Clinical and other Notes

Nicolle states that treatment by atoxyl or arsenophenylglycin has given no appreciably good results.

Ensor thought that senega would prove useful on account of its active principle, saponin, which, in high dilutions, is destructive to protozoa, and reported one apparent cure following the use of this drug.

Jemma considers that infantile kala-azar is curable by the X-rays. Spontaneous recovery from the disease is, however, possible, and occasionally follows on an acute inter-current malady such as pneumonia, or cancrum ovis.

Captain Archibald determined that the alkalinity of the blood in four cases of undoubted kala-azar was diminished, and suggests that, as an acid medium has been found the most ideal for cultivating the Leishman body, increasing the alkalinity of the blood would be a useful therapeutic measure.

Prevention.—Until we know more exactly how the disease is spread, preventive measures can only be based on general principles. The destruction of infected quarters, and the segregation of the sick have been successful in preventing the spread of the disease among the coolies in the tea gardens of Assam. Such extreme measures could scarcely be adopted in Malta.

Measures which would be of some use here are compulsory notification and a diffusion of knowledge as to the nature of the disease, and the importance of early recognition and more exact diagnosis of cases of enlarged spleen.

In houses efforts should be made to get rid of all bugs.

The keeping of dogs in dwelling houses should be discouraged, and absolutely prohibited where there are young children.

PNEUMONIC PLAGUE OCCURRING AMONGST BRITISH TROOPS.

BY MAJOR R. A. CUNNINGHAM.

Royal Army Medical Corps.

In April, 1911, three cases of pneumonic plague occurred in the 1st Battalion Royal Scots, stationed at Allahabad. All three patients belonged to the band: Private B., admitted April 19, 1911, died April 25, 1911; Drummer G., admitted April 21, 1911, discharged July 12, 1911; Bandsman N., admitted April 21, 1911, died April 26, 1911.

The first thing to occur to the mind of anyone reading the above lines will probably be that, in spite of the extremely fatal character of the disease, one of the cases recovered, and perhaps this fact will give rise to a doubt as to whether the men were actually suffering from pneumonic plague.
Clinical and other Notes

The diagnosis was based on a consideration of the following facts:

1. The sputum was examined microscopically, and numerous non-Gram staining bacilli, morphologically identical with plague bacilli, were found. The bacilli were small with rounded ends, and some of them showed bi-polar staining.

2. Some of the sputum was injected subcutaneously into a young guinea-pig. The animal died in twenty-four hours, the lesions being typical of plague, viz., hæmorrhages, enlarged and inflamed lymphatic glands, and congested spleen. Smears on agar were made from the lymphatic glands and the spleen, and typical cultures of the plague bacillus obtained.

On microscopical examination of the young cultures they were found to consist of short bacilli, not staining by Gram's method; they showed well-marked bi-polar staining. In addition to agar, the bacillus was grown in broth and butter-broth, and the typical stalactite growth took place.

3. Corroboration of these results is furnished by the experiments carried out by Captain Grant, R.A.M.C., after my departure on leave on May 15. On May 29 he made a smear on agar of some of the sputum of Drummer G., who was then convalescent. Some of the culture thus obtained was diluted with sterile normal saline solution and injected into a guinea-pig. The guinea-pig died in four days. On post-mortem examination the lymphatic glands were found to be enlarged and congested; there were a few hæmorrhagic effusions. The spleen was slightly enlarged and congested.

On making smears on agar from the spleen, cultures were obtained which examination showed to consist of bacilli morphologically resembling plague.

The symptoms of the patients differed in many respects from those characteristic of ordinary croupous pneumonia. For instance, Drummer G. expectorated large quantities of very mucoid blood-stained sputum, not rusty or viscid. On the other hand, the sputum of Private B. was very scanty. In all there was very great prostration, and the course of the temperature was remittent.

The patient who recovered (Drummer G.), was a man of very robust constitution. Some of the credit for his recovery may also fairly be ascribed to the treatment adopted, which was of a stimulating character from the beginning, brandy being given every hour, and, in addition to this, adrenalin chloride 1 in 1,000, η xx by the mouth every two hours. This drug appeared to be particularly valuable, and no doubt helped to tide the patient over the critical period of his illness.

