negative both to tubercle and to fungus infection; of the remaining 242 patients, 6.61 per cent. were infected with tubercle bacillus only, 27.27 per cent. with mixed tubercle bacilli and blastomycetes, and 65.11 per cent. with blastomycetes only.

What may be the significance of the presence of these blastomycetes? They are always to be found in sputa containing "other organisms," and whether considered as pathogenic or non-pathogenic they certainly appear to be activators of growth, not only of "other organisms," but also of the tubercle bacillus. Treatment with vaccines and with alkaline potassium iodide causes the disappearance of the fungus and the diminution, at times a total disappearance, of the tubercle bacillus. Potassium iodide is recognized as the drug of choice in the treatment of fungus infections, and it may be noted that the tubercle bacillus is classed as a fungus belonging to the family Mycobacteriaceae. In Jersey differential diagnosis and differential treatment of tuberculous infections have been associated with the striking fall in the total death rate from all forms of tuberculosis which followed the institution of the bacteriological laboratory in 1922. The reduction in these deaths in the years during which differential methods have been employed is shown in the accompanying table.

Year.	Tuberculosis Deaths.	Year.	Tuberculosis Deaths.
1922	86	1926	53
1923	62	1927	55
1924	65	1928	47
1925	49		

Conclusion.

It is considered that the fall in deaths from tuberculosis has been due to the foundation of a laboratory, which has allowed of differential diagnosis and consequently of differential treatment.

TREATMENT OF SEPTIC HANDS AND FEET ON SHIPBOARD.

BY

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WHILE acting as a temporary ship surgeon on a cruise extending over a period of five months, I recently had occasion to treat a series of septic hands and feet among some of the crew. Owing to lack of facilities, instruments, and drugs, I was forced to employ methods differing considerably from those to which I was accustomed. But the apparent success was such that publication of some of these facts might be helpful to someone similarly situated, or might interest someone in a better position than myself to carry on further investigation.

Most of the cases occurred in the tropics, which have a bad reputation for prolonged healing in septic cases. The commonest condition was septic hands among firemen, probably caused by blistering or burning of the skin of the palm, dirt, grease, and infection being then well ingrained into the wound.

Routine Treatment of Abscesses.

The general routine treatment was to open up the abscess with an incision at least one to one and a half inches in length, make no attempt to prevent bleeding, which at times was quite brisk, and then plunge the septic limb into a hot iodine bath (1 drachm of tinctura iodi mitis to a pint of hot water). A gauze dressing soaked in hydrogen peroxide was then applied (hydrogen peroxide, besides being an antiseptic, is a very useful haemostatic), and a bandage was tied well above the wound. Thus for a septic hand the arm would be bandaged above the elbow, just tight enough to cause venous congestion, and left in position for twenty-four to forty-eight hours. The patient was instructed to return the next day, or later in the same day, if the infection appeared acute, when the dressing would be soaked off in another iodine bath and a dressing of glycerin and magnesium sulphate (equal parts) on lint or gauze would be applied.

Glycerin and magnesium sulphate dressings would be repeated three times a day for the first two days, each dressing being soaked off in a hot iodine bath, and then twice a day until the wound appeared clean and no pus was apparent, when a dry dressing of iodoform powder on lint was employed. In every case, having once made an incision large enough to allow the pus to escape, the wound was touched as little as possible. No attempt was made to express pus by squeezing, but the patients were encouraged to move the affected limbs themselves whilst they were soaking them in the bath.

The advantages of this method are: (1) The apparatus is simple, all that is required being a basin, a bottle of tinctura iodi mitis, some hot water, a bottle of glycerin and magnesium sulphate, and some gauze or lint. (2) It is comparatively painless. (3) It eliminates the necessity for hot fomentations, which are difficult to apply effectively and only transitory in their action.

Choice of an Anaesthetic.

Out of a total of fifteen cases (three Europeans and twelve Chinese) I operated on four by freezing with ethyl chloride local anaesthesia. The disadvantages of freezing are that it undoubtedly causes intense pain during the thawing process, and its anaesthetic effect is so transitory that the operator has time only for a quick stab with the knife. In three cases no anaesthetic of any sort was employed, and apart from the momentary pain of the incision, the patients appeared to experience less pain in the aggregate than those who had been subjected to ethyl chloride anaesthesia.

I also endeavoured with the last eight patients to ascertain whether nerve blocking with 2 per cent. novocain would have any effect as an anaesthetic, or whether injecting the fluid into a septic limb would have any deleterious effect on the septic condition. I found, as the following case records show, that the injection of novocain appeared to have no markedly bad effect in delaying healing, but that as an anaesthetic it gave variable results.

Case 1.—A Chinese fireman with a temperature of 100° F., pulse 100, and a history of pain in the palm of the hand for three days. There was considerable swelling of the palm and some swelling on the dorsum of the hand, the greatest point of tenderness being situated between the fourth and fifth metacarpal bones in the palm. The patient was unable to flex his fingers himself, and the movement of flexion caused considerable pain. Around the ulnar nerve, just behind the internal epicondyle of the humerus, 3 c.cm. of 2 per cent. sterile novocain were injected, and after an interval of ten minutes a vertical incision 1½ inches in length was made over the part where there was most fluctuation. Pus was obtained. The patient appeared to feel a certain amount of pain, but less than with freezing.

