

Not having seen the post-mortem examination of any fatal case of dengue, it would be unprofitable to speculate further on the pathology of dengue. Dr. Douglas Cunningham, who examined the blood of some patients for Dr. Charles, found nothing special; there was an increase of granular bioplasts; but that increase is common to many eruptive fevers. The stools, the urine, the sweat and the smell of the body have never appeared to me to be in any way abnormal or to give any data which may assist in forming an accurate idea of the pathological condition of the patient.

### IS ACUTE DROPSY (THE NEW DISEASE)

CONTAGIOUS?

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In the January number of this journal I published 12 cases of a disease quite new in my experience, viz. acute dropsy. Since then about 200 cases have occurred in this station, and fresh ones are appearing every day. Of these a large number have come under my observation. As the signs, symptoms and apparent causation of the disease agreed in many instances with Morehead's description of Beriberi, I had begun to regard the outbreak as one of veritable beriberi; and some of the last cases that occurred amongst the men of my regiment I entered under this heading. As Morehead's book may not be in every one's hands, I here quote his views of the pathology of the disease.

"Beriberi is, in my opinion, a general dropsy of complicated character. A state of the system in which the blood is sufficient in quantity, and its water in undue proportion is the predisposing cause, and cold or wet is the exciting cause: no doubt the effusion in some instances is further favoured by co-existing heart, lung, or kidney disease. But how does this state of the blood arise? It is present in the scorbutic diathesis, and this constitutional condition may exist to some extent before the phenomena characteristic of scurvy appear. Let it further be remembered that impaired irritability of muscular fibre, that of the heart included, is among the early derangements of the scorbutic state. We have thus as predisposing conditions not only watery blood sufficient in quantity but also propelled by a feebly acting heart. Let us suppose an individual in this state to have the surface of the body exposed to an atmosphere cold and damp, or to the chilling influence of piercing winds, and we have a combination of circumstances surely adequate to predispose to and excite general dropsy, the more certainly if the skin has been previously actively perspiring, and the kidneys from congestion or structural defect do not readily assume a compensating action."

"The circumstances in which beriberi has usually appeared justify this view of its pathology. The disease always attacks many of a community.... Generally it will be found that a scorbutic diathesis and external cold or wet are the determining conditions."

Such is Morehead's account of the pathology of beriberi.

In a report on the present outbreak of acute dropsy as it occurred in the 24 Pergunnahs, dated 4th November 1878 (see *Indian Medical Gazette* for March) Dr. McConnell remarks that "Judging from the cases which have come under his own observation during the past few months in Calcutta, the disease is by no means a special or peculiar one: but has undoubtedly prevailed to a much greater extent among the poor than during former seasons. The leading features consist of fever usually intermittent with great anaemia and exhaustion and oedema of the feet and ankles, and in some cases also of the upper limbs, face and neck, and exceptionally amounting to dropsy more or less general. These symptoms appear to be the result of ordinary malarious fever attacking persons reduced previously to a low condition of health by insufficient or improper food, the dropsy in particular appears to be referable to the effects of damp and cold upon such debilitated individuals during a feverish attack."

Thus Dr. McConnell found the disease to exist chiefly among the poor, and he thinks that it is the result of malarious fever attacking persons reduced to a low condition of health by insufficient or improper food, and that the dropsical symptoms are referable to the influence of cold and damp. His views of the pathology of the dropsy coincide for the greater part with Morehead's, but he differs from him in the important particular of ascribing some part of the causation of the disease to the influence of malaria.

