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Filariasis is an important monkey disease in Panama (Clark, 1931). It is present in practically every adult monkey caught in the jungle yet the marmosets (*Saimiri örstedii örstedii* and *Leontocebus geoffroyi*) as well as the night monkey (*Aotus zonalis* Goldman) fail at autopsy examinations to show the adult parasites in any of the serous cavities as is commonly the case with other local species of monkeys. Faust (1930) learned recently that the adult parasites were located in the muscles of the back of the squirrel monkey, *Leontocebus geoffroyi* (Pucheran). This is a titi or marmoset monkey found in great numbers in Panama. Although the adult filarial parasites may be present in great numbers in the musculature of these small monkeys, it is a time consuming task to find and remove them without injury to the parasites.

One of these squirrel monkeys (Lab. No. 59) had been kept under observation at this laboratory for several months and during this period abundant microfilaria were found in its blood films at each examination. This animal died of another disease and a careful autopsy examination revealed no adult filarial parasites in the cavities. Following the advice of Faust the musculature was shredded and a number of these worms were found in the back and thighs but it was impossible to remove them without breaking them into many fragments. They measured from 85 to 90 mm. in length and were very slender and so thoroughly embedded in the muscle tissue that when one was grasped with forceps and an attempt made to pull it out fragmentation of the parasite resulted. Only one unbroken specimen was secured from this animal and it was obtained after considerable time had been spent extracting it.

A second monkey of the same species (Lab. No. 42) that had shown abundant microfilaria in its blood films for a long time was found in a dying condition, the result of a spirochetosis. The laboratory wanted to examine the musculature of this animal immediately after death in order to obtain as many adult filarial parasites as possible from the fresh tissues. It was chloroformed and the following method employed to secure unharmed parasites. The skin was removed from the monkey immediately after its death. The feet were cut off and the viscera removed from the thorax and abdomen. The body was left to cool for a few minutes and then the blunt handle of a scalpel was employed to

tear the muscle groups apart in the back and extremities. The carcass was then placed in a glass dish containing about two liters of approximately normal salt solution heated to a temperature of a little more than 99°F. Very soon after the carcass was placed in this solution the filaria began to emerge from the tissues and twenty minutes later a number of them were protruding until nearly their full lengths were moving about in the liquid. By grasping them lightly with forceps only very gentle traction was necessary to separate them entirely from the muscles so that they could be removed from the salt solution and transferred to a fixing fluid. The dish containing the carcass was now placed in an incubator to raise the temperature of the fluid to slightly more than 99°F. This second heating seemed to hasten the emergence of some of the worms that were slow in leaving the tissues. The dish was removed from the incubator at the end of thirty minutes and several more of the thread like worms were found floating about in the fluid but still lightly attached to the carcass. A total of nineteen specimens of adult filaria were obtained from this animal. Six of these consisted of three pairs that emereged from the tissues while in copulation and they remained in this state until killed by the fixing fluid. Pairs of these parasites in copulation could hardy have been secured by simply pulling them from the tissues with forceps. The method has been further simplified recently. The dish of saline solution is now placed in the incubator as soon as the carcass has been immersed and allowed to remain there at a temperature of 99°F. from two to four hours. This causes some of the filaria to leave the carcass entirely and they may be found moving about in the fluid or coiled on the bottom of the dish. It is better to wash the carcass with water to remove all blood before it is immersed in the saline solution. This prevents the latter from being discolored and the worms are easily seen and removed.

The use of the warm saline solution bath has proved to be very successful in the collection of unharmed adult filarial parasites. The same method will be given a trial in the collection of other forms of endoparasites.

References

Clark, H. C. 1931.—Progress in the Survey for Blood Parasites of the Wild Monkeys of Panama. Amer. Jour. Trop. Med., 11:11-20.

Faust, Ernest Carroll. 1930.—Letter to Gorgas Memorial Laboratory, September 27, 1930. Department of Tropical Medicine, the Tulane University of Louisiana, New Orleans, La.