After treatment with iodine baths and magnesium sulphate and glycerin dressings was adopted, the wound healed well, and the patient returned to duty in the stokehold on the eighth day.

Case 2.—A Chinese fireman, with cellulitis of foot, temperature 101° F., pulse 100. The whole of the dorsum of the foot was red and swollen, the ankle was oedematous and its contours were eliminated. Around the external popliteal nerve, just internal to the tendon of the biceps femoris in the popliteal space, 3 c.cm. of 2 per cent. novocain were injected, and after fifteen minutes a 2-inch incision was made on the dorsum of the foot. No pain was experienced from the incision and a serous discharge was obtained. The patient was treated by the method previously outlined. The temperature remained up to 100° for four days, but after that the wound healed well. All the swelling subsided by the eighth day, and he returned to work, attending for daily dressings until the tenth day, when the wound was healed.

Case 3.—A European steward with a subungual paronychia of five days' duration on the ring finger of the right hand. Temperature and pulse were normal. Around the digital nerves 2 c.cm. of 2 per cent. novocain were injected, giving complete anaesthesia at the end of ten minutes. The whole of the nail was removed and two vertical cuts were made, one on each side of the nail bed. A hydrogen peroxide gauze wick was inserted under the flap. The wound was treated with iodine baths and glycerin and magnesium sulphate dressings. The patient was irregular in his attendances, and was never off duty, sometimes washing plates with his bad hand; in spite of this the wound healed in twenty days.

Case 4.—A Chinese fireman with septic third digit of the right foot; the toe was swollen to nearly the size of the big toe. Around the external popliteal nerve 2 per cent. novocain was injected, and after twenty minutes the patient volunteered the statement, through the interpreter, "that his foot felt quite all right, and he would like to return to work." An incision 1½ inches long was made on the dorsum of the toe; no pain was experienced during the incision; the wound was treated as described above and the patient returned to work in eight days.

Cases 5 and 6.—Both of these patients had septic fingers with swelling most pronounced over the terminal phalanx. In each case incision was made under blocking of the digital nerves at both sides of the base of the proximal phalanx; no pain was experienced. Treatment was as before, and the patients returned to work respectively four and six days afterwards.

Case 7.—Septic palm of hand, more pronounced on the ulnar side, with considerable swelling on the palmar surface and slight oedema on the dorsum of the hand. Incision was made under blocking of the ulnar nerve, and caused slight pain. The wound was treated in the usual way, and the patient returned to work in nine days.

Case 8.—Septic hand, oedema of the back of hand and swelling of palm, most pronounced between the heads of the second and third metacarpal bones. The ulnar nerve was blocked behind the internal epicondyle of the humerus, and 2 c.cm. of 2 per cent. novocain were injected under the palmaris longus tendon, two inches proximal to the first transverse crease of the wrist, in an endeavour to block the median nerve. The incision gave no pain, the wound was treated in the usual way, and the patient returned to work in seven days.

General Conclusions.

With the exception of the one steward, who took twenty days before the wound healed, and one trimmer whose finger, originally opened under ethyl chloride anaesthesia, had to be reopened, and who took twelve days before returning to duty, no man was away from his work for more than nine days, most of them for less. I believe that Cases 1 and 7 experienced some pain at the moment of the incision because I failed to realize that the median and ulnar nerves intercommunicate in their nerve distribution to the palm of the hand. In Case 8, when I blocked both the median and ulnar nerves no pain was experienced from the incision. Although gas must remain the anaesthetic of choice for cases of septic hands or feet, for a doctor who is unable to obtain an anaesthetist, or for a patient who refuses a general anaesthetic, nerve blocking with novocain should prove a satisfactory substitute.

Directly pus has formed in any situation in the hand or foot it should be given an opportunity to escape by a free incision, and the operation should be undertaken deliberately and with no attempt at hurrying. If one operates under freezing, or without an anaesthetic, there is a tendency to hurry and perhaps an insufficient incision is made. If early and deliberate incisions are made, allowing free drainage, there is less likelihood of a whitlow progressing and becoming a suppurative teno-synovitis of the forearm, or causing an osteomyelitis of the phalanges or metacarpal bones.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

HAEMOPERITONEUM DUE TO SPONTANEOUS RUPTURE OF THE SPLENIC VEIN.

CASES of haemoperitoneum of unknown origin are not infrequently recorded in the literature. The following case, therefore, seems to merit publication, since such a condition was traceable to spontaneous rupture of the splenic vein associated with cirrhosis of the liver.

A woman, aged 38, was admitted to the Leeds General Infirmary at 10 a.m. on December 8th, 1928, having been seized with lower abdominal pain six hours earlier. She was extremely pale and restless; the pulse was 120, and the temperature 96° F. The respiration was slow and gasping; she was fully conscious. The abdomen was distended, and there was dullness to percussion in both flanks, but no evidence was obtained of uterine bleeding. A diagnosis of haemoperitoneum was made, the source of the haemorrhage being uncertain in view of the absence of amenorrhoea or any significant previous history. Immediate laparotomy was decided on, but unfortunately the patient died before this could be undertaken.

