Technical Papers

The Relationship Between *Trichobilharzia oregonensis* and *T. elvae*, Etiological Agents of Schistosome Dermatitis in the Pacific Northwest[1]

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Considerable confusion exists as to the status of various European and American species of schistosomes which cause dermatitis in man. Technical difficulties involved in experimental work, especially the recovery of intact adult worms, are largely responsible for this state of affairs. Recently we have been able to clarify the relationship between two species found in the Pacific Northwest.

In 1946, *Cercaria oregonensis* was described as a new species of schistosome found at Portland, Oregon, capable of producing dermatitis in man (*1*). Although this cercaria is similar to that of *Trichobilharzia elvae* Miller, there are certain minor differences in measurements and behavior, and the snail host is *Physa ampullaria* instead of *Lymnaea stagnalis* and *Stagnicola palustris elodes* which are hosts of the former species. If *T. elvae* is synonymous with *T. ocellata*, as believed by McMullen and Beaver (*2*), then this species is found in Europe, in addition to a wide North American geographical range.

Snails infected with *Trichobilharzia elvae* were transported more than 300 miles from Cascade Lake on Orcas Island, Puget Sound, Washington, where one of us (R. W. M.) has studied the biology of the species (*3*). A series of Pekin ducklings was infected with cercariae of *T. elvae* from *Lymnaea stagnalis* and a second group of these birds was given cercariae of *T. oregonensis* from naturally infected *Physa* snails collected at Portland, Oregon. Representative cercariae from each snail were measured in order to exclude the possibility of mixed infections, especially with *T. physellae* which sometimes occurs in *Physa* in the vicinity of Portland.

As indicated by the use of McMullen-Beaver flasks (*2*), about two weeks were required for the maturation of both species of worms. Eggs of *T. elvae* imbedded in the intestinal wall of the ducks showed the typical curved axis, producing a moon shape, whereas those of *T. oregonensis* were found to be more nearly straight and closely resembled those of *T. physellae*. However both the adults and cercariae are strikingly different from those of the latter species. The small cercaria of *T. physellae*, which we have studied here, has fewer flame cells than those of either *T. elvae* or *T. oregonensis* and closely fits the description given by Talbot (*4*) for *T. elvae*.

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Adults of *Trichobilharzia oregonensis*, some of them undamaged, were laboriously recovered in small numbers from the venules of the intestinal wall of the ducklings and were found to differ markedly from those of *T. elvae* as described by McMullen and Beaver. Although the average body length is only a little larger than that of *T. elvae*, the acetabulum of *T. oregonensis* averages 0.046 mm in diameter, approximately the same as the oral sucker, and is about three to four times the diameter of the acetabulum of the former species. Further, the seminal vesicle of the male is followed by a still longer, similar structure, bordered on the posterior end by a prostate mass, and probably therefore is a very elongate cirrus sac. These relationships were constant in six males examined.

Our work clearly demonstrates that at least three distinct species of *Trichobilharzia* occur in the Pacific Northwest. Further details will be published elsewhere.

References

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Estrogenic Activity in a Commercial Animal Ration

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In the course of some experimental work involving castrated mice during the past year, it became apparent that the animals were showing the presence of an appreciable amount of estrogen. Observations revealed that the vaginal smears of these mice contained many cornified cells. Examination of the uteri of representative mice taken from a group of 100 castrated animals revealed uterine weights of more than 40 mg. Since it had been previously demonstrated in our colony that the uteri of mice castrated for about 2 wk weighed approximately 12 mg, it was apparent that the animals were being exposed to an estrogen.

These observations led us to suspect the presence of an estrogen in the food and as a result the mice were placed on a new commercial ration (A). Following this change in diet the vaginal smear became negative and contained only leucocytes and an occasional epithelial cell. In order to prove the source of the estrogen, 1 kg of the suspected diet (B) was extracted with petroleum ether and taken up in 30 ml of oil. The material was then tested for estrogenic activity by the uterine weight method, using castrated mice.