

○ KALA-AZAR IN BIJNOR.

By M. UMAR, P.M.S.,
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THERE was a time, when I was a student of medicine, when one was taught that kala-azar was endemic in Assam and certain portions of Bengal only. But investigation has shown that it is very common in other parts of India, e.g., a case was proved in a boy living in Aminabad (Lucknow) who had never left Lucknow.

As far as is known to me, no case of kala-azar had ever been diagnosed in the district of Bijnor, and I can confidently say that I am the first person to diagnose the disease in this district.

I give below a list of cases recently seen by me.

Case No. I.—K., a Hindu, came to hospital on April 18th, 1928, very thin and weak, and with a spleen very much enlarged. His blood was taken on April 19th, 1928, and serum was examined on April 20th, 1928. The formol-gel and urea-stibamine tests were positive, but he died before any treatment could be undertaken.

Case No. II.—M. S., admitted May 3rd, 1928. He was a lad of 18 years; spleen enlarged down to the umbilicus. He was reduced almost to a skeleton. I induced his mother, with much difficulty, to bring him to hospital. It is a very peculiar thing that in India those who require admission to hospital never agree to be admitted, but those who do not require in-patient treatment invariably complain if they are not admitted.

This boy had a continued fever which never went up to more than 102°F. Four injections of urea-stibamine brought the spleen to half its former size, and a further four injections cured him. The formol-gel and urea-stibamine tests were both typically positive. He left the hospital cured—a good healthy-looking, fit lad.

Case No. III.—N., Hindu female, admitted on July 28th, 1928. Her spleen was very large. The formol-gel and urea-stibamine tests were positive. She disappeared from hospital without anyone's knowledge.

Case No. IV.—N., aged 36. Muslim female (*Shia*). Admitted on August 14th, 1928. The spleen was hard and enlarged down to the umbilicus. There was a well-marked leucopænia. The formol-gel and urea-stibamine tests were positive. She was treated with the old tartar emetic treatment. After four injections improvement was felt, but she left the hospital without undergoing further treatment.

Case No. V.—N., aged 10 years, Hindu male child, had fever with rigor. Spleen 3 finger-breadths below the costal margin. The formol-gel and urea-stibamine tests were positive. He also was treated with tartar emetic. He left hospital cured.

Case No. VI.—B., aged 15, Hindu male, admitted September 9th, 1928. Spleen down to umbilicus. Fever with rigor present. Both tests were positive, but after one injection he disappeared.

Case No. VII.—K., a Muslim of 65 years, with a very big spleen extending below the umbilicus. He was also positive, but after a few injections of Neostibosan he left the hospital, as the harvest was ripe and was being destroyed by birds.

Case No. VIII.—M., aged 45, Hindu, admitted with enlargement of the spleen. Both tests positive. His spleen disappeared. In this case also Neostibosan was used.

All these people were residents of Bijnor District. In none of these cases was there any enlargement of the liver. All had leucopænia.

From the above results I would like to suggest that medical officers in other districts

of the United Provinces might enquire into suspicious cases and publish their results. I am convinced that this disease, far from being rare in these provinces, is one which is extremely common. I have been so struck with the number of cases which respond to the test and to the treatment, that I now, in every case of chronic enlarged spleen, test for kala-azar. The cases which are generally positive are those which might be mistaken for chronic malaria, chronic dysentery, and certain cases of abdominal dropsy.

A great handicap is the cost of treatment. With the present grants for drugs being as small as they usually are, it is impossible to treat even a fraction of the cases which come under one's care with urea-stibamine or Neostibosan; and until District Boards are more generous in this matter, or the hospitals are provincialised, it will only be possible to undertake the old treatment with tartar emetic, except in the case of those who are able to pay for their treatment.

(*Note.*—An exact knowledge of the geographical limits of a disease is a matter of considerable importance; in the case of kala-azar it is particularly so, as the method by which the disease is transmitted from man to man is as yet unknown and any additional information regarding its distribution is of the greatest value to the research worker. From the time it was first recognised as a disease entity it was realised that kala-azar was widespread in Bengal, Bihar and Assam, and that there was a focus of the disease in Madras city. For many years it has been recognised in the United Provinces as far west as Lucknow. Major-General Megaw used to say that the cases he saw in Lucknow, where he worked for many years, always originated in places east of the town. During the last fifteen years the endemic area in Assam has extended, and more recently new foci of infection have been discovered in southern India. We do not know when Dr. Umar ceased to be "a student of medicine," but we cannot agree with the suggestion that recently the kala-azar distribution map of India has undergone any serious revision, although isolated, and somewhat doubtful, cases have been reported from time to time from places well outside the recognised endemic areas. This does not mean that our knowledge is by any means complete; the research workers on the subject cannot wander haphazard about India looking for cases of kala-azar, but are dependent on enthusiasts like Dr. Umar for giving indications.

Dr. Umar's paper was received some months ago and there has been a considerable amount of correspondence between us on the subject.

We are not by any means satisfied that any of the cases reported above are cases of kala-azar. In no instance was the parasite demonstrated. The diagnosis was dependent on clinical observation and on the serum tests. It is quite natural that those who have had no experience of a definitely positive "aldehyde reaction" should be misled by a result in which there is complete solidification and a marked degree of clouding of the serum. Recently, Dr. Umar came across another similar case; he sent us a spleen puncture smear and the serum for the aldehyde test. He had done this test and considered it definitely positive. We found no parasites in the spleen smear and the aldehyde test was very definitely *not* positive; complete solidification occurred in a few minutes and the serum became cloudy, but after 24 hours light could be still seen through it, and it bore no resemblance to the solid *completely opaque* result which is obtained in an advanced case of kala-azar.