Now the first cases that I saw here occurred in October and November last, and as the individuals were more or less cachectic in appearance when I saw them, and as some were scorbutic, and as the weather was exceedingly cold, I naturally concluded that the disease was beriberi, and supposed that it was due in this particular season to the lateness of the rains and greater consequent humidity of the atmosphere affecting a population somewhat reduced in health and scorbutic from the scarcity and dearness of provisions which prevailed here during the rains in 1878. But as numerous cases have since cropped up in which neither scurvy nor cold could be assigned as causes, I have been forced to abandon this opinion. Again as malarious fever is of most infrequent occurrence among the regular residents in Shillong, never in fact occurs save as the result of a visit to the plains, the idea that it exercised any influence in the causation of the disease never presented itself to my mind. In fact, in a large proportion of the cases there could be no suspicion whatever of malarial complication. Thus, though Dr. McConnell is no doubt describing the same epidemic of acute dropsy as that which prevailed here, there is an important difference in our accounts of it, viz. in the supposed influence of malaria, and this for obvious reasons. He has been observing it in a locality where intermittent fever is very common, I see it in one where fever is comparatively rare. Thus intermittent fever was either an antecedent in many of his cases, or the fever which accompanied them was of intermittent type; whereas in several of my cases there was no appreciable fever, and some of the individuals never had ague in their lives.

Again Dr. Crombie, writing of the disease as it oc-

curred in Dacca, does not appear to think malaria an element in its causation. He says (see *Indian Medical Gazette* for March) "the form of epidemic dropsy which has been noticed in Calcutta for some months has been prevalent in Dacca for the last 3 weeks. It seems to attack all classes of society except Europeans. The anasarca is sometimes general, but more often it is limited to the lower extremities. It is accompanied by fever without rigors, and there is no albumen in the urine."

With regard to the idea, prevalent in many quarters, that the present epidemic is nothing more or less than the dropsy of debility which follows so many diseases, only exaggerated this season both in degree and in extent of range, I have only to say that for the 8 years I have been in Assam I have never seen a case of acute dropsy such as many of these which have occurred in the present epidemic. I have seen a very large number of cases of dropsy occurring in weakly and debilitated individuals, the result of insufficient food and protracted attacks of ague and dysentery, the dropsy of anaemia in fact: but never before have I seen acute dropsy occurring suddenly and without apparent cause in individuals who previously thought themselves in good health.

Neither do these cases answer to the description of beriberi, inasmuch as many of them cannot be connected with either damp, cold, or the scorbutic diathesis. They must therefore be a new and distinct disease, and according to my experience this disease is contagious just as measles, scarlatina or any of the exanthematous fevers is, I base this opinion on the following premises.

(1.) The disease has appeared as a wide-spread epidemic affecting, in this province, the extensive districts of Cachar, Sylhet, the Khasia Hills and some of the districts of Assam Proper shortly after its appearance in Calcutta and Dacca.

(2.) The first cases that came under my notice here would appear to have been imported from Dacca.

(3.) The disease appears to have spread after the manner of an epidemic, viz. attacked entire households and families, and spread from such households to the houses of the friends who visited them.

(4.) A number of persons were affected who were neither scorbutic nor anaemic, nor subject to malarious fever. In these cases in fact the only probable cause of the malady was contagion, and it could be distinctly traced in many instances.

(5.) Though the weather is now quite dry and warm here, average daily temperature about 70° F., still fresh cases continue to appear every day. Thus the supposed influence of cold is eliminated.

(6.) Though scurvy, in greater or less degree, was associated with the dropsy in many cases, still this may have been only an accidental circumstance. If we happened, e.g. to have an epidemic of measles instead of one of dropsy, scurvy would be found very frequently present, inasmuch as a large number of the people suffer from it; still no one would suppose that scurvy was connected with measles except indeed that by its weakening influence it might have predisposed to attack.

(7.) The clinical history of the disease. In next

month's number I hope to publish a few cases, fully illustrating its clinical history.

