

KALA-AZAR AND ITS PREVENTION

The Story of a Difficult Search

By Dr. D. N. BANERJEE, M.B. (Cal.), M.D. (Berlin), Carmichael
Medical College, Calcutta.

Kala-azar, literally, 'fatal-fever' or 'black-fever', is undoubtedly a very dreadful disease but fortunately for us it is on the decline. As this disease is characterised clinically by fever and enlargement of spleen, it was long thought to be a phase of malaria and this view was often confirmed by the occasional relief of fever by quinine. But as days went on it was found that quinine had actually no effect and that this was a quite distinct disease other than malaria. Examination of blood did not show any presence of malarial parasites. It was in 1903 when Leishman discovered some peculiar organisms from the spleen pulp of a soldier who had died of Kala-azar. Shortly after, Donovan in Madras, observed the same parasite from spleen puncture of a living patient suffering from Kala-azar. After the names of these discoverers, these organisms are now known as Leishman-Donovan bodies (L. D. Bodies). Subsequently it was found that this organism also causes diseases quite different from Kala-azar. Thus Wright observed L. D. bodies in the smear from Delhi boil or oriental sore. In South America a peculiar affection, known as chancroid, affecting chiefly the mucus membrane of the mouth and naso-pharynx is also caused by L. D. bodies.

A Distinct Infection

Since the discovery of Leishman-Donovan bodies, the fact that Kala-azar is a distinct infectious disease was settled. Again, on account of its similarity with malaria and as malaria is transmitted by a blood-sucking insect mosquito, it was assumed naturally that Kala-azar was also transmitted by a blood-sucking insect. Hence the common blood-sucking insects—mosquitoes, bugs, fleas, sandflies, ticks, some flies—were looked upon with suspicion.

It has long been observed that Kala-azar is a house and family disease. Further, Rogers observed that in the process of segregation in Assam, a new cooly line separated from the old infected one by only a distance of 300 yards, was sufficient to escape infection for several years. From this, it was supposed that an insect which can migrate easily a distance of 300 yards is probably not the transmitting agent.

These facts and that the bed-bug can be very easily transported from one place to another, and that it can resist prolonged fasting, and further that it injects a fair quantity of blood with each feed naturally accuse this insect—the bed-bug as the transmitting agent.

Limited Distribution

Bed-bug is practically cosmopolitan, but Kala-azar has got a limited distribution. Bombay can be mentioned as an instance where Kala-

azar is scarcely found, but bugs abound, and Bombay is exposed to attack from bugs transported from different parts of India through bed or furniture. In fact the railways are the transporting agent; and Rogers used to say that it was dangerous to travel by the Darjeeling and Assam mails as they pass through the heavily infected areas in Bengal.

The results of research workers can be summarised thus as concluded by Wenyon, 'that the bed-bug, though a suspected agent, still awaits the final verdict, and that, unless more tangible and convincing evidence is forthcoming, the jury will certainly disagree. Every credit is due to the prosecution for their most careful and exhaustive inquiries which have extended over many years which have been stimulated by a desire to rid the world of a harmful parasite; but the elusive bug, which has been acquitted of so many charges, has so far escaped sentence in the case of Kala-azar also.'

Flea and mosquito have also had their trial. Wenyon, Mesnil and others think that 'the parasite of the group *Leishmania* will develop, to a certain extent, in the intestines of many insects, provided that they find there a suitable pabulum rich in blood and does not necessarily mean that the insect in question is the natural host of the parasite.'

Thus for the last quarter of a century the transmission problem of Kala-azar was engaging the brilliant workers all over the world, but with no settlement. Recently the Kala-azar Commission and Calcutta workers after a very elaborate research on Sandfly came to the conclusion that the sandfly—'*Phlebotomus argentipes*'—is the true vector of Kala-azar.

Suspects

It came to be so that, naturally, along with the other insect 'suspects' sandfly was also called upon to undergo the vigorous laboratory trials, but on account of very poor evidences, it was acquitted until Knowles and others appealed for retrial. These workers found that Calcutta can be divided arbitrarily into portions where Kala-azar is endemic, and other places, e.g., Northern Calcutta, where, in spite of large number of Kala-azar cases coming constantly from the mofussil for treatment it still remains non-endemic. The comparative survey of these endemic and non-endemic areas of Calcutta suggested to them that the sandfly might be the responsible transmitting agent. It was then found that the geographical distribution of sandfly in India is identical with that of Kala-azar. As good luck would have it, the experimental feed on Kala-azar patients showed a very heavy infection whereas a large number of control sandflies, either wild or bred in the laboratory, with or without blood feed on patients suffering from diseases other than Kala-azar, showed invariably a negative finding proving that no natural infection is present in the sandfly and that those found after the feed on Kala-azar patients were nothing but *Leishmani* Donovan.

