

Anisakiasis Confirmed by Endoscopic Examination of the Large Intestine

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(Received for publication; August 11, 1984)

Key words: anisakiasis, *Anisakis*, human case, large intestine, endoscopy

There has been no report on anisakiasis demonstrated by the large intestinal endoscopy. The authors have recently experienced such a case in which an *Anisakis* worm was detected in the descending colon.

Case Report

H. Y., 26-year-old woman, fish dealer, living in Naha City, Okinawa, Japan, came to the Miyagi Clinic on 6 October, 1982 complaining of chronic diarrhea. A symptomatic therapy was applied without improvement. An endoscopic examination of the colon on 10 February, 1983 revealed a small nematode invading the wall near the lower end of the descending colon (Figs. 1, 2). The worm was removed by using a biopsy forceps. There was no other abnormal finding. The diarrhea did not stop after the removal of the nematode and she was treated symptomatically thereafter. The diarrhea persisted up to April, 1983.

The patient occasionally ate raw fishes of various kinds caught off Okinawa Island, but denied eating any fish transported from the mainland of Japan.

Laboratory results on 6 October, 1982 included: RBC, $464 \times 10^4/\text{mm}^3$; WBC, $5800/\text{mm}^3$; hemoglobin, 14.9 g/dl; hematocrit, 42%; GOT, 26 KU; GPT, 31 KU; γ -GTP, 95.6 U; urine, normal.

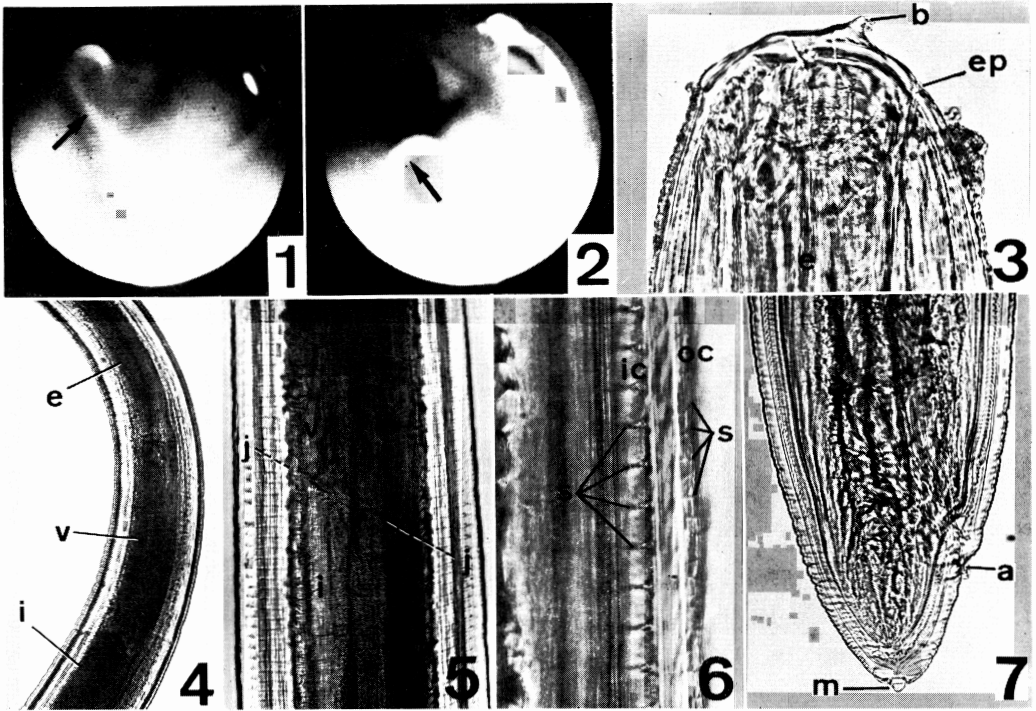
Description of the Nematode

The worm was semitransparent in living condition and became whitish after fixation with 70% ethanol at 70°C. The body was 25.9 mm in length and 0.47 mm in width at the middle. The cuticle was double: the outer one was ornamented with irregular transverse striations at intervals of $6.25 \mu\text{m}$ (mean, at one-third from the anterior end) and numerous faint longitudinal striae on the annulae: the inner cuticle was striated transversely at regular intervals (mean $18.8 \mu\text{m}$ at one-third from anterior end) (Fig. 6). The anterior end had a boring tooth directing somewhat ventrally (Fig. 3), and three weakly developed lips were observed under the outer cuticle. The excretory pore was situated just behind the boring tooth (Fig. 3). Distance from the anterior end to nerve ring was 0.35 mm. The esophagus was narrow cylindrical and 2.42 mm long. The ventriculus was 1.15 mm long and joined the intestine obliquely (Figs. 4, 5). Neither the ventricular appendix nor intestinal caecum was present. The tail was short-conical, 0.13 mm long and had a mucron at the apex (Fig. 7).

