

KALA-AZAR

BY MRS. ANDERSON

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KALA-AZAR (which is the Bengali for Black Fever) is an irregular fever of long duration, with either a rapid or slow onset, occurring epidemically and endemically in certain tropical and sub-tropical countries, usually associated with progressive emaciation and enlargement of spleen and liver and characterised by the presence of Leishman Donovan bodies in the peripheral blood, the spleen and elsewhere in the tissues.

Assam and Bengal, and Bihar and Orissa to a lesser extent, are the provinces most affected and there Kala-Azar is both epidemic and endemic. In Madras it is doubtful to what extent the disease has spread but cases have been reported all over the province. The Punjab, Frontier provinces and Bombay seem still to be unaffected.

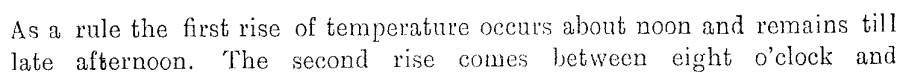
The disease is found in both town and country but it is most prevalent in small rural communities. When it appeared in epidemic form in Assam whole villages were deserted. It has even been reported that when a case was found in a hitherto uninfected village, the house with patient and his belongings were burnt up by the villagers. Such was the terror caused by the disease in those days.

Kala-Azar is not limited to Indians, a number of cases occurring amongst Europeans. It attacks people of all ages except the very young, being rarely seen in children under the age of two years.

The disease can be traced as far back as 1854 but it was not until 1903 that the causative organism was found almost simultaneously by Leishman and Donovan. Since that time the organism has been known as the Leishman Donovan body. The parasite is a small pear-shaped body containing two nucleii and has a very distinctive appearance. It is present in nearly every organ in the body but in largest quantities in the spleen, liver and bone marrow. It is also found in the peripheral blood to a limited extent.

Symptoms and Signs.—Advanced cases having a duration of a year or more present a typical picture and, by a look, can be diagnosed as Kala-Azar. Such patients give a history of a long continued fever, not yielding to quinine: progressive emaciation, perhaps palpitation and shortness of breath, and may be suffering from one or other complication, cancrum oris, chronic diarrhoea or pneumonia. They are emaciated and weak; the hair

Chart No. II: Malarial Type



Case Book No. 209
 Hospital.
 RECORD OF TEMPERATURE, PULSE, AND RESPIRATION.
 Name Kiddie Date 11 Age 8 Dr. Dr. C. W. Allen Date of Birth Feb. 11, 1902
 Sex M Color W Height 48 Weight 35 Temperature 100.0 Pulse 100 Respiration 20
 Diagnosis Scarlet fever
 Treatment Antitoxin, antiseptics, etc.
 Progress Improving
 Discharge Discharged
 Signature [Signature]

Diagnosis by laboratory examination :—

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practitioner owing to the danger of internal haemorrhage, which, however, never does occur if the puncture is properly done and confined to suitable cases. The patient should be kept still for an hour after the puncture and a tight bandage applied. Calcium may be administered previously.

2. *Aldehyde or Formalin Test*.—This consists of adding a few drops of commercial formalin to 1 c.c. of the patient's serum and leaving for twenty-four hours. Unfortunately, this test is rarely positive in the first four months of the disease.

3. *Chopra's Test*.—This is the most recently discovered test and is valuable in many cases as it is often positive in the very early stages of the attack.

4. *Blood Slides*.—Examination of the peripheral blood is not of great value as the parasites are so few in number. Many slides require to be carefully examined, and even then, if the parasite is not found one cannot be certain that it is not a case of Kala-Azar.

Treatment.—Injections of antimony salts are almost as much a specific for Kala-Azar as quinine is for malaria. Before the treatment by antimony was introduced, many and varied cures were advocated by different observers. Among them were huge doses of quinine, intramuscularly, hypodermically or by mouth: streptococcal vaccines, ductless gland extracts, turpentine injections, etc. Any inflammatory complications (*e.g.*, cancrum oris, pneumonia, etc.) which cause a leucocytosis reduce the fever and for this reason probably injections of turpentine were found to be the most successful means of treatment.

Sir Leonard Rogers and Dr. Muir were the first to introduce into India treatment by injections of the antimony salts. All possible methods of administering antimony were investigated after its specific action was demonstrated but the intravenous method was the only one which was found to be effective. Until five years ago only the simple salts of antimony were available. Injections were given three days a week and the total number of injections required was about forty. Owing to the long period over which treatment had to be given, many patients got tired of remaining in hospital or attending dispensary and stopped treatment while yet uncured. Through the discovery of the pentavalent antimony compounds, the course of treatment has been much shortened, the patient being cured after twelve or fourteen injections. This, of course, depends on the dosage and the condition of the patient about which we need not go into details here. Turpentine injections are necessary for the reduction of the spleen and general tonic treatment for the anaemia present must be given.

Complications.—All the complications of Kala-Azar are due to the lowered resistance of the patient to bacterial infection. Cancrum oris

used to be the most common and most dreaded complication of Kala-Azar. It was quite common to have cases in hospital where the whole cheek had sloughed away leaving exposed the jaw and teeth. Death from haemorrhage at the site of the slough was common. Fortunately, this complication is now rarely seen.

Broncho and lobar pneumonia also used to be very common complications, the latter very often proving fatal. If the patient recovered from the pneumonia the condition was very often improved due to the leucocytosis set up.

Nursing.—The nursing of Kala-Azar patients is difficult. It is advisable for the patient to be confined to bed for about three weeks, but except in advanced or acute cases it is difficult to get them to remain in bed. The absence of any discomfort with the fever tends to make them want to get up and sit about.

Particular attention must be given to the cleanliness of the mouth owing to the danger of cancrum oris setting in. Potassium permanganate or Eusol mouth washes should be given several times a day.

Diet is a difficult problem. If absolute freedom of diet is allowed there is always a great danger of the patient over-eating and diarrhoea setting in, so it is, as a rule, advisable to caution the patient about over-eating and to restrict his diet till the treatment is well advanced.

It is important to observe and report on any abnormal effect of the injections, *e.g.* cough, vomiting or faintness.

The mode of Transmission of Kala-Azar is still uncertain. For many years the bed bug was suspected of being the vector but the dissection of many thousands of bugs having failed to exhibit a single Leishman Donovan body, the bed bug has been definitely eliminated. Of late strong suspicion has been directed to a species of Sandfly called *Phlebotomus Argentipes* (silver-footed sandfly) owing to the fact that it has been found in nature to be infected with the parasite of Kala-Azar, and that in the laboratory it has been shown that the parasite develops in the sandfly. These flies are found in cowsheds, fowl-houses and in living rooms. They appear to thrive in any earth which contains a mixture of nitrogenous matter and is not too dry. If indeed the sandfly is the vector of the disease then it is to be assumed that they take up the Leishman Donovan body from the peripheral blood of man. After undergoing development in the stomach of the sandfly and multiplying, the parasite is then presumably injected into any person whom the sandfly bites. While the sandfly theory holds the field at present it has not been proved yet: and the possibility of the disease being a water-borne one cannot be ruled out. Until the mode of transmission is discovered it is impossible to say what prophylactic measures are necessary.