Regarding this very interesting transmission of Kala-azar Knowles rightly puts—'It is a history of almost 20 years and wasted efforts of individual workers starting off with the highest hopes and ending in despair, of false starts and erroneous conclusions; of acute controversies and the flow of much ink; of wasted individual efforts and the absence of co-ordinated enquiry; finally, however, of really concerted effort with successful results'. We may hope, along with Knowles, 'as one writes even now the end is not yet, but it is not unreasonable to hope that it is not very far off'.

That sandfly is the transmitting agent is only recently known long after the effective control of the severe endemic which rules over Bengal and Assam. The story is very instructive. Thanks to antimony our aim was achieved. If we look back over the year between 1917 and 1925 we find all the hospitals in Calcutta were flooded with Kala-azar cases. We were just treating our earlier cases with confidence and the experimental stage of treatment with tartar emetic and sodi antimony tartrate had just finished. The dread of fatal result with an overdose of tartar emetic and of the severe necrosis resulting from the leakage of the drug in the cellular tissue at the site of injection still prevented the general adoption of this method of treatment by private practitioners. Hundreds of patients were coming down to Calcutta, as at that time no treatment was available in the mofussil. The Co-operative Anti-malarial Society along with the hospitals in Calcutta came to the rescue. People in the suburbs of Calcutta appealed to the Co-operative Anti-malarial Society to organise Kala-azar centres and thanks to Dr. G. C. Chatterjee and his co-workers, within a few months more than 30 Kala-azar centres were started with a host of volunteers both medical practitioners and medical students. The horrible condition can be guessed from the story of a centre located about 8 miles from Calcutta where when it was opened there were only 6 or 7 cases of Kala-azar; after one month the number treated in that centre was more than 800.

Dispensary Treatment

The medical volunteers used to attend these centres twice weekly and every one had the opportunity of giving hundreds of intravenous injections. The dread of intravenous injections gradually passed off and the method of treatment was adopted universally and by all medical men. With the starting of Kala-azar centres in practically all charitable dispensaries managed by Government and local bodies as well as by private individuals hundreds of Kala-azar cases were treated simultaneously which helped in preventing further spread of the disease. The greatest boon for the purpose of this mass treatment was the cheapness of the drug, each dose for injection costing us a fraction of a pice. The only drawback was that it required nearly 20 injections to attain a complete cure, but the patients used to stop attending the centres after 6-7 injections thinking

themselves to have been completely cured. This drawback has subsequently been removed by the discovery of 'Urea Stibamine' by Brahmachary which required only a few injections for complete cure and that has been the last nail for the eradication of Kala-azar. In fact, it has developed that formerly we used to supply Kala-azar material from our laboratory to various other institutions including the Hamburg School of Tropical Medicine for research work and for the teaching of students while for the last five years we have not been able to get a single case for post mortem to supply fresh material for the teaching of our own students.

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REPORT ON NURSING DEVELOPMENTS IN INDIA DURING THE YEARS 1929—1932

By Miss M. E. ABRAM, S.R.N.

At the outset I must call attention to the peculiar difficulties in India resulting from its size—its different religions and caste systems—its different languages.

It is all so vast that one quails at the thought of attempting any account of nursing developments. Had I been asked to write on nursing problems in India, my task would have been much simpler. I certainly should have found an abundance to write about as our problems are legion.

In the unchanging East progress is slow and fraught with many side-issues and complications. The most important developments are probably those connected with Registration.

Here again, peculiar difficulties arise and Registration is very slowly being achieved, province by province, and only those who are striving and have striven to obtain it can form any idea of the problems arising.

Madras succeeded in getting its Registration Bill through in 1928, and reciprocal registration now exists between Great Britain and Madras. The Punjab is the next and latest province to achieve success and passed its Registration Act in January, 1932.

Bengal, Bombay and the Central Provinces all have Bills in preparation. Bengal's Bill has reached the last stage and is now before the Government of India and it is hoped that 1933 may see it an accomplished fact.

Each province has its own system of examinations and examination roll under an examination board or faculty.

There is at present little attempt at uniformity—that is for the future.

The training schools are doing excellent work and many have a definite high standard of education. There is no dearth of applicants for training where a high standard exists and the Head-mistresses of well-known schools offer their best pupils for training in nursing in these schools. It is hoped that ultimately the way will be paved for an all-Indian scheme of Registration, and that the procedure of examinations and registration will be directed by the Trained Nurses' Association.

It is not possible to give the number of fully trained nurses employed in General Nursing in India nor the estimated number of persons earning their living at nursing until such Registration is in force.

The number of active members of the Trained Nurses' Association on September 30, 1932, was 650. Developments here, too, are difficult,