

Farther, till the cases of vitreous escape are followed up in some numbers, and for some considerable time after operation by ophthalmoscopic observation, and till it is thereby proved that the widely entertained fear of this complication is groundless, most surgeons will hesitate to believe that the risks are as small as Major Smith considers them. Many years ago, I had the opportunity of watching a surgeon, who even then counted his extractions by the thousand, make a trial of the method Major Smith advocates. He told me that he could not keep down his vitreous loss, and that he therefore felt bound to give up the method; and yet he was an operator, who so far as manual skill was concerned, I have never seen beaten anywhere in the world, and I speak after seeing many of the Masters of Europe at work.

In closing, I would ask the younger surgeons to keep an open mind, and to watch the leadings of carefully drawn up statistics. By using the capsule laceration method, combined with irrigation, they have a method of extraction in their hands, which will give satisfaction alike to themselves and to their patients. Let them think twice before they surrender it for another mode, whose dangers are feared by many surgeons, both in Europe and in India. Let them remember that the hyaloid membrane (I am clinically convinced that such a membrane exists) is very thin, and that if we rupture it, even without vitreous escape, we *ipso facto* surrender the integrity of the diaphragm of the eye, which diaphragm is alike a guard against the inroad of infection, and a safeguard to the anatomical equilibrium of the organ. If carefully compiled statistics of the after-course of cases proves that we have erred in our conservatism, it will be time to change our operation, but not before.

#### BERI-BERI IN SYLHET JAIL.

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VERY little on the subject of beri-beri has appeared in the columns of this journal for some time, so the experience gained by me in the course of a small epidemic in Sylhet Jail may prove of interest.

Towards the end of September 1905, numerous cases of œdema of the feet were noticed amongst convicts working in the weaving and mat-making sheds. At first the cases were of a mild type; a few days' rest in bed and milk diet made the œdema disappear; and the cause and nature of the epidemic were not recognised till paralysis of the legs occurred in one of the cases, when a definite diagnosis of beri-beri was made. At the same time the disease began to assume a virulent type, and severe and fatal cases of heart-failure occurring, the sick were immediately removed to a camp about  $2\frac{1}{2}$  miles from the jail, to

which the remaining jail population was moved as soon as accommodation could be provided for them. This measure stopped the epidemic; all but the hopelessly bad cases improved, the few fresh cases that occurred having received the infection while in the jail.

The papers read on this disease in the sections of pathology and tropical medicine at the British Medical Association meeting in 1905 and reported in the numbers of the *British Medical Journal* for October 25th and November 11th and which reached me most opportunely at the height of the epidemic, proved most interesting and enabled me to observe the disease with the newest light on it.

In this epidemic there were 158 cases and 21 deaths, giving a mortality of 13.3 per cent. All the cases began with faucial redness and tenderness, a feeling of malaise, symptoms of dyspepsia and a hard and firm œdema of the feet and legs, together with pain, tingling and weakness in the legs. The more advanced cases showed œdema of the whole body, especially of the neck and chest, in some cases the neck being swollen to such an extent, that the circumference equalled that of the head. They also had heart symptoms of varying intensity and degree; the worst cases died of paresis of the heart in two to three days.

As regards the frequency of the main symptoms, 94 cases out of 158 exhibited general anasarca, while in 64 the œdema was confined to the lower extremities, especially to the feet and pretibial regions. Cardiac symptoms were seen in 149 cases; of these, 118 suffered from palpitation and breathlessness, and 31 had in addition bruits of varying character and intensity, the regular spacing of the intervals on auscultation, as described by Manson, being very common. Knee-jerk was markedly diminished or absent in 104 cases out of 158; pain was complained of, on pressure, over the muscles of calves and arms in 111 cases. Loss of sensation in the skin of the pretibial region was elicited in 83 cases, and tingling of the skin of the arms and legs was very common. Every man affected complained of loss of appetite, faucial tenderness, a feeling of pain and burning in the epigastrium, and a tight or board-like feeling across the chest, but in 33 cases the gastric disturbance was acute, and in 13 of these cases vomiting occurred. This always proved to be a very grave symptom; of these 13 cases ten died, two were released from jail convalescent, and one is still lingering.

