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Research Note

A Live *Anisakis physeteris* Larva Found in the Abdominal Cavity of a Woman in Zaragoza, Spain

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Abstract

A case of anisakiasis was reported in which a live nematode larva was found in the abdominal cavity of a woman in Zaragoza (N.E. Spain). On its morphological features, the worm was identified as a fourth-stage larva of *Anisakis physeteris*. This is the sixth report of human anisakiasis in Spain and also the first probable case of anisakiasis caused by a fourth-stage larva of *Anisakis physeteris* found in the abdominal cavity.

Key words: Anisakiasis, human case, abdominal cavity, *Anisakis physeteris*, Zaragoza (N.E. Spain)

Human anisakiasis results from accidental ingestion of the third-stage larvae belonging to the family Anisakidae. The disease is generally caused through eating undercooked or raw saltwater fish or squid carrying such larvae. Larvae of three genera of the anisakids have been implicated in human infection: *Anisakis*, *Pseudoterranova* (=*Phocanema*) and *Contracaecum* (Sakanari and McKerrow, 1989). However, most of the infections are due to *Anisakis simplex* (Rudolphi, 1809) (=*Anisakis* type I of Berland, 1961) and *Pseudoterranova decipiens* (Krabbe, 1878) (=*Terranova decipiens*) and only a few infections to *Anisakis physeteris* (Baylis, 1923) (=*Anisakis* type II of Berland, 1961). In this note, a human case due to *Anisakis physeteris* larva is described.

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Case: On 27 June, 1990, a 69 years old Spanish woman residing in Zaragoza (N.E. Spain) during all her life, was admitted to the emergency room at the Hospital Clínico Universitario in Zaragoza, because of an abdominal pain located in the right lower quadrant. No vomit, nausea or fever was experienced. Her temperature was 37°C. There was a moderated pain in the right lower abdominal quadrant, with evidence of localized peritoneal irritation. The other physical examinations had no remarkable results. The initial laboratory data showed leukocytosis (11,000/mm^3) and neutrophilia (73.4%). Peripheral eosinophilis were not found. The results of urinalysis were normal. Plain radiographies of the abdomen and electrocardiogram were within normal limits. A clinical diagnosis of acute appendicitis was made, and the patient underwent an emergency laparotomy. A large appendix and thickened wall of the distal ileum were found. In the mesentery border, 15 cm away from the ileocaecal junction, an haematoma was noted and near it, a creeping worm 2 cm in length was seen. The worm was picked out and the appendix was resected. After the treatment, the patient recovered without any complication.

Worm: The removed worm was still moving in saline solution. The worm was fixed in 70% ethanol

Table 1 Measurements (mm) and indexes of *Anisakis* Type II (=*Anisakis physeteris*) larva reported before and in the present case

Structure	Report		
	Koyama *et al.* (1969)	Kagei *et al.* (1978)	Present authors
Body length	30.30	20.26	13.50
Body width	0.57	0.69	0.56
Esophagus			
muscular	2.31	1.57	1.47
ventriculus	0.62	0.36×0.21	0.30×0.18
Total	2.93	1.93	1.77
Indexes (*)			
a	53.13	29.36	24.10
b	10.34	10.50	7.62
c	13.14	12.99	9.18
d	49.03	56.28	45.00

(*) a: body length/body width.
b: body length/esophagus.
c: body length/muscular esophagus.
d: body length/ventriculus.

and cleared with glycerine-alcohol mixture for microscopic examination. Measurements of the several parts of the worm are described in Table 1. The body was av. 13.50 mm in length by av. 0.56 mm in the greatest width. The cuticle was slightly grooved transversely and the mouth was surrounded by three prominent lips (one dorsal and two ventro-lateral). The boring tooth was not present and the interlabia were not found. The excretory pore was situated between two subventral lips at their case. The ventriculus was short (0.30 mm in length by 0.18 mm in width) with an horizontal ventricular-intestinal junction. The muscular portion of the esophagus was 1.57 mm in length. The tail was short, conical and tapering and had no mucron. The larva was identified as *Anisakis* type II larva, namely, the fourth-stage larva of *Anisakis physeteris* (ct. Asato *et al.*, 1991; Orrechia *et al.*, 1986) based on its morphological features and specially, the well-developed lips and lack of the larval tooth, which suggested that this larva had been moulting when it bored into the mucosa, submucosa or muscle of the ileum.

Source of the infection: The episode of the patient was unrelated to any unusual ingestion of food or to any overseas travel. When specifically questioned about the intake of raw fish or squid, the patient revealed that she frequently ate fried hake, *Merluccius merluccius* and blue whiting, *Micromessistius poutassou*, and affirmed that those were always well cooked.

The acute intestinal anisakiasis occurs typically in several days after ingestion of the larva and may make doctors doubt the acute appendicitis, regional ileitis or obstruction of the small intestine (Rushovich *et al.*, 1983; Sakanari *et al.*, 1988; Valdiserri, 1981). In human infections with the anisakids, the larvae are usually found in the mucosa or the deeper in the wall of the gastrointestinal tract. Very rarely, they may penetrate through the bowell wall, resulting in extraintestinal infection. Van Thiel and Van Houten (1967) reported on two patients with anisakiasis whose surgery revealed a larva of *Anisakis marina* that apparently had perforated the wall of the intestine. Little and MacPhail (1972) described a third-stage larva of *Phocanema* (=*Terranova*) *sp.* isolated from an aneurysm of the right common iliac artery surgically removed from a man. Two cases of human anisakiasis which the larvae penetrated into the peritoneal cavities were reported by Furukawa (1974) and Sasaki *et al.* (1968) (cited by Kobayashi *et al.*, 1985). Recently, Asato *et al.* (1991) have described two worms invading the mucosa of the human stomach and identified them as the third-stage larvae of *Anisakis physeteris*.

The larva found in the present case was very

Table 2 Anisakiasis in Spain

	No. of cases			
	Ileum	Stomach	Appendix	Abdominal cavity
Anisakis sp.	2		1	
anisakis simplex				1
Anisakis physeteris				1
P. decipiens		1		
Reference	López-Velez *et al.*, 1992	López-Velez *et al.*, 1992	Arenal Vera *et al.*, 1991	Valero *et al.*, 1992. Present authors

similar to the larva isolated from the stomach wall of a patient and described as the fourth-stage larva of *Anisakis* type II (=*Anisakis physeteris*) by Kagei *et al.* (1978). The infection route was unknown in this case, but it was thought that the infection was probably caused by ingesting insufficiently cooked meat of marine fish. In an epidemiological study of anisakid larvae in commercial fish in Granada (S. Spain), the larvae of *Anisakis physeteris* were found in 2.4% of *Micromesistius poutassou* and in 0.3% of *Trachurus trachurus* studied (Ruiz-Valero *et al.*, 1991). In a parasitological research of stranded cetaceans on the Spanish Mediterranean coasts, adult worms of *Anisakis physeteris* were found in the stomach and duodenum of a sperm whale, *Physeter macrocephalus* (Raga *et al.*, 1982).

This is the sixth report of human anisakiasis in Spain (Table 2) and also the first probable case of anisakiasis caused by a fourth-stage larva of *Anisakis physeteris* found in the abdominal cavity.

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