Now in support of the statement made in para. 3, a multitude of instances could be adduced, but a few will suffice. For example, on 1st December a well paid Bengali Babu, a clerk in the Secretariat Office, and whom we shall call A, and who believed himself to be in his usual health, was attacked with diarrhoea which lasted four days. He felt himself somewhat weakened by this attack, and suffered at the same time from slight feverish feel at night. On the 4th day his legs began to swell. He is a stout, strong built man of active habits, and has lived upon the same diet as in other years, rather improved than otherwise. The gums are of natural color, firm and hard, and free from all trace of scurvy. Liver and spleen of normal size. Had had no serious illness for past four years. His face now looks anaemic: but this appears to me to be due to slight oedema of the cellular tissue: for neither the conjunctivæ, lips, nor gums show signs of anaemia. His legs are highly oedematous as far as the knees, and pit deeply on pressure.

The only probable cause of the disease in this case is contagion. He has been in the habit of visiting at another Babu's house in which every member of the family is suffering from dropsy, and he has received visits from them.

About the same time one of his servants, a stout young Assamese male, was seized in an almost similar manner, but the dropsy was general and very severe. He suffered also from cough and extreme dyspnoea, and became so much alarmed at his condition that he gave up his service and went to his home in the plains, where he soon recovered his health.

About 3 days later a second servant, a stout man in his usual state of health, became dropsical. There was no premonitory fever or diarrhoea in this case. The first symptom of illness was the oedema of the legs.

When this man had been ill for about a month, he left his employment and went to live in the compound of Babu B. about  $\frac{1}{2}$  a mile distant from Babu A.'s house. Seven days after his arrival Babu B.'s cook got affected, 3 days later the Babu himself, and at a further interval of 4 days Babu C, who lives in the same compound, was seized with the dropsy.

Returning to Babu A.'s compound we find that on 31st December his wife, daughter and 2 servants arrived from Dacca, where they had been staying for a year. Four days after her arrival in Shillong, viz. on 3rd January, his daughter, a stout girl of 10 years, began to suffer from slight fever and diarrhoea. On the second day severe general dropsy set in. The lower extremities became oedematous almost to bursting; the face and neck puffy, and hands and arms much swollen. There was a marked scorbutic taint in this case which probably accounts for the severity of the dropsy.

Some 3 days later, viz. about 7th January, his wife got the dropsy, and shortly afterwards both the servants were affected. In fact all the inmates of this compound, 11 in number, had the dropsy in the months of December and January. They have all since recovered: but 2 were so bad, showing signs of commencing oedema of the lungs,

that I had to order their immediate removal to the plains. Some of the individuals were markedly scorbutic, but in 3 cases at least there was no trace of scurvy, and the only possible cause appeared to be contagion.

The history of this household was that of many others in the bazar. First, one individual became affected, and the others quickly followed.

The same may be said of the bodies of servants in the compounds of the different Europeans, also of the clerks in the different Government offices. The disease prevailed at one time so widely amongst the clerks in the printing and Secretariat offices that the suspension of business was threatened. However, with care, most of the cases began to mend in the course of a month.

A still stronger case, and showing, I think, beyond all question the influence of contagion, has come under my notice within the past few days.

In the months of February and March most of the servants in the compound of Mr. X., an Englishman with a Eurasian family, suffered from the dropsy. His children, 8 in number, are healthy, well fed, well clad, live in a good house, and are absolutely free from any trace of scurvy. On 21st March four of the children were seized with diarrhoea and want of appetite, which lasted 3 days. On the evening of the 24th two of the elder children, ages 9 and 11, experienced a great sensation of heat and pricking in the soles of the feet. On the morning of the 25th their legs were highly oedematous as far as the knees.

Mr. X. himself also suffered about the same time from slight malaise, diarrhoea and heat and pricking of the feet, but there was no oedema. In fact it would appear from my experience that Europeans enjoy complete exemption from the disease. In my own compound my bearer and 2 of the Hindustani servants were affected, still neither I nor the Khasia servants suffered. The Khasias do not appear to be very prone to attack. Several of them have had the disease, and some died of it; but they were exceptions to the general rule. They were chiefly servants and employées in the Government offices. The pure Khasias in the villages have not yet been affected; but possibly this exemption is due to the fact that they have not much intercourse with the Bengalis, by whom the disease was introduced into the station.

