

A case of anisakiasis causing intestinal obstruction

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Abstract: A 31-year old salesman living in Seoul developed suddenly abdominal pain due to intestinal obstruction. Exploratory laparotomy exhibited segmental jejunal cellulitis caused by penetrating *Anisakis* larva. The patient had eaten raw fish. The typical history of intestinal anisakiasis was presented with a short review of Korean patients of anisakiasis.

Key words: anisakiasis, *Anisakis* larva, intestinal obstruction

Anisakiasis is an acute or chronic inflammatory disease of gastrointestinal tract caused by penetration of a nematode larva. The major inflicted species are *Anisakis simplex* and *Pseudoterranova decipiens* (Ishikura and Kikuchi, 1990). Because the larvae are found in muscle or peritoneal cavity of marine fish or squids, human infection is related with eating raw fish. In Korea, where such food habits are popular, human anisakiasis is endemic. Since 1971, a total of 92 human infections has been recorded in Korean literature. But much more cases were passed unrecorded. Until 1980, only a case of aberrant parasitism in pharynx (Kim *et al.*, 1971) and a silent infection in ileum (Cho *et al.*, 1980) had been reported. Thereafter, many cases of gastric anisakiasis were found by gastroenterologists because of wide use of fibroscope (Lee *et al.*, 1981; Jang *et al.*, 1989).

Reviewing shortly the literature on human anisakiasis in Korea, 76 of 92 patients were gastric anisakiasis. Most of them (74/76) were diagnosed by fiberoptic removal of the larva, whereas only 2 patients were treated surgically. A total of 11 patients was intestinal anisakiasis. Of them 10 cases were involved at ileum and

a case was invaded at caecum. In 86 cases the removed larvae were diagnosed as *Anisakis* sp. while in 4 patients, the larvae were identified as *P. decipiens* (Seo *et al.*, 1984; Lee *et al.*, 1985; Im *et al.*, 1989). *Contracaecum* sp. was said to be the causative nematode in 2 patients (Im *et al.*, 1989).

Of them, 72 cases (68%) were residents of port cities in Korea such as Pusan (33 cases), Cheju (20), Pohang (18) and Incheon (1). However, because of quick transport system of live marine fish to markets in major cities, cases are also occurring in Seoul (8 cases), Taegu (5), Kwangju (3), Chinju (3) and Wonju (1). The most important fish causing human anisakiasis in Korea is anago (*Astroconger myriaster*, in 51%). Raw squids (*Todarodes pacificus*) are also important (in 12 cases). About three fourths (76%) of Korean patients were in their 20s to 40s. Female patients (63%) were more frequently found infected than male (37%).

While the gastric anisakiasis can be diagnosed incidentally during fiberoptic in patients of epigastric pain, the intestinal anisakiasis is very difficult to diagnose preoperatively. History of eating raw fish may be helpful. But the history

