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A Larva of *Terranova* sp. Causing Acute Abdominal Syndrome in a Woman

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Following the firs treports on human cases of Anisakiasis in Japan (Asami *et al.* 1965 ; Yokogawa and Yoshimura, 1965), a number of cases with similar pathologic changes in the digestive tract have been presented by many workers. *Anisakis* sp. (Type I) larvae were demonstrated in most cases but not in others though highly suggestive of the presence of the infection.

Recently, Suzuki *et al.* (1972) reported five human cases with acute abdominal syndrome due to *Terranova* larva invasion into stomach wall in Hokkaido. The authors have also experienced a case of gastric disorder caused by a larva of *Terranovs* sp. The present paper deals with the clinical feature of the patient and the morphological characteristics of the *Terranova* larva obtained from the patient.

Case

A 31-year-old woman living in near Hakodate, Hokkaido, complained of severe abdominal pain vomiting lasting for 10 days after having eaten fish (*Pleurogrammus azonus*) slightly pickled in vinegar, and then showed shock symptoms suggesting acute gastritis or gastric ulcer. She was admitted to Yanagawa hospital on 14 February 1972. Physical examination at the hospital revealed distention and tenderness in the upper portion of the abdomen. In the roentogenographic examination of stomach, worm-like shadow-defect was found clearly in the gastric wall (arrow in Photograph 1). In the examination by gastro-camera, it was found that about 2 mm. of the anterior part of a nematode larva had penetrated into the wall of greater cuvature of the stomach. This worm was taken out with biopsy cliper.

Morphology of the Parasite. Although the worm specimen was cut into two pieces when removed from the lesion, it was still moving in saline solution (Photograph 2). The nematode larva was found exsheathed, and the size was 42.2 mm. in length and 1.15 mm. in width. The mouth was surronded by three lips with dentigerous-ridges (arrow in Photograph 3), one dorsal and two subventral. Interlabia absent (Photograph 3). A well-developed oblong ventriculus (V in Photograph 5) was observed between the well-developed oesophagus and the intestine. Ventricular appendix was not found, but intestinal caecum was found (IC in Photograph 5). Excretory pore opend between two subventral lips. No spine was presented at the terminal

point of the tail (Photograph 4). The cuticle was transversely striated. Measurements and indexes of the larva are showed in Table 1.

Discussion

Two types (A and B) of *Terranova* larvae found in fishes captured on the coast of Japan have been recorded by Otsuru *et al.* (1968), Koyama *et al.* (1969), Hatada (1970) and Sakaguchi and Katamine (1971). According to Koyama *et al.* (1969), *Terranova* Type A larva is larger than Type B larva in size and both tail and intestinal caecum of Type A larva are rather shorter than those of Type B larva. The larva from present case was confirmed to be *Terranova* Type A larva (Koyama *et al.* 1969) based on the morphological features as indicated in Table 1.

Table 1 Measurements and indexes of *Terranova* larva from the patient

Structure measured		Indexes*	
Body length	42.2mm.	α	36.70
Body width	1.15	β_1	10.96
Oesophagus			
Muscular	2.40	β_2	17.58
Ventriculus	1.45	β_3	29.10
Total.	3.85	γ	—
Intestinal caecum	1.32	W	1.10
Tail	—	Y	31.97

*: $\alpha=\frac{\text{Body length}}{\text{Body width}}$; $\beta_1=\frac{\text{Body length}}{\text{Oesophagus}}$;
$\beta_2=\frac{\text{Body length}}{\text{Muscular part of oesophagus}}$
$\beta_3=\frac{\text{Body length}}{\text{Ventriculus}}$; $\gamma=\frac{\text{Body length}}{\text{Tail}}$;
$\text{W}=\frac{\text{Ventriculus}}{\text{Intestinal caecum}}$; $\text{Y}=\frac{\text{Body length}}{\text{Intestinal caecum}}$;

In the experimental infection of the larvae of *Terranova* sp. to rabbits and pupies, Otsuru *et al.* (1968) and Kikuchi *et al.* (1972) observed that these larvae produced serious damages to the digestive tract of the animals. Kitayama *et al.* (1967) reported a dog case with parasitic granuloma caused by *Terranova* sp. and *Contracaecum* sp. larvae in Hokkaido, and suggested that larval nematodes of the other genera than *Anisakis* should be also taken into consideration for studing parasitic granuloma.

The custom of eating raw fish is so common among the Japanese that it has been suggested that the larvae of *Terranova* sp. may be transmitted to man through eating infected marine fishes raw.

With further surveys and careful examinations of patients with acute abdominal symptoms after eating raw fish, additional cases similar to the present case will probably be found.

Summary

A human case is reported in which a nematode larva was found penetrated into the stomach wall. On the morphological bases, the larva found in the present case was identified as *Terranova* larva. The infections was possibly caused by eating raw fish.

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Terranova 幼線虫の人体寄生例

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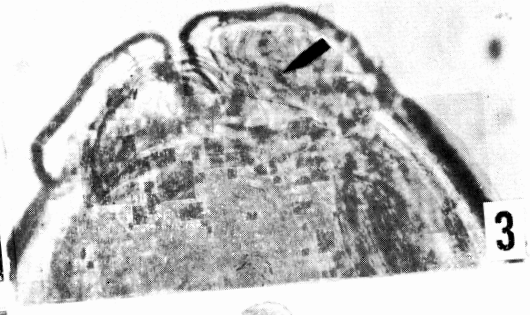
函館市近郊在住の1婦人 (31歳) が，ホッケのいずしを食べた10日後に急激な腹痛をうつたえたので，内視鏡による検査を行つた所，胃大彎粘膜面に幼線虫体を認めたので急性胃アニサキス症と診断した．しかし，胃生検鉗子によつて採集した幼虫体を詳細に検索した結果，幼虫体は *Terranova* A型幼虫であることがわかつたので，*Anisakis* 属線虫幼虫以外に *Terranova* 属線虫の幼虫が人体に侵入し，アニサキス症様症状を発することを鈴木ら (1972) の症例に追加して報告した．

Explanation of Photographs

Potograph 1. Roentogenograph shows barium filling of the lesion in the stomach during a barium enema (arrow: worm like shadow-defect)
Potograph 2. A whole specimen of the worm removed
Potograph 3. Lips with dentigerous-ridges (arrow)
Potograph 4. Posterior part.
Potograph 5. Venticulus (V) and intestinal caecum (IC).


1


2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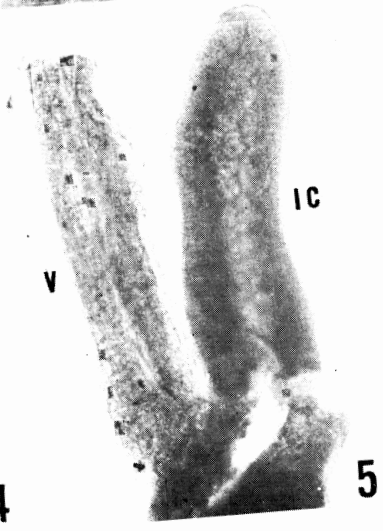
IC
V
5