DOI 10.2478/s11687-010-0020-0

HELMINTHOLOGIA, 47, 2: 136 – 138, 2010

Research Note

New host report for nematodes in a stranded short-snouted spinner dolphin *Stenella clymene* (Cetacea: Delphinidae) from the Mexican Caribbean coast

R. AGUILAR-AGUILAR[1*], A. DELGADO-ESTRELLA[2], R. G. MORENO-NAVARRETE[1]

[1]Facultad de Ciencias, Universidad Nacional Autónoma de México, Apartado Postal 70-399, CP 04510, México, D. F., México, E-mail: *raguilar@ibiologia.unam.mx*; [2]Grupo Via Delphi, Av. Del Sol No. 11, SM 45, CP. 77508, Cancún, Quintana Roo, México

Summary

One short-snouted spinner dolphin *Stenella clymene* individual stranded on the coast of Quintana Roo, Mexico, was examined for stomach and lung nematodes. During necropsy, a large number of nematodes of the species *Skrjabinalius guevarai* were found in the airways. Additionally, some larval *Anisakis* sp. were found in the stomach. Both nematode species are reported for the first time from this host. The present is the first helminthological study of the short-snouted spinner dolphin in Mexico and adjacent waters of the Caribbean Sea. *S. guevarai* is reported for the first time from the western Atlantic Ocean.

Keywords: Short-snouted spinner dolphin; *Stenella clymene*; Nematodes; *Skrjabinalius guevarai*; *Anisakis* sp.; Mexico

Introduction

The short-snouted spinner dolphin *Stenella clymene* (Gray, 1850) is found in the tropical and subtropical Atlantic Ocean, including the Caribbean Sea and Gulf of Mexico (Jefferson *et al*., 1993; Jefferson & Curry, 2003). It is a deep water oceanic species, although sometimes it has been sighted over the continental shelf of the Gulf of Mexico (Mullin *et al*., 1994). The natural history of this species has been summarized by Jefferson and Curry (2003), which lists some parasitic helminths including lungworms belonging to the genera, *Halocercus* and *Pharurus*. The knowledge about helminth parasites in cetaceans is scarce in Mexico, and there are only three reports of nematodes for the family Delphinidae (Morales-Vela & Olivera-Gómez, 1993; Aguilar-Aguilar *et al*., 2001, 2002). The purpose of this note is to provide new host and locality records for two nematode taxa parasitizing the stomach and airways of a stranded short-snouted spinner dolphin in Mexico.

Material and Methods

On November 5th 2003 a single short-snout spinner dolphin was found stranded alive in Playa Kantenah, Quintana Roo, on the Caribbean coast of Mexico (100 km south of Cancun, 20° 22’ 20’’ N, 87° 19’ 28’’ W). The animal (a female, 1.81 m long; skeleton deposited at the Colección de Mamíferos Acuáticos Via Delphi, accession number VD-013) died a few minutes after an attempt to be rescued and rehabilitated. At necropsy, the airways and stomach chambers were opened and examined for nematodes. Ten nematodes were collected from the main stomach and 20 from the bronchi. No additional helminth species were found in these organs. Nematodes were fixed and preserved in 70 % ethanol, and cleared in lactophenol for microscopic examination. Two specimens were processed for scanning electron microscopy. Voucher specimens were deposited at the Colección Nacional de Helmintos (CNHE), Instituto de Biología, UNAM, Mexico City. A brief morphological description for each nematode taxa is provided.