My experience confirms all the clinical points brought out by Dr. Hamilton Wright in his most valuable paper, and also that the old classification of the disease into dry, wet and mixed beri-beri is incorrect. He divides his cases into acute pernicious, acute, and subacute, and maintains that in every case there is an infection producing œdema, gastric symptoms, nervous symptoms, and heart affection, varying in degree; that in the severe cases death takes place early of paresis of the heart; that cases which do not

succumb from cardiac failure in the acute stage proceed along one of two lines, firstly, those that go on to full recovery, and secondly, those in which, after the subsidence of the gastro-duodenal irritation and cardiac affection, there is a stage of quiescence, and then further symptoms appear, and these cases he calls beri-beric residual paralysis. The paralysis may be cardiac, sensory, motor, sensory-motor or vaso-motor, and it is amongst cases of this second group that the types of the old classification are seen. The atrophy and wasting of muscles giving the dry variety, those with œdema the wet variety, and the mixed cases the mixed variety.

In the present epidemic we have had these types of the older writers perfectly exemplified, but they have all occurred in a late stage of the disease; in the early stage they all had œdema, gastro-duodenal symptoms, etc.

On the 21 deaths, 17 were of the acute pernicious type and died of paralysis of the heart in two to three days from the onset; while four went on to the residual paralysis stage and died, one of gangrene of the lung, two of vaso-motor paralysis and one of enteritis.

*Post-mortem.*—All the cases have shown more or less fluid in the pleural, pericardial and peritoneal cavities. In all the cases there have been signs of great venous congestion, stagnation of the circulation and great fluidity of the blood. The heart has been enormously enlarged, especially the right side, both sides being filled with clot, partly white and organised and partly very dark red.

The duodenitis described by Dr. Hamilton Wright has been seen typically pronounced; in some cases the inflammation has also spread to the pyloric end of the stomach and also to the jejunum.

The head of the pancreas was found red and inflamed in a few cases, and in one a wedge-shaped gangrenous infarct was found in the head of the pancreas.

*Causation.*—The rainfall in 1905 was heavier than in any year since 1899. The average rainfall for Sylhet is 156·64 inches, while in 1905 it was 182·55, which exceeds even the exceptional rainfall of 1899 which was 179·78. The seasonal rainfall, that is to say, from 1st May to 31st October in these two years is almost the same 159·85 in 1905 against 159·37 in 1899. It is noteworthy that in 1899 the jail mortality was high, being 33 out of an average population of 524·24. The total number of deaths in 1905 was 32 out of a population of 584·25, and of these deaths 21 were due to beri-beri. The jail site is low and badly drained; after a rainfall of half an inch or upwards the jail enclosure is flooded, and it takes hours for the water to flow off, this kept the interior of the jail in a perfectly wet and sodden state. From the 5th to the 15th October inclusive there was no rain, and the heat was excessive; it was immediately after this that the cases began to be numerous. The only other local

point of importance is that in 1905 indoor work was considerably increased as against out-door work, all the jail industries were augmented, and as the buildings could not be enlarged to a corresponding extent, all the workshops were overcrowded. For example in the weaving shed, which had in 1904 accommodated six looms, in 1905 thirty looms were erected, the warps being rolled up on rollers to economise space instead of being stretched across the floor.

In a paper read by Dr. Clark at the Leicester meeting, he gives as the theories, at present upheld, of the cause of beri-beri the following:—

- I. The "arsenical" theory of Ross.
- II. The "rice" theory.
- III. The "place" theory.
- IV. The "acute or sub-acute pernicious disease" of Hamilton Wright, and to this he adds a "bed-bug" theory.

1. I can show no arguments in favour of the "arsenical" theory.

2. The "rice" theory has been revived lately, and very strongly, by Mr. Hose of Sarawak. He maintains that the disease is due to eating rice, which has been long husked, and has become mouldy. This theory is not applicable here, as the rice issued in Sylhet Jail is freshly husked, and never more than two days' old. The rice husked one day being used the next. It is only on Mondays that two days' old rice is issued. The paddy, also, is not imported but grown in the district and is therefore fresh paddy. Moreover rice from this paddy was issued to all healthy prisoners in camp, and yet the epidemic died out, so that this theory may be disregarded, at least as regards the epidemic under consideration. However to this I must add that when the epidemic broke out, there were present in the jail 32 convicts belonging to Provinces which entitle them under Jail Rules to get "attah." These men received "attah" (wheat) at one meal and rice at the other; none of them contracted the disease.

3. The arguments in favour of the "place" theory are—first, that the epidemic affected certain groups of the inhabitants of the jail, working in definite places, and did not affect the other groups to whom the same food and water were supplied. The inhabitants of the jail may be divided into three groups,—(1) Females, (2) male under-trials, (3) male convicts. Of these, the females were quite free, while of the male under-trials two contracted the disease; these were a man who had had dysentery and was in the hospital and so not with the other under-trials, and the convict overseer in charge of the under-trials, who had also been in hospital, a place which in my opinion is infected. With the exception of these two, the remainder belonged to the third group of male convicts.

