

Note et information.

NEW RECORD OF *GONGYLONEMA PULCHRUM* MOLIN, 1857 FROM A NEW HOST, *MACACA FUSCATA*, IN JAPAN

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SUMMARY

Gongylonema pulchrum Molin, 1857 was found to infect the wild Japanese monkey, *Macaca fuscata*, on Kyushu island, Japan. The *en face* view of the head of the parasite was revealed by

scanning electron microscopy. This finding constitutes a new host record for this worm in the Japanese monkey.

RÉSUMÉ : Présence de *Gongylonema pulchrum* chez un nouvel hôte, *Macaca fuscata*, au Japon.

Gongylonema pulchrum Molin, 1857 est trouvé chez un nouvel hôte, le Macaque sauvage, *M. fuscata*, sur l'île Kyushu du Japon sud. L'examen en vue apicale de l'extrémité antérieure par micro-

scopie à balayage révèle la présence d'une paire de dépression, située dorsalement et ventralement, en dehors de l'élévation elliptique entourant la bouche.

Gongylonema pulchrum Molin, 1857 is a spirurid nematode that parasitizes a wide range of host mammals worldwide, including man (Yamaguti, 1961; Chabaud, 1975).

However, the distribution of *G. pulchrum* was not known in Japan until recent records of infection in cattle on the northern island, Hokkaido (Kudo *et al.*, 1987; Suzuki *et al.*, 1992). We report the finding of this parasite in a wild Japanese monkey, *Macaca fuscata*, on the southern island, Kyushu. The *en face* view of the head of the specimens, previously undescribed in detail, was examined by scanning electron microscopy (SEM).

Seven male worms and four parts of females were collected from the mucosa of the tongue, pharynx and esophagus of a Japanese monkey caught at Aira, off Kagoshima in Kyushu. The worms lay in a zigzag fashion, embedded in the mucosa. The methods used for preservation, drawing, measurement and SEM examination of the specimens were the same as in the previous paper (Uni, 1983).

Description of the worms was limited to the cephalic structures, the spicule length of the male worms and the eggs found in the female worms.

Male (7 intact specimens): Body length 12.1-16.8 mm. The cuticle of the anterior portion bore a number of verruciform thickenings (Fig. 1). *En face* views of the heads

are shown in Figures 2 and 4. Six small lateral labia and small dorsal and ventral elevations surrounded the mouth opening. Inside, the interlabia were located on the dorso-ventral axis, the ventral one being bifurcated. Outside the mouth, a circular cuticular elevation enclosed the labia. Large amphids were located laterally. Eight papillae of the outer circle were located laterodorsally and lateroventrally. The semilunar depressions were situated at the ventral and dorsal sides of the cephalic extremity (Fig. 4, *). Left spicule 5.9-8.1 mm long, right spicule 73-147 μ m long and gubernaculum 32-70 μ m long (Fig. 3).

Female (2 anterior parts and 2 midbody parts of gravid females): The anterior part bore a number of round cuticular thickenings on the ventral and dorsal sides. The semilunar depressions were located ventrally and dorsally on the cephalic extremity, as examined by SEM. Six small lateral labia, dorsal and ventral elevations and interlabia were seen around the mouth opening. Eggs, 49-51 by 21-24 μ m, were embryonated in the uteri (Fig. 5).

Yamaguti (1961) listed six species of the genus *Gongylonema* from monkeys: *G. capucini*, *G. filiforme*, *G. macrogubernaculum*, *G. saimirisi*, *G. microgubernaculum* and *G. pulchrum*. The present species from a Japanese macaque can be distinctly differentiated by the length of the left spicule and the gubernaculum morphology of four of the five past species; one of them, *G. filiforme* described only for female specimens by Molin, made it impossible to compare with other species of the genus (Lucker, 1933).

On the other hand, the measurement data for the present material were closely similar to the smaller values for the various characteristics including the left spicule of