Again, the disorder has not been confined by any means to the poor; all classes have suffered equally. In the 44th Regiment, 2 of the Subadars were among those attacked, and in their cases the only probable explanation of the origin of the disease was contagion. In the Subadar Major's house his servant was the first sufferer, then his wife, then himself, and lastly, about a month later, his grandson, a stout, healthy, well-fed boy of 12 years, and perfectly innocent of all trace of scurvy.

Another case illustrating apparently most plainly the contagious nature of the malady came under my notice this morning. I had been looking out for some time past for its appearance in the jail, but though many of the prisoners are slightly scorbutic, there were no cases. This morning one of the prisoners, a patient in hospital, complained of 'swelled legs'. On examining him I found distinct oedema extending as far as the knees, face also dry looking and puffy. Presently a 'hajut' prisoner was

brought before me for examination. I recognized him as an old patient of mine, a sufferer from acute dropsy. He was admitted into the jail on 31st March, and spent much of his time about the hospital, talking to the prisoner who now shows symptoms of the disease. The latter suffered from diarrhoea on 2nd, 3rd and 4th April; on the 5th he noticed that his legs were swollen. If the dropsy in this instance was due to contagion received from the hajut prisoner, and I know of no other explanation of its occurrence, then the period of incubation must be very short,—not more than 3 or 4 days.

Dr. Wilson, of the 42nd Regiment, has kindly furnished me with the following note of a few of the cases (17 up to date) that occurred in his regiment.

(1.) Sew Babu, the Adjutant's writer, was first attacked (he has died since). He lived in the bazar where the disease was common.

(2.) Garubjeet, a stout Goorkha boy, employed as a writer in the Adjutant's office.

(3.) Sepoy Jaikurn, also employed in the Adjutant's office.

(4.) Sepoy Jamon, lives in the lines close to the house of Jaikurn, also of Garubjeet.

(5.) Wife of a sepoy who lives in the same barrack as Jaikurn.

(6.) Jaikurn's own wife.

(7.) Hoot Ram, a sepoy, son of a hospital Kahar, who has had the dropsy but is now well.

(8.) Muddun, Kahar, who lives in the same hut with the father of No 7.

As I have said, I could multiply instances exemplifying the apparent contagiousness of the disease, but the above will suffice.

In next month's *Gazette* I hope to publish *in extenso* a few cases fully illustrating its clinical history.

#### NARRATIVE OF THE MARCH OF THE 15TH LOODIANAH SIKHS, FROM SIAL- KOTE TO KANDAHAR.\*

By SURGEON-MAJOR R. W. CUNNINGHAM, M.D.,  
B. M. S.

1. *Orders.*—On 23rd September, 1878, orders were received by telegram for the regiment to prepare to march towards Lahore as soon as possible; 152 men were at their homes on furlough, and these were recalled by telegram.

2. *March, 28th September.*—The regiment marched out,—strength 8 officers, 484 fighting men. One Subadar with 63 rank and file, of whom 21 were sick in hospital, were left at the Depôt at Sialkote, with one Hospital Assistant, a cook, bhistee and sweeper.

The hospital establishment to accompany the regiment was, 1 Hospital Assistant, 1 passed medical pupil, 1 dresser, 1 cook, 1 bhistee, 1 gurgah, and 1 sweeper,

\* This most instructive and interesting narrative has been placed at our disposal by the Surgeon-General, Indian Medical Department. It gives a concise and clear account of the topography of the route, a practical and useful view of the preparations and equipments made and provided for the march, and a valuable and complete sketch of the effect of the circumstances of the march, climate and duties on the health of the men. We propose to print Surgeon Stephens's narrative of the march of the Right Wing in our next issue.—Ed.