

RESEARCH NOTE

A CASE OF ABDOMINAL SYNDROME CAUSED BY THE PRESENCE OF A LARGE NUMBER OF *ANISAKIS* LARVAE

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Abstract—KAGEI N. and ISOGAKI H. 1992. A case of abdominal syndrome caused by the presence of a large number of *Anisakis* larvae. *International Journal for Parasitology* **22**: 251–253. A 58-year-old woman living in Shizuoka Prefecture, Japan, complained of severe epigastric pain and nausea about 8 h after having eaten 'Sashimi'. A gastrocamera examination undertaken as a result of her clinical history of gastric anisakiasis indicated that a large number of worms had penetrated the posterior walls. Fifty-six larval nematodes were directly removed from the greater curvature of the stomach with a gastroendoscopic biopsy clipper, and were identified as the larvae of *Anisakis simplex*.

INDEX KEY WORDS: *Anisakis simplex*; anisakiasis; gastroendoscopy

SINCE the first human cases of anisakiasis were reported in Japan (Asami, Watanuki, Sakai, Imano & Okamoto, 1965; Yokogawa & Yoshimura, 1965), several hundred cases with similar pathologic changes in the digestive tract have been reported every year. However, almost all anisakiasis causing abdominal syndrome results from infection with one *Anisakis* larva only, and we were able to observe cases of multiple infections only rarely.

The present paper deals with the clinical features of a case in which a large number of *Anisakis* larvae were isolated from the stomach wall of a patient. The 58-year-old patient who lived near Shimizu-city, Shizuoka Prefecture, Japan complained of severe epigastric pain and nausea about 8 h after having eaten 'Sashimi' (sliced raw fish) that she had prepared herself from raw bonito (*Katsuwonus pelamis* Linnaeus). She was admitted to a clinic managed by the second author in May 1990, 3 days after the first appearance of symptoms. Haematological and biochemical examinations of the blood as well as urine analysis all proved to be normal.

A gastrocamera examination undertaken as a result of her clinical history revealed that several small red and erosive protruded lesions were dotting the posterior wall of the stomach, and that many whitish and thin thread-like worms had partly penetrated into the lesions (Fig. 1). Fifty-six worms were discovered in the stomach (nine on the greater curvature and posterior wall in the angular incisura, 40 on the greater curvature and posterior wall in the gastric

body, one on the greater curvature in the cardia and six on the posterior wall in the cardia). These worms were directly removed from the stomach wall with a gastroendoscopic biopsy clipper during a 1.5 h operation.

The patient's epigastric pain and nausea disappeared the day after the worms were removed.

Although the removed parasites totalled 56, three worms were lost when the removed worms were prepared between two glass slides. After fixation with 10% formalin, these worms were stored, and 1 year later were sent for identification to the first author, who cleared them with glycerine alcohol and examined them under a microscope.

The nematode larvae were stout, since these larvae had shrunk because they had been stored for 1 year. They measured 10.00–17.27 mm in length and a maximum of 0.40–0.70 mm in width, and were a whitish colour after fixation with formalin. Although the larvae provided a cutting tooth, some larvae were found to be partially in the anterior part. We also discovered three rudimentary lips of stage IV larvae (Fig. 2). Interlabia were absent. An excretory pore had opened near the tooth or between two sub-ventral lips. A long ventriculus was observed between the developed muscular portion of the oesophagus and the intestine (Fig. 3). The junction between the ventriculus and intestine was oblique. Neither a ventricular appendix nor an intestinal caecum could be found. The tail (Fig. 4) was round and either had or did not have a mucron when it was unsheathed.