Results and Discussion

Anisakis Dujardin, 1845 sp. [CNHE No. 7275]. Habitat: main stomach. Larvae (based on six specimens): length 21.27 mm (± 1.064), width 0.55 mm (± 0.03); three poorly developed lips surround the oral opening; excretory pore opening between ventro-lateral lips; esophagus with ante-

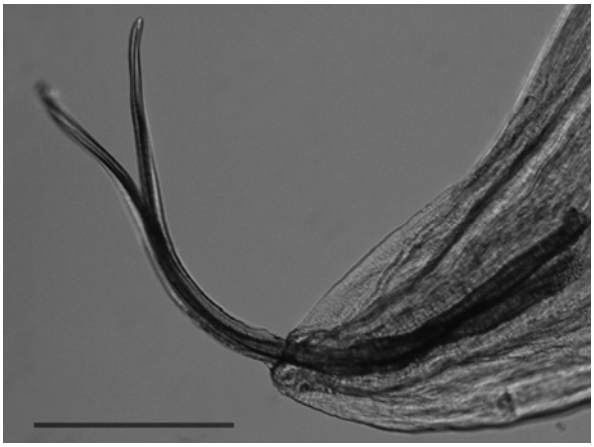

Fig. 1. *Skrjabinalius guevarai*. Posterior end of male, lateral view, scale bar 0.2 mm

rior muscular portion and posterior oblong-shaped ventriculus; esophageal appendix and intestinal caecum absent; esophagus 2.15 mm (± 0.225) long and 0.19 mm (± 0.014) wide, ventriculus 0.56 mm (± 0.061) long and 0.21 mm (± 0.019) wide; nerve ring 0.33 mm (± 0.038) from anterior extremity; anus subterminal 0.17 mm (± 0.017) from posterior end.

Remarks: These worms were identified as third-stage larval *Anisakis*. No adult specimens of *Anisakis* were found in the stomach of the examined dolphin, suggesting a recently acquired infection.

Nematodes of the genus *Anisakis* are common parasites of cetaceans worldwide (Davey, 1971), and their presence as larval stages or adults has been documented for several cetacean species from Mexico and the Caribbean Sea (Mignucci-Giannoni *et al*., 1998; Aguilar-Aguilar *et al*., 2001, 2002; Colom-Llavina, 2005; González-Solís *et al*., 2006), being this report a new host record.

Skrjabinalius guevarai Gallego and Selva, 1979. [Figs. 1, 2 CNHE No. 7276]. Habitat: Bronchi. Male (anterior end based on a single specimen, posterior end based on two specimens): anterior end tightly knotted, the knot enclosed by a fibrous capsule; length 57.19 mm, width 0.55 mm; esophagus short, 0.3 mm long and 0.03 mm wide; excretory pore 0.18 mm from anterior extremity; bursal rays rudimentary; one pair of ventral rays each bearing one papilla; one pair of lateral rays each bearing two papillae; dorsal ray broad bearing two subterminal papillae; length of spicules 0.77 mm (± 0.014); gubernaculum present, not sclerotized, 74 μm (± 0.03) long. Female (based on five specimens): length 66.49 mm (± 4.612), width 0.59 mm (± 0.018); length of esophagus 0.33 mm (± 0.008), width 0.04 mm (± 0.004); excretory pore 0.18 mm (± 0.014) from anterior extremity. Vulva muscular, opening near second third of body, 29.56 mm (± 1.398) from anterior extremity; uterus filled with first-stage larvae, larvae 0.17 mm (± 0.016) long and 0.01 mm (± 0.001) wide (n = 10).

Remarks: Morphological data of the anterior end of the male are based on a single specimen, broken during the study. For this reason, the voucher material consists of one complete female and the posterior end of one male. The morphological features of these worms agree with the description of the genus *Skrjabinalius* Delyamure, 1942; which contains two species, *S. cryptocephalus* Delyamure, 1942, and *S. guevarai*. Our material belongs to the latter species because it presents two papillae on the rudimentary dorsal ray, which distinguishes between these two species (Gallego & Selva, 1979). Lungworms of the genus *Skrjabinalius* have previously been recorded as parasites of cetaceans of Delphinidae in Europe and New Zealand (Delyamure, 1955; Gallego & Selva, 1979; Bowie, 1984; Raga & Carbonell, 1985; Troncone *et al.*, 1994; Cerioni & Mariniello, 1996). *Skrjabinalius guevarai* is recorded for the first time from the western Atlantic Ocean, and is a new host record for *Stenella clymene*.

