

IX.—MYIASIS DERMATOSA

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Myiasis dermatosa is an affection of the skin caused by the development of larvae deposited, probably by mosquitoes, in the skin of the animal and human body. The disease is of sufficient rarity in our community to warrant the record of our case.

REPORT OF CASE

History.—B. W., aged 24, applied for treatment, Aug. 13, 1914. He stated that he came for the removal of larvae from his skin, probably the result of fly bites acquired during a visit in Yucatan, from whence he had just returned. He was in splendid health, except for the skin affection.

The two lesions he presented appeared about six weeks before as two small red nodules, slightly pruritic but not painful. One was situated in the median line of the back over the last lumbar vertebra and the other, 3 inches to the right and 2 inches higher, in the right lumbar region. About a week previously each lesion had developed a necrotic center from which there was exuding a thin mucopurulent discharge.

At a glance each lesion resembled an ordinary furuncle with a small central necrosis. The lesions were red, inflamed, and about the size of a walnut. Close inspection revealed a moving organism which constantly plugged the necrotic opening in each lesion. The openings were about $\frac{1}{16}$ inch in diameter. Inserting a probe gently caused the organisms to recede suddenly, apparently leaving a hollow round cavity, but, as soon as the probe was withdrawn, they immediately reappeared at the opening. The only discomfort the patient suffered was pruritus, slight pain on pressure, and great mental discomfort from the knowledge of their presence.

Treatment.—An incision was made under local anesthesia and each of the lesions yielded a large larva. Unfortunately they were both slightly ruptured during removal. The lesions were entirely healed within a week and he had no further trouble. An easier method of destruction would have been the application of pure carbolic acid in the necrotic opening.

Blood Count.—A white blood count was made on the day of the first examination and again fifteen days after removal of the larvae. The total count

* Studies, reports and observations from the dermatological departments of the Barnard Free Skin and Cancer Hospital and the School of Medicine, Washington University, St. Louis, Mo., U. S. A., service of Drs. M. F. Engman and W. H. Mook.

was not changed, being about 10,500 at both times, but the differential count is submitted as a matter of interest:

	Date	
	8/13/19 Before Removal, Per Cent.	8/27/19 After Removal, Per Cent.
Polymorphonuclears	69	75
Transitionals	1	2
Large mononuclears.....	3.5	3.5
Lymphocytes	21	17
Eosinophils	5.5	2.5
Basophils	0	0

The point of interest in the blood picture is the reduction of eosinophils from 5.5 per cent. to 2.5 per cent. fifteen days after the removal of the larvae.

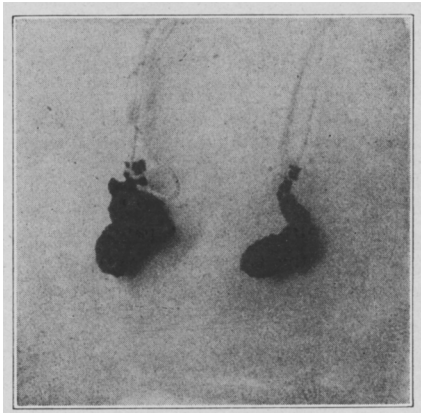


Fig. 1.—Larvae, *Dermatobia hominis*, removed from myiasis tumors—about actual size.

ETIOLOGY OF THE DISEASE

The patient dictated this statement regarding the affection and the country in which he acquired it:

This worm is colloquially called the beef-worm and appears in the western part of the peninsula of Yucatan—Teratorio de Quintana Roo—Mexico, in British Honduras, and further south, I judge, through all the mahogany country. It seems to appear in, or on, people engaged in mahogany camps and correlated works, and in the cattle used in the work. People who live in the larger towns and who do not visit the works in the bush, are seldom, if ever, attacked.

The popular belief as to the cause is that they are larvae from the eggs deposited by one of the many flies that infest the cattle camps; it is also claimed that men who wear woolen jerseys are most susceptible. Both of these claims are disputed and the latter really seems to be untenable, but probably gained credence through the fact that so many of the men wore jerseys in the bush all the time. The former theory seems to fail under the fact that

many people develop beef-worm in places where it would be almost impossible for flies to bite, that is, under the belt, etc., as each man gets under his net as soon as his clothes are removed. In my own case, I was in a mahogany camp but three or four hours and removed no part of my clothing.

To my knowledge, one has never been allowed to develop beyond the larval stage but the general belief is that they will turn into flies if permitted to develop. The community knowledge is that there seems to be no limit as to the number of the larvae that can appear on a man and they may appear on all parts of his body. On some persons they seem to have only a slight effect, as in my own case; about the only evidence they gave of their presence, aside