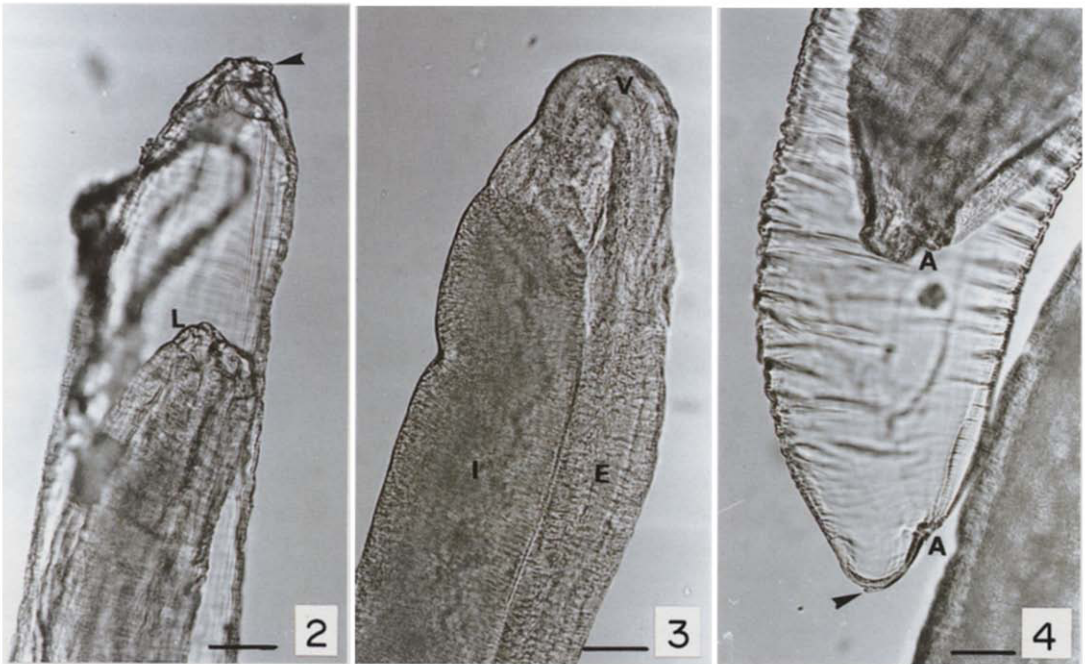
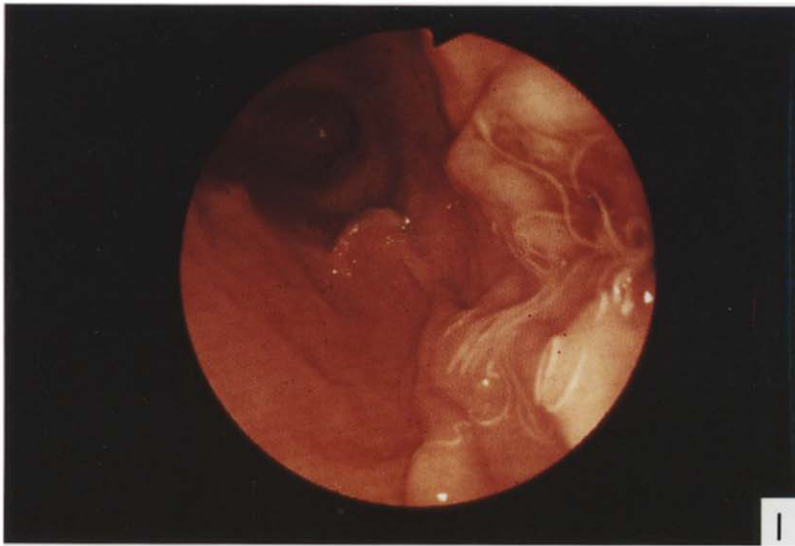


FIG. 1. Many whitish worms penetrating the posterior wall of a human stomach.

FIG. 2. Anterior part of the *Anisakis simplex* larva (arrow: cutting tooth; L: lips of stage IV larvae). Scale bar, 100 μ m.

FIG. 3. Digestive organ of the *Anisakis simplex* larva (E: oesophagus; V: ventriculus; I: intestine). Scale bar, 100 μ m.

FIG. 4. Tail of the *Anisakis simplex* larva (arrow: mucron; A: anus). Scale bar, 100 μ m.

The reproductive organs did not appear to be developed. The cuticle in stage III larvae was slightly striated transversely. However, in stage IV larvae it was deeply striated transversely.

On the basis of these characteristics (in particular, the presence of a long ventriculus and a round tail with a mucron), the larvae could be identified as *Anisakis simplex*.

Although many cases of anisakiasis in Japan have been reported over the years (Kagei, 1989), usually only one *Anisakis* larva is found in patients suffering from gastric anisakiasis. Patients with multiple infections of *Anisakis* larvae accounted for only 5–10% of all cases (Takao, Shibata, Kudo, Furusawa & Kagei, 1983; Yamashita, Shibue, Tanaka & Hashimoto, 1988; Ishikura, Kobayashi, Miyamoto, Yagi, Nakajima, Fujita, Oikawa, Maekawa, Aji, Akao & Hayasaka, 1988), and the case with the largest number of infections was reported by Yamashita *et al.* (1988), who found nine larvae in the stomach of one patient.

Many authors have reported on the location of parasites penetrating the stomachs of patients. Yamashita *et al.* (1988) analysed 732 parasites from 678 cases of gastric anisakiasis in Kagoshima Prefecture, in the southern part of Kyushu: 307 parasites (44.9%) were found in the greater curvature, 181 (26.8%) in the posterior wall, 123 (18.1%) in the anterior wall, and 121 (17.6%) in the lesser curvature. Although the locations of penetration in the stomach by parasites have been reported by other authors (Shibata, Uchida & Furusawa, 1989; Itoh, Sasaki, Mikawa & Ozaki, 1989), the results tended to point in the same direction. In our study, almost all parasites were found in the greater curvature and posterior wall.

Regarding the clinical manifestations of gastric anisakiasis, many researchers have reported that abdominal pain inevitably occurred about 4–5 h after eating raw fish (Ohtaki & Ohtaki, 1989) and was experienced by 81.9% of all patients (Yamashita *et al.*, 1988). Other complaints observed by these

authors included nausea (39.0%) and vomiting (29.3%). In our study, the same complaints were observed and we were not able to differentiate symptoms attributable to mild infections from those attributable to heavy infections.

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