

RESEARCH NOTE

Presence of *Echinococcus oligarthrus* (Diesing, 1863) Lühe, 1910 in *Lynx rufus texensis* Allen, 1895 from San Fernando, Tamaulipas State, in north-east Mexico

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Abstract—Salinas-López N., Jiménez-Guzmán F. & Cruz-Reyes A. 1996. Presence of *Echinococcus oligarthrus* (Diesing, 1863) Lühe, 1910 in *Lynx rufus texensis* Allen, 1895 from San Fernando, Tamaulipas State, in north-east Mexico. *International Journal for Parasitology* 26: 793–796. A bobcat was found recently killed on “Highway 101” near the town of San Fernando, Tamaulipas State, Mexico (100 km south of Brownsville, TX, U.S.A.). The cat (*Lynx rufus texensis*) was parasitized by several species of nematodes and trematodes, but mainly by a cestode, *Echinococcus oligarthrus*. The diagnostic characteristics of this cestode are described and illustrated. *E. oligarthrus* has not been reported previously in North America. This is the first time that the strobilar stage has been recovered from a “bobcat”. A potential public health problem may be raised by the presence of this cestode in Mexico. Copyright © 1996 Australian Society for Parasitology. Published by Elsevier Science Ltd.

Key words: *Echinococcus oligarthrus*; bobcat; *Lynx rufus texensis*; Mexico.

Specimens of a cestode identified as *Echinococcus oligarthrus* (Diesing, 1863) Lühe, 1910 were recovered from the small intestine of a single bobcat *Lynx rufus texensis* Allen, 1895 (Hall, 1921). This feline was a road-killed specimen which was found on Highway 101, near San Fernando, Tamaulipas State, Mexico, about 100-km south of Brownsville, TX, U.S.A. The animal, a sexually mature male, harboured hundreds of minute strobilae, most of them gravid, in the small intestine, when examined later the same day. The mucosa of the small intestine was

scraped out, and then washed in normal saline solution. Half of the strobilae were fixed in 10% formalin and the other half were fixed in AFA solution (alcohol-formalin-acetic acid) (Fig. 1); some were flattened between 2 glass slides (Fig. 2). The tapeworms were stained routinely with a hematoxylin technique and with Gomori's trichrome stain. The drawings of the hooks (Fig. 3) were made with the aid of a camera lucida.

Nematodes and trematodes were also found in the small intestine; they are not reported in this paper. The dimensions of *E. oligarthrus* are given in Table 1.

Characteristics and measurements of the strobilae were compared with those given by Thatcher & Sousa (1966) obtained from specimens found in *Felis*

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Fig. 1. Photomicrograph of *Echinococcus oligarthrus* (Diesing, 1863) Lühe, 1910. Entire worm. Scale bar=0.546 mm.

concolor ("puma") from Panama. The data given by Brenes-Madrugal *et al.* (1973), Sousa (1970) and Sousa & Thatcher (1969) are similar to ours. D'Alessandro *et al.* (1981) reported the presence of *E. Oligarthrus* in ocelots, jaguarundi cats and puma from Columbia.

The characteristics of the hooks are quite similar to those presented by Rausch, Rausch & D'Alessandro (1978) and Rausch, D'Alessandro & Ohbayashi (1984), even though only the larval cestode was studied in those reports.

The cestode was identified as *E. oligarthrus*, despite some minor differences in total length, number of testes and size of the large and small hooks.

When the above specimens were compared with Mexican specimens of *E. granulatus* from natural and experimental infections, there were marked differences in total length, ratio of dimensions of gravid proglottids and shape and size of the hooks. A distinctive anatomical characteristic is the ratio of the length of the gravid proglottid to the total length of the strobila, the gravid proglottid always being longer than the rest of the strobila and the scolex together. The number, shape and size of the hooks are similar to those reported by most of the authors mentioned above. *L. rufus texensis* is identified for the first time as the final host of *E. oligarthrus*. This report extends northward the known geographic range of the species.