A post-mortem examination was made on December 10th. The abdomen was found to be full of blood, which was partly clotted, and had obviously come from the left upper abdomen. The liver was small (weight 25 oz.), and presented a grossly nodular surface. The spleen was considerably enlarged (weight 15 oz.); it was free from adhesions, and there was a single scar at the lower pole. On section it presented a normal appearance. The lesser sac contained a good deal of blood. The splenic vein was found to be enlarged, tortuous, and considerably thickened, having a mean diameter of about three-quarters of an inch. About half-way along its course there was a tiny rupture, approximately a sixteenth of an inch in diameter, which was the source of the peritoneal haemorrhage.

The liver showed a well-marked multilobular cirrhosis; there was little evidence of active destruction of liver tissue, but the fibrosis was unusually dense. The splenic pulp was increased. There was no evidence of syphilis in this case, nor was there any striking varicosity of the oesophageal or haemorrhoidal veins. The lenticular nuclei were normal.

The woman, a servant, had enjoyed apparent good health till three weeks before her death; during this period she had complained of indigestion. Her employer had noted an increasing mental dullness during the past year. It is of interest to note that several bottles of gin had been missed by her employer, and a bottle of brandy was found among the woman's possessions, but beyond this there was no definite history of alcoholism.

This complication of cirrhosis of the liver must be extremely rare, though peritoneal haemorrhages are recognized as a complication of cirrhosis by Osler¹ and others. Osler² mentions rupture of varicose veins as a cause of haemoperitoneum, and, quoting Ernst and Gammeltoft,³ states that trauma is an important factor. We could discover no history of trauma in this case. An apparently similar case has been recorded by Ogilvie.⁴

We wish to thank Dr. G. L. Neil for supplying the details of the patient's previous history, and Professor Carlton Oldfield for permission to publish this case.

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APPENDICITIS CAUSED BY BILHARZIA.

In the records of bilharzia lesions I have been unable to find any instance of appendicitis caused by this parasite. I venture, therefore, to bring forward details of such a case.

The patient, a male aged 24 years, a native of Tanta in the Nile Delta, came to this country in 1926 for educational purposes. He had had typical vesical bilharziasis in 1920. He then received the greater part of a course of injections (presumably of tartar emetic), but discontinued the course when the symptoms subsided. Although there was no recurrence he underwent a complete course of injections in 1926, before coming to this country, and was told that he could consider himself cured. He had never shown any signs of involvement of the intestinal tract.

He remained well until December, 1927, when he had an attack of abdominal pain with a rise in temperature (100° F.). The tenderness was not localized to any part of the abdomen. He was very constipated. Enemata relieved the condition at once. The temperature subsided and the abdominal symptoms disappeared. The spleen was not enlarged.

In March, 1928, he had a similar attack, though more severe. There was slight rigidity of the right rectus muscle, and the site of maximum tenderness was at McBurney's point. He was again very constipated, and when this was relieved by enemata all the symptoms subsided. The question of removing his appendix was discussed, but the operation was not performed.

On June 12th, 1928, a third and still more severe attack commenced. He had acute abdominal pain, at first round the umbilicus, but soon settling down in the right iliac fossa. There was rigidity of the right rectus muscle. The abdomen was distended. He vomited twice. In spite of previous warnings he was again very constipated. When enemata had been administered the acute symptoms subsided, but some tenderness and slight rigidity over the appendix persisted. Mr. T. Carwardine was called in, and it was decided to remove the appendix. The operation was performed on June 27th. The appendix was bright red and still showed signs of acute inflammation. Several small white nodules, similar to tubercles, were noticed on the serous aspect. Professor Walker Hall kindly examined the organ microscopically and reported that the appendicular wall showed areas of fibrosis and contained many ova of *Schistosoma haematobium*. Some of the older ova were calcified. Round the groups of ova were signs of acute inflammation, the tissues being infiltrated with small round cells and the blood vessels engorged. There was not any evidence of pyogenic organisms, or of tubercle or actinomycosis. The only apparent cause for the acute inflammatory attack was the ova of the parasite. The ova were seen passing through the mucosa, as well as blocking the lymph canals of the submucosa. Some had penetrated the muscular layer and occasioned the formation of round, fibrous, and calcified nodules just under the peritoneal surface. Examination of the urine and faeces showed no ova. The faeces contained a small quantity of blood and excess of mucus. The blood count showed a marked eosinophilia—12 per cent. of the total white count.

It follows from the fact that many of the ova seen in the sections are fresh that the patient is still harbouring active

¹ Osler and McCrac: *Modern Medicine*, third edition, vol. iii, 813.

² *Ibid.*, 907.

³ Ernst and Gammeltoft: *Acta Gyn. Scandinar.*, Upsala, 1921, 2, 104.

⁴ W. H. Ogilvie: *Guy's Hospital Reports*, 1922, lxxii, 219.