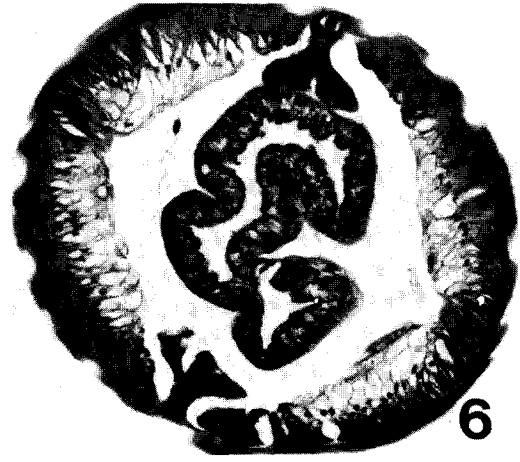
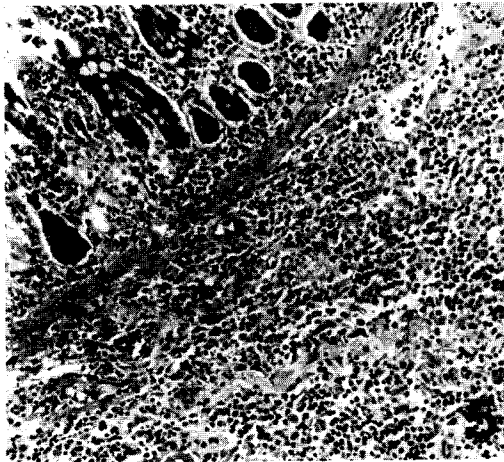
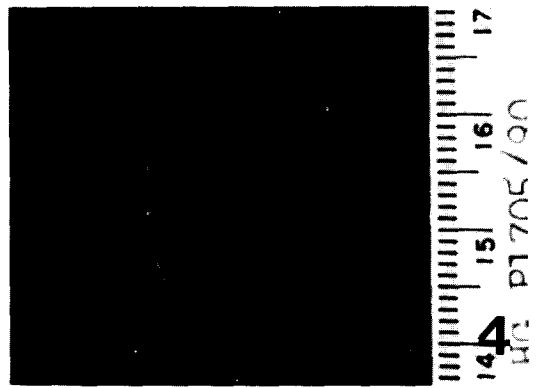
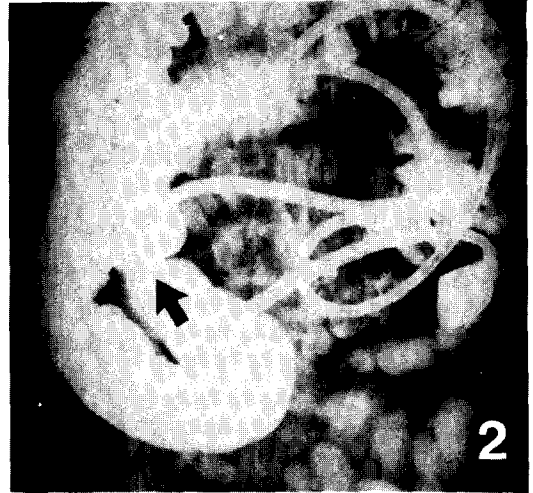
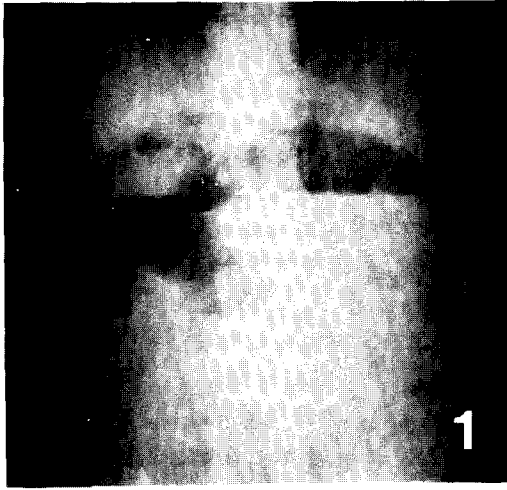


Fig. 1. Erect view of simple abdomen: Gaseous distension of small bowels with different air fluid levels were noted.
Fig. 2. Through a Miller-Abbott tube, barium was introduced. In mid-jejunal loop, a narrowing of lumen was found (arrow).
Fig. 3. A living white thread-like nematode was recognized at hemorrhagic focus.
Fig. 4. The nematode causing obstruction was partly degenerated.
Fig. 5. Transmurial inflammation of jejunum with extensive cell infiltrations.
Fig. 6. Cross section of the nematode disclosed typical Y-shaped lateral cords of *Anisakis* sp.

is neither objective nor specific. Therefore, the specific and preoperative diagnosis is expected to depend on ultrasonographic findings (Yamamoto and Minami, 1990) and serologic tests (Hong and Lee, 1987; Tsuji, 1990) in the future. We present here our experience of a typical case of intestinal anisakiasis causing jejunal obstruction.

