REPORT OF A CASE OF DUM-DUM FEVER.

By MAJOR C. T. BLACKWELL.
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Personal History.—Pte. T. C., aged 24, was formerly a labourer, and enlisted on February 2, 1897, at Belfast. In February, 1898, he was sent to South Africa, and from there he was transferred in April, 1899, to India, and his first station was Dum-Dum. He was then moved to Barrackpore; he returned to Dum-Dum, but only for a short period, and was then ordered to Calcutta. He then served at Darjeeling, but returned to Calcutta in March, 1900. His next station was Fyzabad, and from there he was invalided to England.

Medical History prior to Admission into Netley Hospital.—When in South Africa, and stationed at Ladysmith, he had an attack of dysentery; but it lasted only fourteen days. He had ague in September, 1899, and was in hospital for ten days. Patient described a typical attack of ague. He said that the initial attack came on suddenly whilst he was walking in the street in Calcutta. He felt suddenly cold and shivery, and rapidly got colder. He went indoors and lay down, covering himself with blankets, but he only got colder, and began to feel giddy and sick. This lasted for about an hour, and then he gradually got warmer and vomited; he became very hot, and then sweated profusely, and felt much better, and later on he went to hospital. The next day he had a similar attack, then missed a day, and then had another attack; after this he had four or five days free from fever, followed by another but somewhat milder attack, and then he became convalescent.

When at Darjeeling, in 1900, he had another attack of malarial fever, which lasted fourteen days; but from this time he had no illness of any sort until, on August 30, 1902, he was admitted into hospital at Fyzabad suffering from enteric fever. The attack is described as a severe one, and lasted 160 days. He was then discharged from hospital, but directed to attend, as he was debilitated, and it was intended to send him to the hills for the ensuing hot weather; but on Feb-
January 27, 1903, he was re-admitted into hospital, as the anaemia had become much aggravated. His condition then is described as being very pale and bloodless, but that he had not lost flesh; heart's action was weak and irregular, pulse very compressible, temperature rising daily, but not above 101°, and always normal in the morning; spleen greatly enlarged and tender, while occasionally he had severe attacks of pain in this region; liver slightly enlarged. He complained of severe headaches and distressing throbbing in the temples and breathlessness on exertion.

He was brought before an Invaliding Board on April 6, 1903, and left India by the s.s. "Sardinia," arriving at the Royal Victoria Hospital, Netley, on May 5, 1903. On admission at Netley his condition was as follows. His figure was inclined to stoutness, his features were rather full, complexion was pale, pasty and rather sallow; his sclerotics were pearly; pupils were bright and conjunctive had a slight icteric tinge. He had that anxious, strained expression so often seen in those who have an enlarged liver or spleen. On slight exertion he became very breathless. Spleen was greatly enlarged, and extended downwards and inwards, and reached to the umbilicus, and it was somewhat tender on palpation. Liver was slightly enlarged and tender. He then appeared to be free from fever, but shortly afterwards he had what appeared to be an attack of ague. An examination of his blood showed, however, no malarial parasites present, but the red corpuscles showed great irregularity in size and shape. The attached chart shows the very irregular temperature during patient's illness; his own sensations were not influenced by the degree of fever as much as one would have expected, for often when he had high fever he described himself as being comfortable and getting better.

On June 8, 1903, a blood count gave:—

<table>
<thead>
<tr>
<th>Polyhuclears</th>
<th>Lymphocytes</th>
<th>Large Mononuclears</th>
<th>Intermediate Forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>41%</td>
<td>27%</td>
<td>13.4%</td>
<td>18.6%</td>
</tr>
</tbody>
</table>

The red cells were very pale, there was considerable poikilocytosis and leucocytes were scarce. No malarial parasites present (see note at end).

Early in July, 1903, patient began to complain of piles, and they troubled him more or less during the remainder of his illness. All through his illness he frequently had attacks very
like ague. He felt chilly and shivery, and would have the bedclothes piled over him; he then would sweat profusely, and feel greatly relieved by it, and his temperature would drop, sometimes to sub-normal.