Importance of generating knowledge about the helminth fauna of marine mammals is closely related with the current trend in documenting biodiversity in a mega diverse country as Mexico. This knowledge is the basis of further studies on ecology, feeding behaviour, biogeography and general status health to evaluate mortality, risks and decisions for conservation of these hosts. In this sense, the present taxonomic study is relevant because represents the

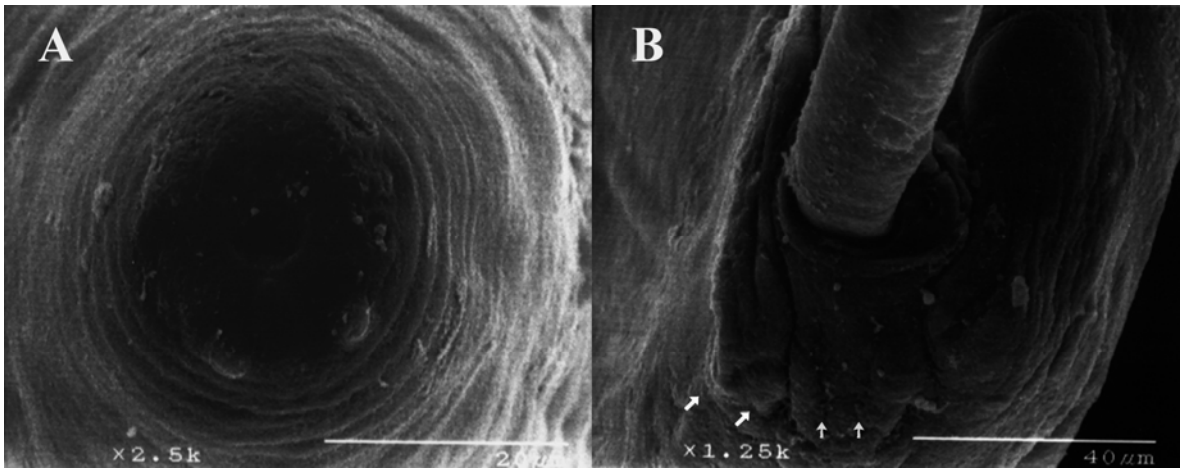

Fig. 2. *Skrjabinalius guevarai*, scanning electron micrographs. (A) Cephalic end of female, apical view; (B) Caudal bursa of male, ventral view. Vertical arrows indicate two subterminal papillae. Diagonal arrows indicate papillae of lateral bursal rays.

first record of helminth parasites in *Stenella clymene* from Mexico, and documents the occurrence of two nematode species in a new geographical locality.

Acknowledgements

The authors thank the research and veterinarian staff of Grupo Via Delphi for their help during necropsy, especially Arturo Romero and Paola Díaz. We appreciate the valuable comments of the anonymous reviewers that greatly improve this note. Thanks are also due to Carlos A. Mendoza for their technical assistance. Collection of the dolphin and examination at necropsy was conducted with Federal Permit No. 1567 (2003) DGVS-SEMARNAT. The Colección de Mamíferos Acuáticos Via Delphi has Federal Authorization No. QROO-MAM-176-0505 DGVS-SEMARNAT.

References

AGUILAR-AGUILAR, R., MORENO-NAVARRETE, R. G., DELGADO-ESTRELLA, A. (2002): Presencia de nemátodos del género *Anisakis* en una orca pigmea *Feresa attenuata* (Cetacea: Delphinidae) varada en costas de Veracruz, México. *Anales Inst. Biol., Univ. Nac. Autón. México, Ser. Zool*., 73: 239 – 240

AGUILAR-AGUILAR, R., MORENO-NAVARRETE, R. G., SALGADO-MALDONADO, G. VILLA-RAMÍREZ, B. (2001): Gastrointestinal helminths of spinner dolphins *Stenella longirostris* (Gray, 1828) (Cetacea: Delphinidae) stranded in La Paz Bay, Baja California Sur, Mexico. *Comp. Parasitol*., 68: 272 – 274