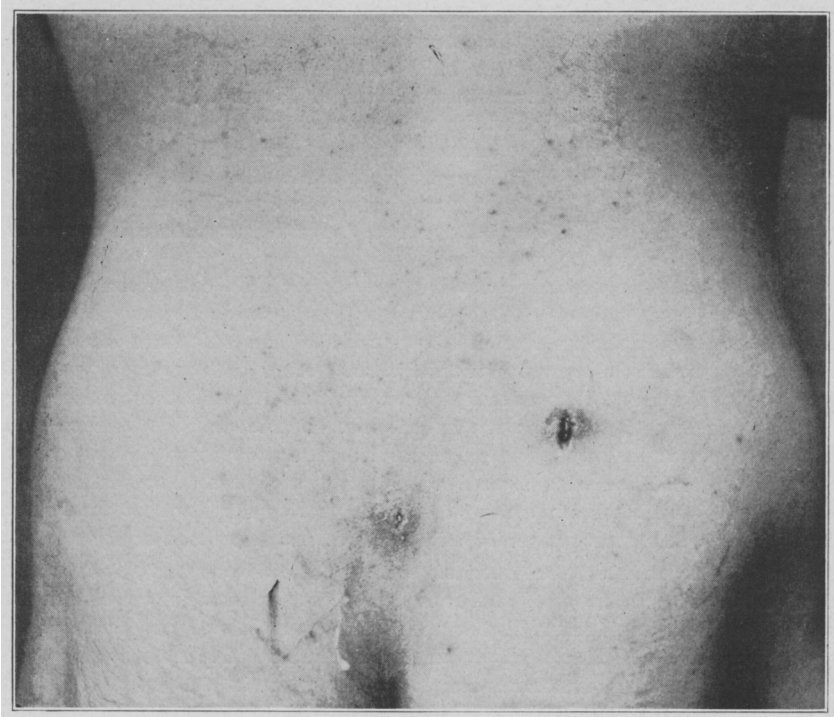


Fig. 2.—Furuncle-like lesions as seen the day after the removal of the larvae.

from the marks on the skin, was occasional itching. On other people I have seen them have a very different effect. The places swell up and may become extremely painful. Usually the natives pay very little attention to them and, outside of the few minutes of actual pain while taking them out, they do no harm.

The usual method of removal is by placing a tobacco leaf or a piece of adhesive plaster over the hole at night thus killing the larva and then, by pressure, taking it out in the morning.

Both larvae were sent to Dr. Frederick Knab, U. S. Department of Agriculture, Bureau of Entomology, U. S. Natural Museum. He replied:

I have shown the larva to Dr. C. H. T. Townsend, our specialist in muscoidean flies, and he tells me that it is the third (last) stage larva of *Dermatobia hominis* (Linnaeus Jun., 1781). This species is frequently mentioned in the literature under the names *Dermatobia cyanivantris* (Macquart, 1843) and *Dermatobia noxialis* (Goudot, 1845); all three names refer to the same insect, the oldest one being the proper one to use according to the rule of priority.

This fly, in the larva state, is a natural parasite of mammals and has been reported from a considerable number of different hosts. In some of the cattle-raising sections of the American tropics this parasite by its frequent infestation of cattle causes considerable economic loss, the hides being greatly depreciated in value by the numerous larval perforations. Infestation of man is a common occurrence in the tropics, and a considerable number of larvae, each in its own tumor, may occur in one individual. In the natural course of events, larvae infesting man are extracted and destroyed. However, a few years ago, one of our men, having become infested in Panama, allowed a larva to remain in his arm until mature and he succeeded in rearing a fly from it (see August Busck: "On the Rearing of a *Dermatobia hominis* Linnaeus," Proc. Entom. Soc. Wash. 14:9, 1912). This specimen agrees in every respect with others reared from cattle, so the idea, at one time prevalent, that there is a species peculiar to man cannot be entertained.

The larvae always occur in cysts just beneath the skin, communication with the outer air being maintained through a small perforation; through this opening the larva protrudes its attenuated posterior end on which are located the spiracles or breathing organs. Infestation may occur on almost any part of the body surface, and is not induced by a previous lesion but occurs in perfectly healthy individuals with unabraded skin. The mode of infestation has, until quite recently, been quite unknown, but it now appears that it occurs through the mediation of a mosquito. The eggs are attached to the body of the mosquito and hatch while the mosquito is sucking the blood of the future host. I forward a recent paper of mine that reviews this phase of the subject.

Dermatobia should not be confused with the "screw-worm fly" (*Cochliomyia macellaria* Fab.) and others of similar habits. These latter are attracted to open sores, bloody or ill-smelling discharges of nose, mouth, etc., and their larvae are to be considered scavengers rather than parasites. In fact, they oviposit as readily in putrid substances and on cadavers as in the sores of living animals.

Dr. Knab's statement that the mode of infestation occurs through the mediation of the mosquito is new and interesting. He states that "the eggs are attached to the body of the mosquito and hatch while the mosquito is sucking the blood of the future host." In an admirable paper on "Egg-Disposal in *Dermatobia Hominis*,"¹ he relates the experiments proving the assertion. Dr. Townsend, discussing his paper, suggested "that the female *Dermatobia* was probably led, through an olfactory tropism, to oviposit upon the body of the carrier; that the eggs were incubated in the uterus and contained the fully

1. Knab: Egg-Disposal in *Dermatobia Hominis*, Proc. Entom. Soc. 18:179, No. 3, 1916.

formed maggot at the time of deposition; that the maggot was led, through a positive thermotropism, to escape from the chorion at the time that the carrier imbibes a meal of warm blood; and that the maggot is unable to penetrate thick skin itself, but must enter the puncture made by the carrier, being perhaps guided thereto by the odor of the serous exudation following the withdrawal of the carrier's proboscis."

The patient's statement that the worm is colloquially called "beef-worm" coincides with Dr. Knab's opinion that the larvae we sent to him for examination agrees in every respect with others reared from cattle, and therefore the species is not peculiar to man. Strauch² reports a similar case with literature and discussion of its occurrence in animals.

2. Strauch: J. Cutan. Dis. **34**:522, 1916