Patient's condition slowly got worse, the anaemia became more pronounced; his lips and fingers became greatly blanched, his spleen slowly increased in size, and the area of dulness extended 2 or 3 inches below level of umbilicus, and the organ appeared on palpation to be getting denser and more resisting as the disease progressed. The area of liver dulness was greatly increased; the upper border in the nipple line reached to the fourth rib, and in the mid-axillary line to the sixth rib. At this period of his illness (end of July) the liver did not reach below the costal margin, but, towards the end, the margin of the liver was about an inch below the point of the ninth rib, and could be very distinctly felt, while the whole area of dulness was greatly increased. Respiratory sounds were normal, but, owing to the thorax being so greatly encroached on by both liver and spleen, and also on account of the anaemia, the respirations were always very hurried and shallow. Heart sounds were normal, but more rapid than usual, and the rate varied greatly with any slight exertion; pulse was compressible; there was no thickening of the arteries. Urine always contained a small amount of albumen, but otherwise appeared to be normal.

In September, 1903, a blood count gave the following:—

<table>
<thead>
<tr>
<th>Polymorphs</th>
<th>Lymphocytes</th>
<th>Large Mononuclears</th>
<th>Intermediate Forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>42.5 %</td>
<td>27.5 %</td>
<td>13.5 %</td>
<td>16.5 %</td>
</tr>
</tbody>
</table>

No malarial parasites.

The peripheral blood was frequently examined for Leishman's bodies, but none were found; and also for enteric and Malta fever reactions, but with negative results; and also for trypanosomiasis, and the feces for Ankylostoma duodenale, but without success. In November, 1903, patient began to be troubled with oedema of the legs. This was much increased by walking, but was controlled by patient spending a longer period of the day in the recumbent position.

In the end of December he had several attacks of vomiting, but it was thought this was due to indiscretions in eating, and the sickness ceased when he took a lessened dietary; seeing that the inevitable end was rapidly approaching one did not
like to thwart him in his inclinations except when absolutely necessary.

On December 31 he complained of sore-throat, which he attributed to a chill he got when out in the grounds. He was also troubled by a cough, but the lungs appeared sound beyond the hypostatic congestion, which was to be expected. A few purpuric spots appeared at this time on his left ankle, but they did not increase in size, and no fresh ones appeared.

On January 15, 1904, he had an attack of haemoptysis; the quantity of blood lost was about 6 ozs., and this weakened him considerably.

On January 18 he had another slight attack; the congestion of lungs did not appear to be increasing; chest in front and behind was resonant, and respiratory sounds were normal. He appeared to regain his usual condition; but on the morning of January 22 there was a marked change in the condition of patient, the pallor was extreme, and there was considerable dyspnea; he did not however complain of anything beyond feeling a little weaker than usual. His condition gradually got worse, and he died on the morning of January 24, 1904.

Treatment.—Many drugs were tried, and from some it appeared that patient benefited, but a further experience showed that the apparent improvements were due to the varying condition of patient during his illness, and finally nothing was given except to relieve symptoms. Amongst the drugs prescribed were quinine, arsenic, iron, iodide of potash, perchloride of mercury, calomel, salicylates, &c. Patient was frequently seen by all the medical officers stationed at Netley.

Post-mortem Examination Twelve Hours after Death.—The body was that of an adult, well-nourished man; skin was somewhat oedematous and very white.

Thorax.—Both lungs behind were infiltrated and congested, and showed many exudations of a haemorrhagic character; heart was normal; no atheroma and no ulceration. Mediastinal glands were slightly enlarged.

Abdomen.—The spleen was enormously enlarged, and there were many patches of a yellow colour, white infarcts, and on section these appeared to be surrounded by a narrow margin of haemorrhage. On removing the spleen, a large amount of blood escaped from it. Weight was 7 lbs. Liver was in the
so-called nutmeg condition and greatly increased in weight (6 lbs. 9 ozs.). There was no ascites; kidneys were normal; pancreas normal. All the structures of the body were very anaemic.

Note by Major W. B. Leishman, R.A.M.C.

In the case reported by Major Blackwell, I found in the post-mortem smears from the liver and spleen, which he was good enough to send me, the same parasitic bodies which I have described in connection with Major Mathias' case. The parasites presented the same appearance, and sections of the liver and spleen showed the same histological characters as in that case, with the exception that, in Major Blackwell's case, the parasites were more numerous in the liver than in the spleen, many of the large mononuclear cells containing from ten to fifteen parasites.

With regard to the history of an attack of enteric fever at Fyzabad, lasting 160 days, the absence of a positive reaction to Widal's test on admission to Netley, little more than two months later, suggests that this prolonged fever may have possibly been due to the disease from which he died. No cicatrices were found in the ileum at the necropsy.