malaria zone and suffering from malignant tertian malaria showed that 23 of them gave at some period a positive reaction.

Only one of the patients showed any evidence of syphilis. The Ide test was positive in 4 cases, all of whom had positive Kahn reactions.

Attention is called to a modification of the Kahn test by means of which it is claimed that false may be differentiated from true positive reaction.

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