

Research note

First report of *Gongylonema pithyusensis* (Nematoda: Gongylonematidae) in continental Europe

J.G. ESTEBAN, M.V. FUENTES, C. MUÑOZ-ANTOLI, S. SAEZ, M. TRELIS

Departamento de Parasitología, Facultad de Farmacia, Universidad de Valencia, Av. Vicente Andrés Estellés s/n, 46100 Burjassot -Valencia, Spain, E-mail: Jguillermo.Esteban@uv.es

Summary

Gongylonema pithyusensis Mas-Coma, 1977 was identified in a specimen of Garden dormouse *Eliomys quercinus* (Linnaeus, 1766) (Rodentia: Gliridae) from Sierra Espuña (Murcia, Spain). The morphometry of the parasites is described and the geographical distribution of this nematode is discussed according to the available updated data. This is the first time that this parasite has been recorded in continental Europe.

Key words: *Gongylonema pithyusensis*; Nematoda; *Eliomys quercinus*; Sierra Espuña; Spain

Introduction

During studies on the helminthfauna of small mammals (insectivores and rodents) of the Iberian Peninsula several specimens (one male and five females) belonging to the genus *Gongylonema* Molin, 1857 were found in the mucosa of the oesophagus of one specimen of garden dormouse *Eliomys quercinus* (Linnaeus, 1766) (Rodentia: Gliridae) coming from Sierra Espuña (Murcia, Spain). The species was identified as *Gongylonema pithyusensis* Mas-Coma, 1977 and this report is the first occurrence in continental Europe.

Material and Methods

A study was based on examinations of 7 *E. quercinus* trapped in the Sierra Espuña regional Park (1°28' – 1°35' longitude W / 37°46' – 37°55' latitude N, Murcia, Spain) under the supervision of the competent authorities of the Comunidad Autónoma de Murcia. Nematodes were collected live from the oesophagus of *E. quercinus* and were fixed in hot 70 % ethanol and cleared with lactophenol for light microscopy. The figure was drawn with the aid of a camera lucida and all the measurements are given in micrometers.

Results and Discussion

The study of the total *E. quercinus* specimens analysed allowed us to detect a helminth community comprising one trematode species from gall bladder and three nematode species, one from oesophagus and two from small intestine.

The most relevant measurements of 6 (one male and 5 females) oesophagus nematode species collected from only one garden dormouse specimen are:

Female: Body length 14.910 – 20.228. Body width 26 – 31 at cephalic level, 54 – 63 at pharynx end, 71 – 103 at posterior end of oesophagus and 66 – 77 at anal level. Deirids, nerve-ring and excretory pore situated 140 – 145, 231 – 237 and 322 – 410, respectively, from anterior extremity (Fig. 1A). Pharynx 37 x 6. Muscular and glandular portions of oesophagus 345 – 425 x 43 – 48 and 2.183 – 2.355 x 128 – 137. Tail rounded, 171 – 180 long. Vulva situated in slightly narrowing of body, 734 – 1.076 from posterior extremity (Fig. 1B). Eggs thick-shelled, embryonated, 48 – 54 x 31 – 34.

Male: Body length 4.639. Body width 20 at cephalic extremity, 34 at pharynx end, 100 at oesophagus end and 63 at cloacal level. Deirids, nerve-ring and excretory pore located 114, 157 and 217, respectively, from anterior extremity. Pharynx 29 x 6. Muscular and glandular portions of oesophagus 188 x 23 and 816 x 51. Chitinized spicules unequal: left spicule 758 in length and 5 in maximum width, right spicule 74 x 9. Gubernaculum 51 in length, 17 in maximum width. Caudal bursa supported by 12 pairs of lateral papillae, 6 pre-cloacal and 6 post-cloacal; first 10 pairs pedunculate and remaining 2 sessile arranged symmetrically (Fig. 1C). Between these sessile papillae, one pair of phasmids is also present, at 10 from posterior extremity.

A general morphology and measurements, together with the nature of the host species and the geographical distribution, were in a good accord with the detailed descriptions of *G. pithyusensis* published by Mas-Coma (1977). Only

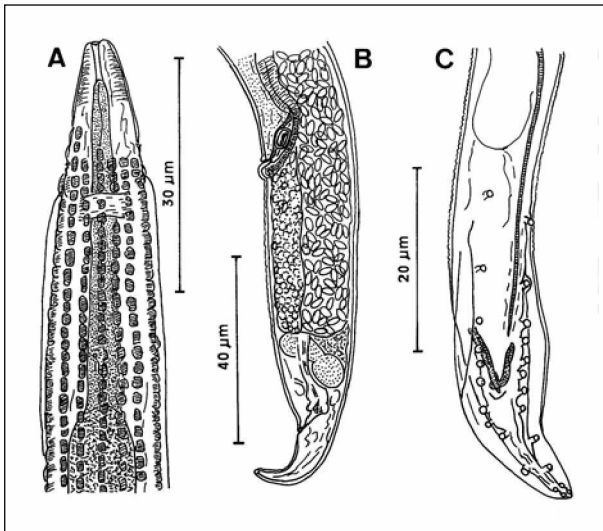


Fig. 1. *Gongylonema pithyusensis* from *Eliomys quercinus*. A – Female, ventral view of the anterior end; B – Female, lateral view of the posterior end; C – Male, ventrolateral view of the caudal bursa. Scale bars: A = 30 µm; B = 40 µm; C = 20 µm

differences were detected in body length (up to 16.620 in the original description vs 20.228) and vulva location from posterior extremity (up to 699 vs 1.076) in the female specimens.

G. pithyusensis has been only reported on Mediterranean islands of Formentera (Mas-Coma & Feliu, 1984; Esteban *et al.*, 1987; Mas-Coma *et al.*, 1998) and Minorca (Mas-Coma *et al.*, 1982; Esteban *et al.*, 1987) parasitizing garden dormice. This nematode species had been considered a distinctive element of the insular helminthfauna of *E. quercinus* (Mas-Coma & Esteban, 1988), since it had not been reported in the large studies carried out in Continental Europe and northern Africa, including the Iberian Peninsula (Mas-Coma & Gállego, 1977; Feliu *et al.*, 1997). From the zoogeographical perspective, this fact is surprising since *E. quercinus* was introduced by humans in some Mediterranean islands several thousand years ago (Alcover, 1987).

The peninsular geographic location of Sierra Espuña, a Mediterranean ecosystem belonging to the Bético system originating from the approximation and posterior collision of the African continental plate with the Iberian Central Massif, could explain the colonization route followed by this helminth in reaching and adapting to the island of the Balearic Archipelago through the so-called Betic-Riffian-Maghrebinian arc (Mas-Coma, 1978).

Acknowledgements

This study was supported by Spanish DGICYT Project BOS2000-0570-C02-02 from the Ministerio de Educación, Ciencia y Deportes, Madrid (Spain). The authors wish to thank Dra. M. A. Valero and Dra. M.T. Galán (Valencia), for their technical collaboration in the field work. Thanks are also due to the Sección de Gestión de Vida Silvestre,

Dirección General del Medio Ambiente de la Consejería de Agricultura, Agua y Medio Ambiente de la Comunidad Autónoma de Murcia (Murcia, Spain) for the licences (letters of April 11, 2000 and July 12, 2001) to collect host materials in the field. This work has been carried out while the fourth author (M.T.) was receptor of pre-doctoral fellowship from the Ministerio de Educación, Ciencia y Deportes, Madrid (Spain).

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RECEIVED FEBRUARY 11, 2003

ACCEPTED SEPTEMBER 24, 2003

