

In this series five had a Friedman's control test along with the intradermal test and the results agreed. In our experience, correct interpretation of the results depended upon a rigid observance of the technique of intradermal injection, the use of a saline control for every case, and the frequent checking and maintenance of the pH of the antigen at 6.9.

Discussion

The intradermal test has several noteworthy features which make worth while its practical application for the diagnosis of pregnancy. These are the inexpensiveness and simplicity of the test, the rapidity with which diagnosis can be made, and lastly the high degree of accuracy of results.

(1) When compared with other standard tests such as the Aschheim-Zondek and Friedman and Bitterling tests, the intradermal test is relatively inexpensive. It does not entail the maintenance of test animals such as guinea-pigs, rabbits or fish. The placental antigen can be easily prepared and stored according to the method outlined by Gruskin. It is one of the cheapest tests. The technique of the test is extremely simple, and one need not go through the ritual of injecting animals and sacrificing them a few days later as in the other tests.

(2) Diagnosis can be made within 10 minutes of the intradermal injection. This rapidity of diagnosis is of the greatest value in conditions such as ectopic pregnancy, especially when a differentiation has to be made between emergency conditions such as ruptured tubal pregnancy and any other acute abdominal catastrophe.

(3) Regarding the accuracy of the test, we have had correct results in all our cases; but we wish to emphasize that the fallacies should be borne in mind. Erroneous results are avoided by adhering to the proper technique.

Conclusion

(i) A series of 126 cases was tested with Gruskin's intradermal test of which 26 were controls.

(ii) The tests were done according to the technique described, and were found to be as sensitive as any of the Aschheim-Zondek modifications.

(iii) The utility of test is in (a) its simplicity of performance, (b) the rapidity of diagnosis, and (c) the high percentage of accuracy.

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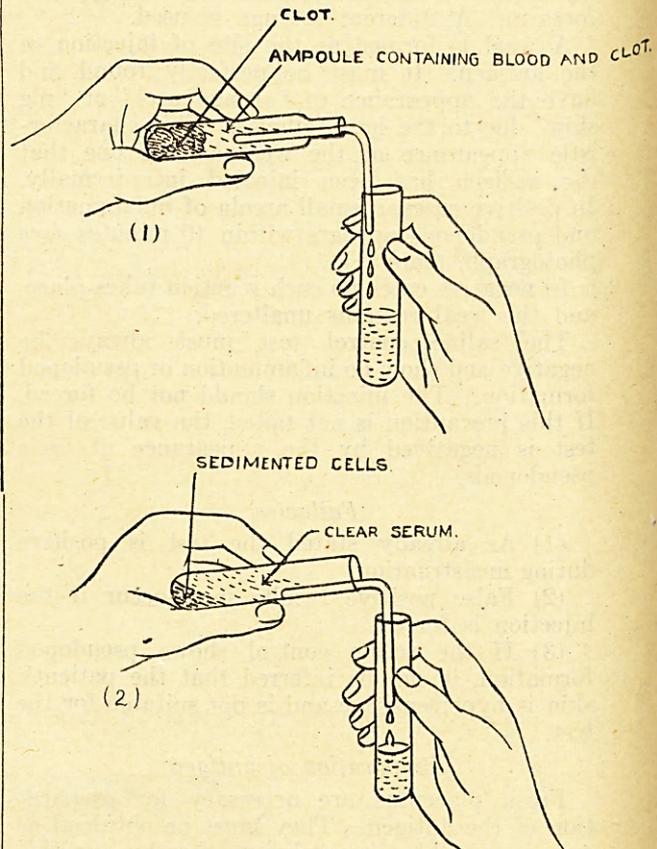
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A SIMPLE ARRANGEMENT FOR TRANSFERRING BLOOD AND SERUM FROM CAPSULES INTO TUBES FOR SEROLOGICAL TESTS WITHOUT THE USE OF PIPETTES

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Blood samples are usually sent to the laboratory in glass ampoules. On arrival at the laboratory, after being recorded and numbered, the serum mixed with the blood cells is transferred from each ampoule to testing tubes usually by pipetting off with Wright's pipettes. When a



- (1) A simple method of transferring blood from blood capsules arriving at the laboratory for serological tests.
 (2) Clear serum after centrifugalization of the blood serum mixture.

