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Short Paper

Acanthocheilus rotundatus (Nematoda: Acanthocheilidae) from the intestine of shark (*Carcharhinus macloti*) in Persian Gulf, Iran

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Summary

In a parasitic study on five Sharks (*Carcharhinus macloti*) caught from the Iranian coasts of Persian Gulf, two of five sharks appeared to have nematode in their intestine. Using light microscopy, the nematode was identified as *Acanthocheilus rotundatus*. *A. rotundatus* is characterised by 3.3-4.5 cm in length, semi-thick cuticle, small lips, semicircular and tri-lobed pseudolabia (not offset from anterior end), each lip provided on inner surface with two pairs of small pointed teeth.

Key words: *Acanthocheilus rotundatus*, *Carcharhinus macloti*, Shark, Persian Gulf

Introduction

There are little investigation on parasitic fauna of sharks. However, the parasites of such primitive hosts may be useful, particularly in understanding the evolution of different main groups of nematodes and other helminth parasites. *Acanthocheilus rotundatus* was recorded from Australian and Solomon island sharks (Bruce and Cannon, 1990). Usually this nematode has little effect on the host. The pathogenesis of adult nematodes is generally confined to the gut. Lesions or haemorrhage in the gastric or intestinal mucosa have been reported in association with acanthocheilids of elasmobranches (Klaus, 2005).

Materials and Methods

In early June 2006, five newly sharks, *Carcharhinus macloti*, (on average, 54 cm in total length), caught from the coasts of Persian Gulf (Asadi, 1997) were transferred to the laboratory and all organs were examined (Figs. 1 and 2) for metazoan parasite infestation. Two of five sharks appeared to have nematode in their intestines. The nematode specimens were preserved in 70% ethanol after washing in freshwater. After clearing in lactophenol, the morphology of this species was studied in detail using light microscopy.

Nematodes were identified according to Anderson *et al.* (1989). Drawing was made using a Nikon microscope drawing attachment (Fig. 3).

Results

In this study, the nematode from the intestine of sharks was identified as *A. rotundatus*. *A. rotundatus* is characterised by 3.3-4.5 cm in length, semi-thick cuticle, small lips, semicircular and trilobed pseudolabia (not offset from anterior end), each lip provided on inner surface with two pairs of small pointed teeth (Fig. 4), two

double papillae in dorsal lip and one double papillae in dorsoventral lip (Fig. 5), absence of interlabia, an undivided and muscular oesophagus with spherical ventriculus and

Fig. 1: *Carcharhinus macloti*, a small shark with a long snout and moderately large first dorsal fin

Fig. 2: Dissected shark was examined for parasites

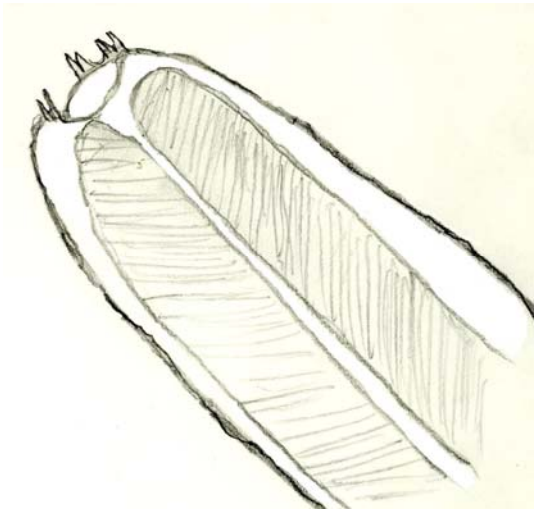
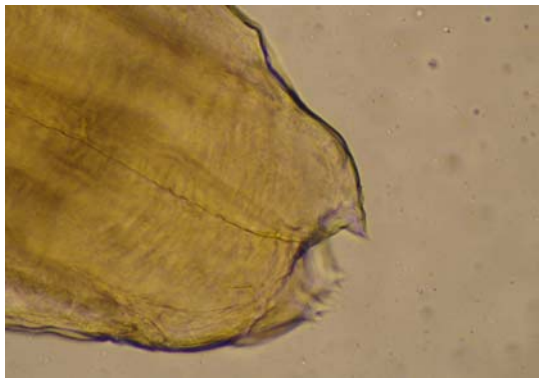


Fig. 3: Lips with pointed teeth and oesophageal inlet drawings using a Nikon microscope drawing attachment