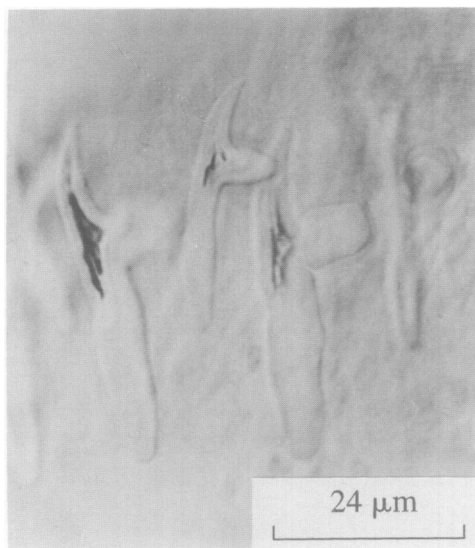


Fig. 2. Photomicrograph of *E. oligarthrus* small and large hooks by squash. Scale bar=24 μm .

Previously, the northernmost report of this cestode was from Panama by Thatcher & Sousa (1966). Our finding of *E. oligarthrus* in the Nearctic Region extends northward by several hundred kilometers the known geographic distribution of this cestode. While this species of *Echinococcus* has been recovered from humans, only 2 cases are known (Lopera *et al.*, 1989; D'Alessandro *et al.*, 1995). Of the studies of parasites of bobcats that have been published (McLaughlin *et al.*, 1993; Smith *et al.*, 1986; Tiekotter, 1985; Watson, Nettles & Davison, 1981), none reported the presence of *E. oligarthrus*. Our results indicate that additional surveys of felids in the northern Neotropical Region must be undertaken before we can understand the biogeography of this potential zoonotic disease.

Voucher specimens were deposited as Number 2629 in the Helminthological Collection of the "Instituto de Biología, Universidad Nacional Autónoma de México", Apartado Postal 70-153, 04510, Mexico, D. F. Mexico. The skull and skin of

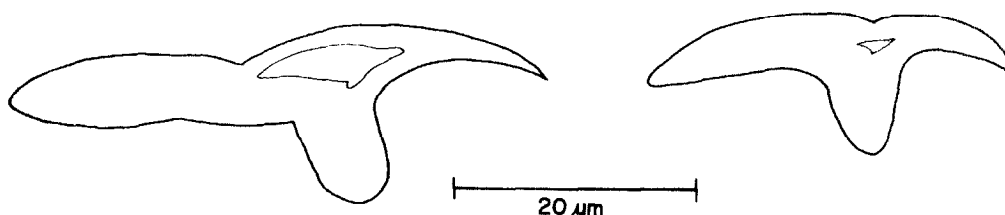


Fig. 3. Drawing of *E. oligarthrus* large and small hooks. Scale bar=20 μm .

Table 1—Measurements of *Echinococcus oligarthrus* recovered from a bobcat (*Lynx rufus texensis*) from San Fernando, Tamaulipas State, Mexico, compared to those given by Thatcher & Sousa (1966)

Measurements of <i>Echinococcus oligarthrus</i> ^a	Data from this study (10 specimens measured)		Data from Thatcher & Sousa (1966)	
	Range	Mean	Range	Mean
Total length	2315–2978	2612	2200–2930	2520
Length of the gravid proglottid	1326–1683	1462	1150–1650	1370
Length ratio of gravid proglottid	0.54–0.60	0.56	—	—
Distance from the genital pore to the anterior end (mature proglottid)	163–255	214	130–240	190
Number of testes	8–24	13	15–46	—
Length \times width of cirrus sac	71–173 \times 30–51	115 \times 38	90–41 \times 140–55	110 \times 50
Number of uterine branches	13–16	14	saccular	saccular
Total number of hooks	26–27	26.5	26–40	—
Large hooks				
Total length	38–44	42	43–60	52
Length of handle	22–28	25	11–30	21
Length of blade	16–19	17	29–34	31
Small hooks				
Total length	32–36	34.3	28–45	39
Length of handle	16–19	17.3	5–20	12
Length of blade	16–19	17	21–30	26

^aMeasurements in μm .

the host were deposited in the Mammal Collection of the "Facultad de Ciencias Biológicas, Universidad Autónoma de Nuevo León", San Nicolas de los Garza, 64320, Nuevo Leon, Mexico.

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