A point raised by Dr. Umar in the correspondence between us was "In all my cases why was the disease cured by urea-stibamine, Neostibosan and antimony tartrate, if all these were not cases of kala-azar?" This

is certainly a point, as in our experience in Bengal this condition of splenic enlargement described by Dr. Umar, when unassociated with the presence of leishmania, does not usually yield to antimony treatment. However, from Dr. Umar's notes, which are necessarily very concise, one does not gather that *all* the patients were cured; in fact at the widest stretch the word could only be applied to Cases II, V and VIII.

Whereas for the diagnosis and treatment of the individual a clinical diagnosis is often sufficient, although in the case of kala-azar we consider that this should be supported by at least one of the very simple serum tests; if the case is to be used to upset our previously conceived ideas regarding the limits of distribution of the disease, it is essential that the parasite should be demonstrated, and we would also suggest that the specimen be submitted to an expert for identification.

We hope that neither he nor any of our readers will consider that criticism is levelled against Dr. Umar. On the contrary, we welcome his contribution, and, if he will excuse our patronage, we commend his enthusiasm. We hope that the publication of this note may encourage others to look for cases of kala-azar originating in areas where the disease has not previously been reported.—(EDITOR, I. M. G.)

THE CARNIVOROUS HABITS OF INDIAN "BLOOD-WORMS."

By S. MUKERJI, M.Sc.,

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At Cossipore, Calcutta, on the 29th August 1928, in a shallow exposed pot full of rain water, I secured a large number of mature larvæ of *Chironomus* (sp.) with the intention of breeding them out. This pot was peculiar in that it contained only *Chironomus* larvæ, whereas other exposed pots in the same neighbourhood also contained mosquito larvæ in varying numbers. A few of the *Chironomus* larvæ were kept in watch-glasses without any food supply except what they could obtain from the scum at the bottom. It was noticed that when the scum at the bottom of the glass was disturbed the larvæ emerged from the recesses which they had made in the scum, and swam rapidly with the characteristic double-loop movement.

No further particular attention was paid to the larvæ until it was suddenly noticed that their number had become considerably reduced. As the watch glass was securely covered, the only explanation for their reduction in numbers was that they were carnivorous. This belief was further strengthened by the fact that when the burrows were closely examined they were found to be composed of fragments of larval organs.* Only such larvæ as could construct tunnels in the scum escaped injury or death. The larva protrudes its head from the tunnel, and in this process its "pseudo-leg" helps the head in its eversion. When frightened or teased it retracts into its tunnel, its tentacular terminal

segments aiding to some extent in the retraction.

The larvæ pupated on the 15th September inside narrow tubular burrows, and the adults emerged a day or two after pupation.

My reason for recording these observations are that perhaps by suitable technique *Chironomus* larvæ might conveniently be employed in keeping down the number of mosquito larvæ in a particular area: their carnivorous habits might be made use of to some extent in the biological control of mosquito breeding. One would further appeal for publication of any similar observations.

SPECIAL ARTICLE.

PROCEEDINGS OF A CONFERENCE
HELD AT BIRNAGAR (BENGAL) ON
SUNDAY, THE 24TH FEBRUARY, 1929,
AT 2-30 P.M., TO DISCUSS THE
PROBLEM OF MALARIA CONTROL
AT BIRNAGAR.*

By K. BOSE,

Honorary Secretary.

PRESENT.

1. Sir Malcolm Watson, M.D., LL.D.,
President.
2. Dr. C. A. Bentley, C.I.E., M.B., D.P.H.,
D.T.M. & H., Director of Public Health, Bengal.
3. Major H. Suhrawardy, O.B.E., M.D.,
F.R.C.S.I., D.P.H., Chief Medical Officer, E. B.
Railway.
4. Major H. Lockwood Stevens, Organising
Secretary, Ross Institute.
5. Captain B. S. Chalam, L.R.C.P., L.R.F.P.S.,
Malariologist, E. B. Railway.
6. Dr. S. N. Sur, M.B., D.P.H., D.T.M., Assis-
tant Director of Public Health, Malaria Research.
7. Dr. P. C. Dutt, M.B., Ch.B., F.R.C.S.,
L.R.C.P., M.R.C.S., District Medical Officer,
Kanchrapara, E. B. Railway.
8. Dr. G. Bose, D.Sc., M.B., Chief Medical
Adviser, Palli Mandali.
9. Mr. N. Banerji, M.A., B.L., Chairman, Bir-
nagar Municipality.
10. Rai A. C. Mitra Bahadur, B.E., President,
Palli Mandali.
11. Mr. K. Bose, Honorary Secretary, Palli
Mandali.
12. Mr. H. R. Sen, M.A., B.L., Sub-Divisional
Officer, Ranaghat.
13. Mr. N. Mukherji, M.A., B.L., Chairman,
District Board, Nadia.

* We publish these Proceedings for three reasons chiefly: (a) because they show the valuable anti-malarial work which is being carried on in Bengal by voluntary agencies; (b) they raise the question of "species control" in malaria; and (c) that of the value of quinine prophylaxis.—(EDITOR, I. M. G.)

* Howlett, F. M. "Indian Insect Life," pp. 560—564, mentions that the burrows are constructed of bits of algæ.