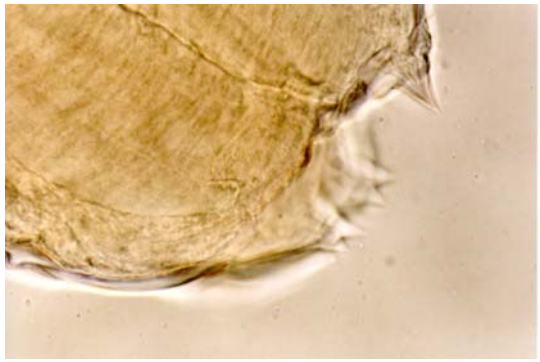


Fig. 4: Anterior end of *A. rotundatus*, small lips and pointed teeth (×400)

Fig. 5: One of the two double papillae in dorsal lip (×400)

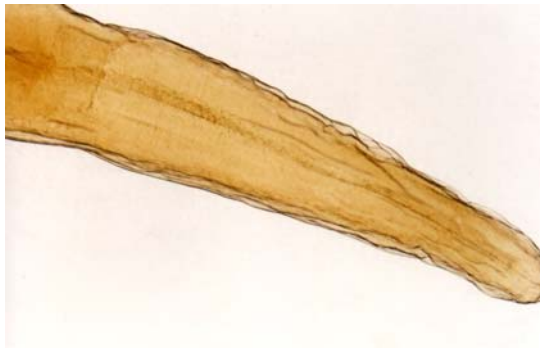


Fig. 6: Anterior end of *A. rotundatus* oesophagus with ventriculus and intestinal caecum absent (×100)

Fig. 7: Conical tail, relatively short (×400)

ventricular appendix or absence of intestinal caecum (Fig. 6). Tail is conical and relatively short (Fig. 7).

Discussion

The nematoda, comprised of 256 families and more than 40 000 species, is one of the largest groups in the animal kingdom. Although most of them are free living, numerous species parasitise plants or animals. Soil-dwelling nematodes of the rhabditean and dorylaimian lines are believed to have given rise to the 125 families of zooparasitic nematodes, including species that exploit freshwater and marine hosts (Klaus, 2005). Although the impact of parasitic nematodes on marine fauna can generally be described as benign, perhaps, in need of further study, some marine nematodes have proven highly pathogenic and even lethal to their hosts. Loss of appetite, emaciation and mortality have been attributed to *Capillaria* spp. infections in fish, while lethargy, having no appetite and weight loss were observed in experimental nematode infections (Kapel *et al*. 2003).

The identifying of *A. rotundatus* in *C. macloti* represents a new host record. Originally, this species was described by Rudolpi (1819). Later, it was redescribed by Moravec and Nagasawa (2000) and also by Bruce and Cannon (1990). There are some reports on nematode infestation in sharks (Bruce and Cannon, 1990; Moravec and Nagasawa, 2000) but there is no report of this species in *C. macloti* and other shark species of Persian Gulf.

Parasitic nematodes have not been reported as highly pathogenic agents in marine hosts, but generally, their effects on host abundances and ultimately on ecosystems remain to be elucidated.

References

Anderson, RC; Chabaud, AG and Willmott, S (1989). *CIH keys to the nematode parasites of vertebrates, No. 2, keys to genera of the Ascaridoidea* by Gerhard Hartwich. 2nd Edn., P: 3.

Asadi, H (1997). *Atlas of the Persian Gulf and the sea of Oman fishes*. 1st Edn., Iranian Fisheries Research and Training Organization Publication. P: 199.

Bruce, NL and Cannon, LRG (1990). Ascaridoid nematodes from sharks from Australia and the Solomon Islands, southwestern Pacific Ocean. Inverteb. Syst., 4: 763-783.

Kapel, CMO; Measures, L; Moeller, LN; Forbes, L and Gajadhar, A (2003). Experimental *Trichinella* infection in seals. Int. J. Parasitol., 33: 1463-1470.

Klaus, R. (2005) Marine parasitology. CABI Publishing. United Kingdom. P: 104.

Moravec, F and Nagasawa, K (2000). Two remarkable nematodes from sharks in Japan. J. Nat. hist., 34: 1-13.

Rudolpi, CA (1819). Entozoorum synopsis cui accedunt mantissa duplex et incides locupletissimi (Berolini). In: Moravec, F and Nagasawa, K (2000). Two remarkable nematodes from sharks in Japan. J. Nat. hist., 34: 1-13.