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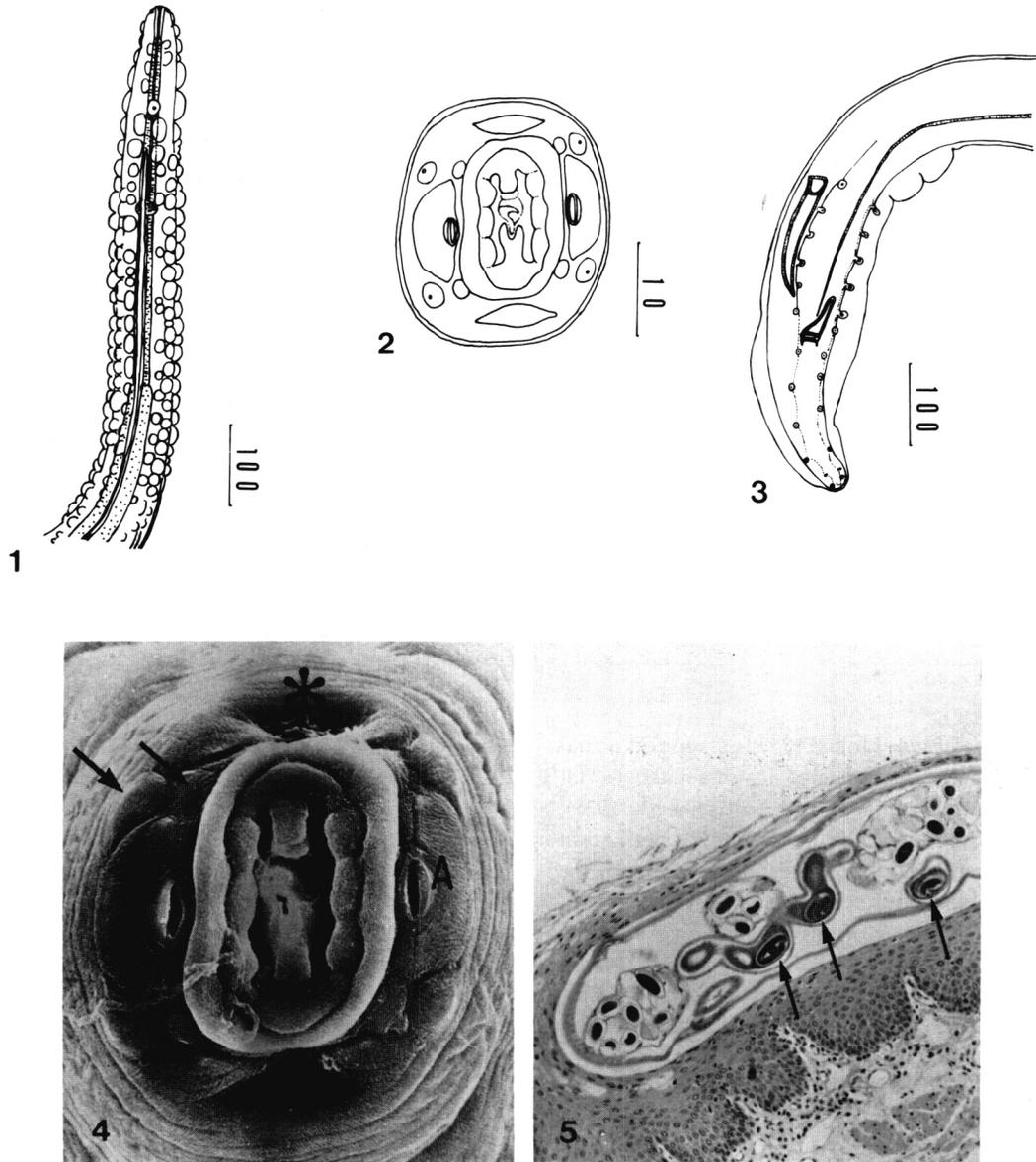


FIG. 1 to 5. — *Gongylonema pulchrum* from Japanese monkey. Scale bar unit (μm).

1. Anterior of male.
2. *En face* view of head of male. Drawing based on scanning electron micrographs.
3. Posterior of male.
4. Cephalic extremity of male, *en face* view by SEM. Papillae (arrows), amphidial pore (A), semilunar depression (*). $\times 2,500$.
5. Female in esophageal mucosa of Japanese monkey. Section showing eggs with coiled larvae in uteri (arrows). $\times 120$.

G. pulchrum from ruminants and some other hosts (Baylis, 1925a, b, Lichtenfels, 1971). Therefore, the present specimens were identified as *G. pulchrum*. The finding of gravid female worms in the present examination may indicate that the Japanese monkey, *M. fuscata*, is a natural host for *G. pulchrum*.

With regard to the cephalic extremity of *G. pulchrum*, « semilunar depressions » described by Stiles (Baylis, 1925b) were clearly visible by SEM on the present material. These

structures have not been described in detail on the other species of the genus. Thus, the cephalic structures observed by SEM may contribute to more precise separation of the species of this genus, and help to elucidate the phylogenetic relationship between the various genera of the Spiruroidea.

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REFERENCES

- Baylis H. A. : On *Gongylonema* collected in Italy during October, 1924, with some observations on the genus. *J. Trop. Med. Hyg.*, 1925, 28, 71-76.
- Baylis H. A. : On the species of *Gongylonema* (Nematoda) parasitic in ruminants. *J. Comp. Pathol. Ther.*, 1925, 38, 46-55.
- Chabaud A. G. : CIH keys to the nematode parasites of vertebrates. No. 3, Keys to genera of the order spirurida. Part 2. Spiruroidea, Habronematoidea and Acuarioidea. *Commonwealth Agricultural Bureaux*, England, 1975, 29-58.
- Kudo N., Ito K., Oyamada T. : On the *Gongylonema* sp. from the esophagus of cattle. *Proceedings of Jap. J. Vet. Sci.*, 1987, 108 (in Japanese).
- Lichtenfels J. R. : Morphological variation in the gullet nematode, *Gongylonema pulchrum* Molin, 1857, from eight species of definitive hosts with a consideration of *Gongylonema* from *Macaca* spp. *J. Parasitol.*, 1971, 57, 348-355.
- Lucker J. T. : *Gongylonema filiforme* Molin, 1857 not a synonym of *Dipetalonema gracile* (Diesing, 1861) Yorke and Maplestone, 1926. *J. Parasitol.*, 1933, 19, 248.
- Suzuki K., Nakamura K., Takahashi K., Seki N. : *Gongylonema pulchrum* Molin, 1857 from cattle in Hokkaido. *J. Jpn. Vet. Med. Assoc.*, 1992, 45, 120-124 (in Japanese).
- Uni S. : Filarial parasites from the black bear of Japan. *Ann. Parasitol. Hum. Comp.*, 1983, 58, 71-84.
- Yamaguti S. : Systema helminthum, vol. 3. The nematodes of vertebrates. Part 1, 2. *Interscience Publ.*, New York, 1961, 1-1125.