large number of samples have to be handled, this process is tiresome and takes a lot of time. A large number of pipettes have to be used. Washing is usually a messy process, and very

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SOME COMMON MISCONCEPTIONS OF MALARIA

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TIMES of stress tend to produce false prophets teaching doubtful doctrine. With malaria widespread and severe, with quinine and the synthetic antimalarials in short supply, some doctors and even some laymen have put themselves forward as malaria specialists, and have made very questionable statements regarding malaria in medical discussions, in medical journals, or in the lay press in India, where even medical men have aired ideas which are quite unsupported by reliable evidence. Some of these ideas are old; some are new; some of them are partly or even completely wrong; unfortunately many obtain considerable publicity and acceptance.

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often it is difficult to avoid carrying some serum from one sample along with the washing water into the next sample. Washing also involves much time and labour. If washing has to be avoided, individual pipettes will have to be used for each sample. When about three hundred blood samples a day have to be dealt with, not less than 600 pipettes will be needed every day.

A very simple device avoids all this difficulty and ensures sterility as far as the process of separation is concerned and saves considerable time and labour. In using the device, very much less skill and training is required than in the use of Wright's pipettes.

Small L-shaped glass rods (the broken pieces from Wright's pipettes sealed at both ends may be used for the purpose), of diameter about 1.5 mm. and about 4 cm. for each arm, are used to transfer the serum cell mixture. These are sterilized in packets ready for use. The packets are opened and one by one the rods are picked up with forceps previously sterilized in the flame and one end is introduced into the open end of the capsule containing the blood sample. The illustration explains the process of transfer of the blood serum. The capsule should be opened by breaking the stem as low as possible to enable the blood to flow freely by capillary action along the side of the L rod. When the serum cell mixture has been centrifuged, the transfer of the clear serum can be effected in the same way. A little care, however, is necessary to see that the tube containing the cells and serum is tilted back when all the transferable amount of clear serum has been transferred, to prevent the cells falling into the tube receiving the serum.

This method has been successfully used in the serological section of the King Institute, for the last few years.

This article is not intended for the genuine specialists in malaria, for they will have already realized the importance of most things said

here. It is intended primarily for those who have relatively little experience of malaria, but who in these days of widespread and severe malaria find themselves faced with the problem of diagnosis and treatment of malaria in this country.

It however does attempt to outline and emphasize certain facts about malaria which, while they are stated in modern textbooks on tropical diseases, are often insufficiently emphasized; an understanding of these facts is considered essential to the correct diagnosis and to the wise handling and treatment of cases of malaria in this country at the present time.

In our present discussion we will confine ourselves to malaria due to *P. vivax* and *P. falciparum*. The other plasmodia, *P. malariae* and *P. ovale*, are rare and we need not consider them here.

The wide variations in the severity of malaria.—Many doctors do not realize how vastly some cases of malaria may differ from others, how clinical manifestations of malaria may be of almost infinite variety, how malarial infection may be subclinical or rapidly fatal, and how methods permissible in handling one type of case may be fatal when applied to another type of case. Examples of this will be quoted later. It is very foolish to make general statements about malaria except on the basis of a wide experience of malaria of all types.

The two main factors influencing the severity of attacks of malaria are: (1) the species and the strain (or strains, for there may be more than one) of the parasite, and (2) the degree of immunity, natural or acquired, of the individual affected.

P. vivax infection can cause an attack of high fever which has very marked tendency to recurrence, and can produce much disability, weakness and anæmia, but it is believed that it practically never gives rise to cerebral malaria, 'algid' malaria and other dangerous forms of malaria, and practically never itself causes death. Malaria due to *P. vivax* infection is fairly constant in its clinical manifestations, and diagnosis presents few difficulties.

P. falciparum infection on the other hand, particularly in its severe forms which are now common, is an extremely treacherous and dangerous disease which, if there is any delay in diagnosis or any unwisdom in handling or treatment, may cause death. One can take no liberties with this infection. Moreover, the forms of malaria caused by this parasite are so widely variable that diagnosis often presents considerable difficulty. In fact, in areas where malignant malaria is common (and such areas are now numerous in India), it is good practice in the malaria season to regard almost any acute illness as possibly malarial until proved otherwise.

Another point which is not sufficiently emphasized is *the difference between malaria in relatively immune persons and malaria in non-*