Secondly, that when the prisoners were removed to camp, the disease stopped, although they continued to get the same food and water as they had in the jail.

4. Dr. Hamilton Wright's theory is given in the *British Medical Journal* for October 28th. He says that beri-beri is due to a specific organism, not yet isolated; that this specific organism is not one whose special habitat is a particular food, such as rice or fish, but one that may nevertheless be ingested with any food or drink accidentally contaminated, etc., etc. This is somewhat indefinite and gives no indication of the method by which the disease is actually contracted. With the rest of his working theory, I thoroughly agree.

Lastly, the theory of propagation by bed-bugs has been discussed; in this connection I may say that the sleeping wards and clothing in the jail are infested with bugs and lice. These are to a certain extent kept down by washing the floors, walls and beds in the wards, and by boiling the clothing and blankets, but with wooden beds and bamboo and mat walls, it is impossible to eradicate these pests.

In view of the recent discoveries of the propagation of tropical diseases by suctorial insects, this may prove to be the real method of dissemination. The arguments against it in the present epidemic are:—

*First.*—That the same bedding was issued indiscriminately to the three groups and so they were all equally liable to be bitten by the vermin infesting the blankets, and

*Secondly,* that when moved to camp the same bedding was used, and for the sick the same wooden beds, and yet the epidemic ceased. To sum up, I consider the place theory the most important; the difficulty is to connect up this theory with the gastro-duodenal irritation, which points so strongly to infection by ingestion of some food or drink. For this I would suggest the following theory, that the infection, presumably a bacillus, lies in the floor of the building, that it is inhaled by the mouth and nose, and convicts undergoing hard labour are bound to breathe with their mouths open; that the bacillus first lodges in the fauces, producing the faucial redness and tenderness which is so common a symptom in the disease, that from thence it is conveyed by saliva and food to the stomach and duodenum, and there, finding a suitable nidus, it proceeds to grow and flourish.

There is evidence to show that a few cases of œdema with palpitation, etc., have occurred in former years in the jail; these cases were probably beri-beri though not reported as such, because œdema and palpitation are so common in many diseases in Assam. The infection has, therefore, been present in the jail, and during 1905 the excessive damp followed by exceptional heat and the overcrowding in the factories have all been factors to produce a multiplication of the bacillus, and so resulted in the epidemic.

The only other point of interest is the occurrence in five cases of head symptoms which I have not seen described previously.

The first of these was that of a Manipuri named Rasananda. He was admitted for beri-beri on the 29th October, he had general anasarca and palpitation. The knee-jerk was absent, he had loss of sensation of the skin of the legs and pain on pressure of the muscles of the calf. The disease ran a mild course; after a few days his anasarca and palpitation disappeared and he was apparently convalescent. On the morning of the 25th November he complained of severe headache and suddenly become unconscious; he passed his evacuations in bed and during the day he had several convulsive fits. During the 26th he remained unconscious and had fits. On the 27th he became delirious, was violent and raved, he was restless throughout the day and following night. On the 28th the symptoms remained the same, but during the night he slept, and on the morning of the 29th he woke conscious and sane. This case was typical of the five showing head symptoms. All had the initial infection stage, then a stage of quiescence and improvement, and in all suddenly appeared these head symptoms in the residual paralytic stage, due no doubt to degeneration proceeding up the trunks of the affected nerves to the brain centres. The state of unconsciousness or coma was seen in all five cases and was in all a deep comatose condition, and in four out of the five, there was irritation of the brain producing convulsive fits; three out of the five had in addition delirium and subsequently had delusions. The comatose stage lasted exactly four days in all the cases. Two of the cases died, one from general anasarca and paralysis of the heart, a typical wet beri-beri case, and one from gangrene of the lung; one was released from jail convalescent, one has gone on to complete recovery, and the fifth is still on the sick list; he had bedsores, still has delusions and is in appearance a typical dry beri-beri case.

One more noteworthy point was the extraordinary liability to infection of the Manipuris. Of 27 Manipuris in jail, seven contracted the disease and of these four died; these men were all exceptionally strong and healthy and of great muscular power.

## THE SURGERY OF SARCOMATA.

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THE literature of cancer is very extensive as compared with that of sarcoma. Research committees and special laboratories in many lands are investigating carcinoma, and the ordinary newspaper frequently refers to the subject, while the very existence of sarcoma is ignored by the average layman. It may be said that the dread of cancer is of old standing, while it is only in the last half century that the meaning of the word cancer has been so restricted by the profession as to exclude sarcomata. But in any case sarcomata do not nowadays receive the attention