BOWIE, J. Y. (1984): Parasites from an Atlantic bottle-nose dolphin (*Tursiops truncatus*), and a revised checklist of parasites of this host. *New Zeal. J. Zool.,* 11: 395 – 398

CERIONI, S., MARINIELLO, L. (1996): Metazoi parassiti di *Stenella coeruleoalba* (Cetacea: Delphinidae) spiaggiata lungo Laziali dal 1985 al 1991. *Parassitologia,* 38: 505 – 510

COLOM-LLAVINA, M. M. (2005): Metazoan parasites of marine mammals from the Caribbean and the western coast of North America. M.Sc. Thesis, University of Puerto Rico, Mayagüez, 86 pp.

DAVEY, J. T. (1971): A revision of the genus *Anisakis* Dujardin, 1845 (Nematoda: Ascaridata). *J. Helminthol.,* 45: 51 – 72

DELYAMURE, S. L. (1955): *Helminthofauna of marine mammals (ecology and phylogeny)*. Moskva: Akademiia Nauk SSSR. Izdatel'stvo Akademii Nauk, [English translation 1968, Israel Program for Scientific Translation, Jerusalem].

GALLEGO, J., SELVA, J. M. (1979): *Skrjabinalius guevarai* n. sp. (Nematoda: Pseudaliidae), parásito pulmonar del delfín mular, *Tursiops truncatus* Montagu, 1821 (Cetacea: Delphinidae) en el Adriático. *Rev. Ibér. Parasitol.,* 39: 203 – 208

GONZÁLEZ-SOLÍS, D., VIDAL-MARTÍNEZ, V. M., ANTOCHIW-ALONSO, D. M. ORTEGA-ARGUETA, A. (2006): Anisakid nematodes from stranded pygmy sperm whales, *Kogia breviceps* (Kogiidae), in three localities of the Yucatan Peninsula, México. *J. Parasitol*., 92: 1120 – 1122. DOI: 10.1645/GE-3553RN.1

JEFFERSON, T. A., CURRY, B. E. (2003): *Stenella clymene*. *Mamm. Species*, 726: 1 – 5. DOI: 10.1644/726

JEFFERSON, T. A., LEATHERWOOD, S., WEBBER, M. A. (1993): *FAO species identification guide. Marine mammals of the world*. Food and Agriculture Organization of the United Nations, Rome.

MIGNUCCI-GIANNONI, A. A., HOBERG, E. P., SIEGEL-CAUSEY, D., WILLIAMS, E. H. JR. (1998): Metazoan parasites and other symbionts of cetaceans in the Caribbean. *J. Parasitol*., 84: 939 – 946

MORALES-VELA, B., OLIVERA-GÓMEZ, L. D. (1993): Varamiento de calderones *Globicephala macrorhynchus* (Cetacea: Delphinidae) en la Isla de Cozumel, Quintana Roo, México. *Anales Inst. Biol., Univ. Nac. Autón. México, Ser. Zool*., 64: 177 – 180

MULLIN, K. D., HIGGINS, L. V., JEFFERSON, T. A., HANSEN L. J. (1994): Sightings of the clymene dolphin (*Stenella clymene*) in the Gulf of Mexico. *Mar. Mamm. Sci*., 10: 464 – 470. DOI: 10.1111/j.1748-7692.1994.tb00502.x

RAGA, J. A., CARBONELL, E. (1985): New data about parasites on *Stenella coeruleoalba* (Meyen, 1833) (Cetacea: Delphinidae) in the western Mediterranean Sea. *Inv. Cetacea*, 17: 207 – 213

TRONCONE, A., ZIZZO, N., COLELLA, G., PERILLO, A., MANFREDI, M. T. (1994): Parasitosi dei delfini: Incidenza di infestazioni parassitarie in delfini "spiaggiati". *Obiett. Doc. Vet.*, 12: 39 – 44

RECEIVED AUGUST 27, 2009 ACCEPTED FEBRUARY 5, 2010