

from the seventh week to eleventh week, and has been observed as late as the one hundredth day (Curschmann). Holmes operated on one case after four months.

(2) The fact that no perforation was found. It is practically certain that a perforation had occurred, otherwise there would be nothing to account for the acute peritonitis which was present. It seems probable that there was a small perforation, and that this was sealed by a flake of lymph. The search was, however, extremely limited on account of the condition of the patient.

The success of the operation was probably due to: (a) The promptitude with which it was performed, to which the credit must be ascribed to Lieutenant C. J. Wyatt for calling attention to the urgency of the symptoms; (b) to the fact that no attempt was made to hunt for the perforation in a patient *in extremis* (much handling of the gut would probably have caused his death from shock); (c) to the free dilution of the toxins by saline solution; (d) the free pelvic drainage; (e) the post-operative position of the patient with the back well raised; this enabled the wound to drain well, and prevented the infection of the upper area of the abdomen.

THE ADMINISTRATION OF QUININE IN MALIGNANT AGUE.

BY CAPTAIN W. D. C. KELLY.

Royal Army Medical Corps.

QUININE no doubt has a specific action in malaria; whether it acts on the parasite when free in the plasma or in its intracellular existence is disputed. It does not cut short a cycle once begun, because the toxins are already liberated, but inhibits the formation of a new cycle.

In malignant malaria, at all events, there is no doubt that the intramuscular method of giving quinine is far and away the best. The method adopted is to give three injections of 8 grains each into the buttock on three successive days. This is enough to cut short the fever in the vast majority of cases; a fourth may be necessary. No more injections are given until the periodic rise is expected. From the observation of a number of charts this rise takes place about the tenth day after the last day of fever, and therefore I give an injection about the eighth and ninth day. What it comes to is that you anticipate your attack and cut it short. When one comes to consider the action of quinine and the condition of a malarial cachectic, it is nothing short of criminal to indiscriminately administer quinine in large doses; in fact, it only aggravates the condition.

How does quinine act? It is taken up by the blood as the hydrochloride, and excreted by the kidneys alone as the amorphous alkaloid (Mitchell Bruce). One of its main actions in the blood is to inhibit

oxygenation, and that is the very thing that is at fault in a malarial cachectic—deficient hæmoglobin, and consequently deficient oxygenation. Therefore, you are adding coals to the fire by giving quinine unnecessarily, and I do not think it is of any use in the quiescent stage of the fever. Apparently the reason why intramuscular injection acts so beneficially is that you have a prolonged administration of a small dose, because, although it is injected into the muscle in solution, this solution is saturated and of great density, and is not taken up as such, the quinine recrystallising. Again, it gives rise to no toxic symptoms.

Acting on these lines I give three injections of quinine at the height of the fever, followed by an injection once a week for six weeks. It is not claimed that this treatment is a specific for malignant malaria, it does not in all cases completely control the temperature, but each attack is less and less severe, until finally the period is only indicated by a slight elevation of temperature, say to 100° F. for the evening.

To say that quinine is useless in malignant malaria is a fallacy arising from its improper use. Quinine is of use, and acts by holding in check the parasite until the general health is improved.

Malarial Cachexia.—The disease is primarily an anæmia—a secondary anæmia due to the destruction of red blood corpuscles and consequently hæmoglobin. In a mild case you have all the phenomena of anæmia one sees so frequently at home in girls. In the more advanced cases scorbutic symptoms develop, with ulceration of mouth, spongy gums, hæmorrhages, &c. Although in the acute stage there has been an acute splenitis in many cases, one rarely sees a large spleen in the malarial cachectic of this locality (Rawal Pindi).

Treatment.—Treat the primary cause with quinine, as already described, and treat the anæmia by the administration of iron, which to be of any use must be given in large doses combined with a purgative. I find the following treatment gives excellent results:—

℞	Mag. sulph.	ʒi.
	Ferri sulph.	ʒiij.
	Acid sulph. dil.	ʒxii.
	Infus. quassia. ad.	ʒi.

ʒi. three times a day, after food.

℞ Pil Blandii, 1 t.d.s., after food, to be increased by one pill every second day until he is taking 4 t.d.s.

Besides this drug treatment of cachectics a liberal diet is given with plenty of fresh vegetables and fruits, and the risks of over fatigue and exposure to cold are guarded against.

Calcium Chloride.—Another drug that has been tried in all these cases of a hæmorrhagic tendency, or where there is a diarrhœic tendency, with such successful results that it is worthy of mention, is calcium chloride given in 10-grain doses for three to six or seven days, depending on the severity of symptoms. It has been given on the assumption that there

is a low coagulative power of the blood. I am unable to verify this by laboratory experiments, but, clinically, there would appear to be no doubt as to its value.

CASE OF HYDATID DISEASE OF THE FEMUR.

BY CAPTAIN S. L. CUMMINS.
Royal Army Medical Corps.

No. 2253, Nafer Sayed Sulieman, 9th Sudanese Battalion, was invalided from the Bahr-el-Ghazal and admitted to Khartoum Hospital early in October, 1905. On admission he was found to be suffering from an ununited fracture of the lower third of the right thigh. The bone of the lower fragment to as far as just above the condyles of the femur was felt to be thickened, which was attributed to callus.

His history was as follows: Three months before, while working at a "shadoof" (an apparatus for raising water for irrigation of land), he had fallen through its aperture for a distance of about twelve feet, sustaining a fracture of the right thigh, which he himself attributed to a mass of clay falling upon him. The fracture was set but did not unite, and, as I have since learnt, Major Bray, R.A.M.C., who saw the case while in the Bahr-el-Ghazal, discovered a thickening of the lower fragment which, he considered, might possibly be due to a malignant new growth, to which he also was inclined to attribute the non-union of the fracture.

On arrival at Khartoum his condition was as follows: A considerable thickening around the fracture. No fluctuation. No general wasting. Marked crepitus on manipulation. About one inch of shortening. No rise in temperature. It was decided to refresh the ends of the bone by rubbing them together under an anæsthetic, and to put the limb in plaster of Paris. This was done, but the fracture remained ununited at the end of six weeks. An operation for wiring was suggested to the patient, but refused, so a fresh effort was made to obtain union, the fracture being put up on a Liston's splint, with extension by weights. This proving futile, an operation was again suggested and accepted.

On January 13th, 1906, assisted by Captain Thomson, R.A.M.C., I cut down upon the bone with a view to wiring the fragments together, and found the following condition: A fracture existed half a hand's breadth above the knee-joint. What appeared to be a second and partial fracture was found about $1\frac{1}{2}$ inches higher up, being a breach of continuity in the antero-external surface of the bone, about $\frac{1}{4}$ inch in extent. On attempting to bore through the bone for the passing of the wires it was found to be brittle, and the medullary cavity was found to contain enormous numbers of cysts, varying from the size of a pea to that of a sparrow's egg, and being obviously hydatidiform in nature. These