Discussion

The nematode recovered from the patient was identified with the third-stage larva of *Anisakis simplex* (= *Anisakis* type I larva of Berland, 1961; Pippy and Van Banning, 1975) on the morphological features: presence of the boring tooth and the ventriculus, position of the excretory pore, absence of the ventricular appendix and intestinal caecum, short-

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Figs. 1,2 Each endoscopic finding shows a nematode invading the wall of the lower part of descending colon (arrows).

Figs. 3-7 The worm recovered from the case. 3, cephalic apex ($\times 470$); 4, ventricular portion ($\times 25$); 5, junction between ventriculus and intestine ($\times 82$); 6, cuticular surface ($\times 325$); 7, tail ($\times 140$).

Abbreviations: a: anus, b: boring tooth, e: esophagus, ep: excretory pore, i: intestine, ic: inner cuticle, m: mucron, oc: outer cuticle, s: striations, v: ventriculus.

conical tail with a mucron, arrangement of striae on the outer cuticle and their measurements (Berland, 1961; Koyama *et al.*, 1969; Shiraki, 1974). The pattern of striation on the inner cuticle was also identical with that observed in the fourth-stage larva of *Anisakis simplex* (Shiraki, 1974). Therefore, it was considered that this nematode was an *Anisakis* larva which developed to premolt stage in the patient's digestive tract within one to three days, since the third-stage larva of *Anisakis simplex* was known to molt in human digestive tract on the third or fourth day after having been ingested (Fujino *et al.*, 1984). This fact indicates that the present nematode infection might play little role in the chronic diarrhea of the patient, which started four months before the detection of the worm. On

this account, the present case may be classified as a "clinically mild form" of anisakiasis (Suzuki *et al.*, 1970).

Anisakiasis is a common parasitic disease in Japan and thousands of cases have been recorded (e.g. Ishikura, 1968; Iwano *et al.*, 1974; Iino, 1981; Koyama *et al.*, 1982). However, there has been known only a limited number of cases of anisakiasis in the colon. In the statistical studies by Ishikura (1968) and Iwano *et al.* (1974), only four cases of large intestinal anisakiasis were recorded. Subsequently, Oshio *et al.* (1973) and Nishikawa *et al.* (1981) added each one case. In all of these cases, the nematodes were detected in the pathological tissues excised surgically. Therefore, the present case may be the first one in which the endoscopic examination demon-

strated *Anisakis* worm in the colon.

Prior to the present case, one of the authors (S. M.) had experienced a similar case in April 1980: on endoscopic examination of a 58-year-old man complaining of right abdominal pain, a nematode was found embedding its head into the wall in the lower portion of the descending colon. The recovered worm survived for several days in physiological saline at room temperature. Unfortunately, the worm was not preserved, but the general appearance of the worm on the endoscopic photographs taken at that time shows the close resemblance to that of the present case. If this worm was *Anisakis*, it may be suggested that anisakiasis of the colon is not so rare and more cases will be detected by thorough endoscopic examination of the colon.

Summary

Anisakis was detected in the colon by endoscopic examination. The patient was a 26-year-old woman living in Naha City, Okinawa, Japan, whose main symptom was chronic diarrhea. On endoscopic examination, a small nematode was found invading the wall of the lower portion of the descending colon and was removed by using a biopsy forceps. The worm was morphologically identical with the third-stage larva of *Anisakis simplex* (= *Anisakis* type I larva of Berland, 1961). The fact that the clinical symptom was not improved even after the removal of the worm may suggest little relation between the infection of *Anisakis* and the chronic diarrhea.

A part of this study was presented at the 36th South Japan Regional Meeting of Japanese Society of Parasitology in Kita Kyushu City, August 30-31, 1983.

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大腸の内視鏡検査によつて見出されたアニサキス症

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慢性下痢を訴えて来院した那覇市在住の26歳の女性に、大腸の内視鏡検査を行ったところ、下行結腸下端部の腸壁に1線虫が穿入しているのが見出されたので、生検鉗子により摘出した。虫体は形態学的に *Anisakis simplex* 第3期幼虫 (= *Anisakis* I型幼虫) と同定され

た。慢性下痢を主とする臨床症状は虫体除去前から長期にわたって続いていたため、それと *Anisakis* 寄生との間にはほとんど関連がなかつたものと思われる。本報は内視鏡検査によって大腸から *Anisakis* 幼虫を証明した最初の例と考えられる。