

DEVELOPMENT OF ADULT *ECHINOCOCCUS OLIGARTHUS*
FROM HYDATIDS OF NATURALLY INFECTED AGOUTIS

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Development of Adult *Echinococcus oligarthrus* from Hydatids of Naturally Infected Agoutis

The name *Echinococcus cruzi* was applied by Brumpt and Joyeux (1924, Ann. Parasit. 2: 226-231) to hydatids found in the spleen comparable to hydatids (*E. cruzi*) from Brazilian agoutis. The number of hooks varied from 32 to 36, with the large hooks measuring

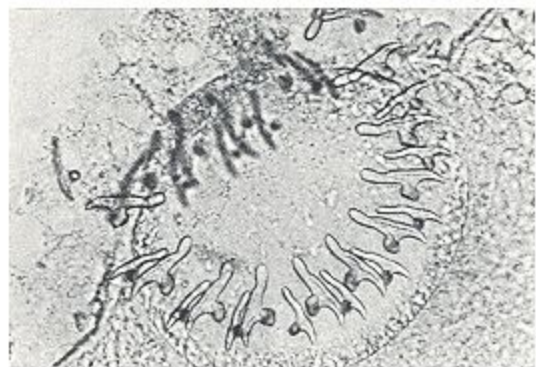


FIGURE 1. Rostellar hooks of experimentally induced *E. oligarthrus* in the cat. Fresh mount, unstained ($\times 200$).

and liver of one of four Brazilian agoutis (*Dasyprocta agouti* L.) examined from Albuquerque Lins in the State of Sao Paulo. The description of this species was based entirely on the morphology of the cyst, intermediate host, and geographic area. Cameron (1926, J. Helm. 4: 13-22), considering the geographic distribution of hosts and some aspects of hook morphology, concluded that *E. cruzi* was a synonym of *E. oligarthrus* (Diesing, 1863). However, no direct evidence existed to demonstrate the validity of the synonymy. Recently, Thatcher and Sousa (1966, Ann. Trop. Med. Parasit. 60: 405-416) pointed out the need for experimental life-cycle studies to define the biological characteristics of *E. oligarthrus*, and its true relationship with *E. cruzi*. Natural hydatid infections in agoutis (*Dasyprocta rubrata*) have also been recorded by Vogelsang and Barnola (1956, Arch. Internat. Hidatidosis 16: 159) in Venezuela. Sousa and Thatcher (1969, Ann. Trop. Med. Parasit., in press) recorded natural hydatid infections in agoutis (*Dasyprocta punctata* Gray) from Panama and demonstrated experimentally that the Panamanian agouti is susceptible to infection with fertile eggs of *E. oligarthrus* from the puma (*Felis concolor* L.). Although it is well established that hydatids from Brazilian agoutis (*E. cruzi*) and those of Panamanian agoutis (*E. oligarthrus*) share common morphological features, there is no evidence that indicates natural hydatids of wild agoutis develop into adult worms conspecific with *E. oligarthrus*. This report represents the first record of the development of adult *Echino-*

coccus from hydatid material found in naturally infected agoutis (*D. punctata*) of Panama.

An adult female agouti caught in the Achioté area (Colon Province, Republic of Panama) harbored two hydatid cysts in the right scapular muscles and in the left flank. The liver, spleen, kidneys, heart, and diaphragm were free of hydatids. The external appearance of the cysts was vesicular, but sectioning revealed a multichambered, septate, internal organization. The cysts were fertile, 10 to 18 mm in length, with more than 100 brood capsules and clumps of protoscolexes.

The hydatids were morphologically similar to those found in experimental *E. oligarthrus* infections (Sousa and Thatcher, loc. cit.) and 32 to 40 μ and the small hooks 27 to 35 μ . The scoleces measured 112 to 126 μ in length and 82 to 84 μ in width.

Because there is no information available on the characters of adult *Echinococcus* derived from naturally acquired hydatids in agoutis, we attempted to infect laboratory animals with the material found in the agouti from the Achioté area in Panama. A laboratory-reared house cat (*Felis catus*), fed a cyst, was killed 121 days after exposure. During this period, no eggs were detected in the feces. On autopsy, over 1,000 adult worms were recovered from the small intestine. The heaviest concentration was found about 30 cm from the pylorus. Most of the worms had only one or two segments, although some with both mature and gravid segments were observed.

The large and small hooks measured 54 to 56 μ and 43 to 45 μ , respectively, and possessed narrow handles and short blades. The morphology of the rostellar hooks (Fig. 1), the mature segment, and the gravid proglottids corresponds to that of adult *E. oligarthrus*.

Recently, another infected agouti was collected in the Achioté area. It was found to harbor a hydatid cyst in the liver. We have no knowledge of a previous observation of hepatic hydatids in *D. punctata*.

This is the first record of the development of adult *E. oligarthrus* from hydatids in wild agoutis, and provides further evidence that *E. cruzi* is a synonym of *E. oligarthrus*.