With reference to the recovery of patients from pneumonic plague, it may be mentioned that the Director, Bombay Bacteriological Laboratory, was communicated with. In his reply he stated that cases of pneumonic plague are known to recover. Further, referring to the
length of time for which sputum remains infective, he mentions the experiments of Felix Gotschlich, who (speaking from memory), was able to isolate the plague bacillus from sputum for as long a period as three months after an attack of pneumonic plague.

Drummer G. was kept isolated until his sputum ceased to be pathogenic to guinea-pigs. On June 25 some of his sputum was injected into a guinea-pig, and the animal remained alive and healthy. Drummer G. was therefore released from isolation on July 3, and discharged from hospital on the 12th.

As the cases were diagnosed immediately upon admission, there was no delay in the adoption of suitable precautions to prevent the spread of the disease in the regiment. The following preventive measures were carried out by Lieutenant-Colonel Davidson's orders:

(1) The patients and all their attendants (native and European) were completely isolated. The attendants were inoculated against plague, and wore mouth-protectors when in the ward.

(2) All the contacts (viz., the whole band and drums) were segregated in camp for ten days. The men in camp were inspected three times a day by an assistant surgeon and once daily by a medical officer.

(3) All the officers and men of the battalion at headquarters, with the exception of three, were inoculated with Haffkine's vaccine. The dose given was 4 cc. The reaction in some cases was very severe, the fever lasting four or five days.

(4) The barrack-rooms were vacated and disinfected, and were afterwards limewashed.

(5) Clothing and bedding were disinfected.

(6) The musical instruments were disinfected.

(7) The men were given a lecture on the mode of spread of the disease, and the way to prevent it.

(8) Steps were taken to destroy all rats in barracks.

(9) All patients admitted with fever from the battalion were kept in an observation ward until it was certain that they were not suffering from plague.

(10) All the native followers of the regiment were medically inspected daily.

The cause of the outbreak has not been positively traced. It is probable that the infection was not contracted in Allahabad, as the cantonment and the regimental followers were free from plague. A possible explanation is that the source of infection was a dirty third class railway carriage, in which the band travelled to Benares on April 3. This carriage had been full of natives immediately before the band went into it, and, owing to want of time, it had not been cleaned out. The clothing or kits of some of the men may have got infected in this way.

It was fortunate that Lieutenant-Colonel Davidson was able to procure
at once a sufficient amount of vaccine from the medical officer in charge of the cantonment hospital and the civil surgeon in Allahabad, otherwise an important prophylactic measure would have been delayed. In view of the great prevalence of plague amongst the natives, and the consequent increased danger of outbreaks among the European troops, it would be a wise precaution to have a certain amount of plague vaccine always available for immediate use, so that at least all contacts could be inoculated at once.

These cases show the importance of the routine examination of the sputum, as it was thus that the disease was detected; secondly, they show that patients suffering from pneumonic plague must be isolated until they cease to be infective, and that this may not be for at least a month after apparent recovery; and, lastly, they show the good results to be expected from the prompt application of the proper prophylactic measures when an outbreak of plague occurs.

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A MAGAZINE MORPHIA SYRINGE.

By LIEUTENANT C. CLARKE.

Royal Army Medical Corps.

The magazine morphia syringe is designed for use on the field of battle, on board warships in action, and in situations where many wounded are collected together, and the usual facilities of a hospital are not available.

The apparatus for morphia administration at present in use consists of:

1. An all-metal hypodermic syringe;
2. Morphia in the form of solution or in "tabloids."

In the field there are many difficulties encountered in using this apparatus. The needle is not sterile; it cannot be boiled in the field. In practice, no doubt the flame of a lighted match could be used; a strong wind, however, would render this a difficult operation. Matches may have been forgotten, or the lighting of a match at night would very likely draw the fire of the enemy.

If the morphia is carried in solution, a special bottle is required for this purpose. The filling of a hypodermic syringe from this bottle, though easy enough under ordinary conditions, becomes somewhat difficult on the battlefield during the excitement of an engagement. There is also a constant danger of the bottle being upset and the morphia solution being lost. If the syringe has to be filled at night, all these difficulties are increased.

Morphia "tabloids," though easily carried, have many disadvantages. They are small objects to handle in moments of perhaps great excitement and hurry. Water is required to dissolve the "tabloids," and unless a special bottle of water is carried, sterile injection cannot be given.