The patient was a 31-year old Korean salesman employed in a firm in Seoul. His main business was serving Japanese buyers to dinners in commercial negotiations. He had eaten raw fish almost daily. He had been healthy until 2 days before the admission to the hospital (July 2 1990) when diffuse abdominal pain developed suddenly. No other subjective symptoms were complained of. Physical examination exhibited tenderness on lower abdomen and increased bowel sound. Laboratory examinations were normal except leukocytosis (16,900/ μ l) and increased eosinophils (4% in differential and 320/ μ l in total counts). Film of simple abdomen (Fig. 1) revealed fluid levels. Small bowel study showed gradual narrowing of jejunum (Fig. 2). Decompression through Miller-Abbott tube failed to relieve the mechanical obstruction. Therefore, under the impression of inflammatory or malignant stricture of jejunum, exploratory laparotomy was done.

In peritoneal cavity, there was some amount of exudative ascites. Appendix was in normal appearance. At about 110 cm from Treitz's ligament, serosal surface of jejunum showed annular edema of about 1 cm thickness. There was a linear hemorrhagic perforation of serosa amongst edematous tissue covered with yellow fibrinous exudate. At the center of the hemorrhagic tissue, an about 1 cm long, white, moving nematode was recognized (Fig. 3). Segmental resection of about 5 cm long jejunum was done.

Histologically, the resected jejunum showed extensive, transmural edema infiltrated with neutrophils, lymphocytes and eosinophils (Fig. 4). Inflammation extended to nearby mesentery. The removed worm was a partly degenerated nematode larva (Fig. 5). Cross section at level

of intestine (Fig. 6) showed polymyarian, coelomyarian nematode with typical Y-shaped lateral cords. Renette cell section was not seen. No sex organs were recognized. Intestinal cells of the larva were arranged to form a multi-saccular lumen. Based on the morphology of the section, the larva was identified as *Anisakis simplex*.

In intestinal anisakiasis, the correct diagnosis and adequate treatment represent really perplexed relations. Correct diagnosis of intestinal anisakiasis is based on surgical removal of the worm-containing lesion in intestinal tract. Therefore, either incidental silent infections or fulminant cellulitis causing intestinal obstruction as in the present case are confirmed surgically as anisakiasis after laparotomy. Because anisakiasis is basically a benign infection which resolved in a certain period, it needs no aggressive surgical treatment in most patients. Unless we secure reasonable preoperative diagnostic methods of anisakiasis, however, surgical treatment and diagnosis are inevitable in some patients. As a diagnostic tool, serologic tests which detect *Anisakis* specific antibody in serum is frequently negative in early clinical cases and is frequently positive in asymptomatic people. Imaging diagnosis of intestinal anisakiasis seems, therefore, important so as clinicians to differentiate the anisakiasis from other intestinal diseases preoperatively.

In Japan where the human anisakiasis is most endemic in the world, Ishikura and Kikuchi (1990) reported that 567 of 12,586 anisakiasis was intestinal infection. In Korea, 6 of 11 intestinal anisakiasis patients showed symptoms and signs of ileal obstruction (Ko *et al.*, 1988; Han *et al.*, 1988). Anisakiasis should be one of etiologic diseases in differential diagnosis of intestinal obstruction in this country.

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=국문요약=

장폐색을 동반한 공장 아니사키스증

한림대학교 의과대학 외과학교실 및 해부병리학학교실*, 중앙대학교 의과대학 기생충학교실**

김이수·이연호·김 성·박혜림*·조승열**

서울에 거주하는 상사 직원인 31세 남자가 이틀전부터 시작된 갑작스런 하복부 복통으로 입원하였다. 단순복부촬영상 기계적인 장폐색 소견을 보여 시험적 개복술을 실시한 바 공장부위의 장막에 봉와직염이 있었고 출혈점 부위에서 길이 1 cm인 선충을 발견하였다. 이 충체 절단면의 Y-자 모양 축선의 특징을 기초로 *Anisakis* 유충으로 동정하였다. 우리나라의 아니사키스증 보고례에 대하여 간단히 요약하고 이 질환이 장폐색증의 감별진단의 대상이 되어야 함을 강조하였다. [기생충학잡지, 29(1):93-96, 1991년 3월]