

A case of extragastrointestinal anisakiasis involving a mesocolic lymph node

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Abstract: In a 43-year-old Korean man who underwent radical gastrectomy due to a malignant stromal tumor, was found to have an enlarged lymph node at transverse mesocolon. The lymph node exhibited histologically necrotizing eosinophilic granuloma formed around a track containing sections of a nematode larva. The well preserved nematode sections revealed polymyarian muscle cells, Y-shaped lateral cord, a large excretory gland cell, intestine and eosinophilic cuticle. The nematode sections were identified as a larva of *Anisakis* species. In Korea, this is the first case of extragastrointestinal anisakiasis.

Key words: *Anisakis* species larva, anisakiasis, extragastrointestinal anisakiasis, lymph node, Korea

INTRODUCTION

Human anisakiasis, caused by eating raw marine fish and squids, is a parasitic disease characterized by invasion of the larvae of *Anisakis simplex* or *Pseudoterranova decipiens* into the wall of the digestive tract (Oshima, 1972). Shortly after human *Anisakis* infection was first reported in the Netherlands (van Thiel *et al.*, 1960), the disease was found endemic in Japan (Asami *et al.*, 1965; Yoshimura, 1965; Kojima, 1966). According to the recent literature survey on anisakiasis (Ishikura, 1990), a total of 14,162 Japanese cases was reported until June, 1990, and more than 2,000 cases of human anisakiasis per year had been reported (Oshima, 1987; Kagei *et al.*, 1995). Together with improved diagnostic technology and increased population of pinniped definitive hosts,

Japanese foods such as sushi and sashimi, which became popular over the world, the incidence of human anisakiasis has been increased in the previously non-endemic western countries (Oshima, 1987; McKerrow, Sakanari and Deardorff, 1988). In Korea, people like traditionally to eat raw fish, and a total of 241 cases of gastrointestinal anisakiasis have been reported (Kim *et al.*, 1971; Im *et al.*, 1990; Im *et al.*, 1995). The case of anisakiasis increased due to wide use of gastrofiberscopy for diagnosis, and most of the reported anisakiasis cases in Korea showed invasion in the stomach. As in Japan, relatively few cases of intestinal anisakiasis are reported in this country (Cho *et al.*, 1980; Kim *et al.*, 1991).

The incidence of human anisakiasis appears to be low when compared to the amount of marine fish consumed in Korea and high infection rates of *Anisakis* species larvae in marine fish (Chai *et al.*, 1986). It may be due to that few larvae are actually present in edible portion and most are located in the peritoneal cavity of fish instead of muscle (Oshima,

• Received 21 October 1996, accepted after revision 6 January 1997.

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1987). Another reason may be an underestimation of asymptomatic and/or extragastrintestinal anisakiasis.

Extragastrintestinal anisakiasis is caused by a larva which escaped the gastrointestinal wall and makes a lesion at the abdominal cavity, pancreas, ovary, utero-cervix, lymph node, liver, lung or subcutaneous tissue. This uncommon form of human anisakiasis was first reported in the abdominal cavity of a patient who underwent a surgical operation to treat an acute abdomen (van Thiel and Houten, 1967). In Japan, at least 52 extragastrintestinal cases have been reported (Kagei *et al.*, 1995). In the present paper, a case of anisakiasis, incidentally found involving a lymph node of transverse colon, is described. This is the first report of extragastrintestinal anisakiasis in Korea.

CASE REPORT

A 43-year-old Korean man, who was living in Seoul, was admitted to the emergency room of Severance Hospital on February 1996. He had been in good health except for developing fatigue and dyspepsia 3 weeks before. The symptoms were followed by episodes of severe and frequent melena in recent 4 days. On abdominopelvic computerized tomography, a mass of 5x4cm size was noted at the anterior wall of the stomach midbody, protruding into the lumen. Under the impression of a malignant tumor, subtotal gastrectomy with gastroduodenostomy was done. During the operation, a slightly enlarged lymph node was recognized in the transverse mesocolon and was biopsied.

Pathologic and parasitologic findings

Histopathologically, the main mass of the stomach was a malignant stromal tumor. The cut section of the lymph node from mesocolon, measured 0.8 × 0.6 cm, revealed a pale yellow geographic area of necrosis. On microscopic examination, it showed multiple, relatively well preserved nematode sections embedded in the necrotic center, surrounded by many inflammatory cells, palisading histiocytes and occasional multinucleated giant cells. There were numerous eosinophilic and lymphocytic infiltrates in the wall of the granuloma (Figs. 1

and 2). Ellipsoidal stumps of a nematode, sectioned obliquely or crossly, were 300-400 μm in diameter and about 6 mm in sum of length. The outer layer of the nematode sections was composed of eosinophilic cuticle which has irregular thickness. At outermost surfaces, cuticular spikes or projections were recognized. A thin layer of hypodermis was connected to typical Y-shaped lateral cords with nuclei extending to the base of the narrow stem. The body cavity was lined with well preserved, tall, polymyarian muscle cells. In the lumen of the worm, the intestine with columnar cells was located. A large section of an excretory gland cell (renette cell) was found along the upper part of the intestine (Figs. 3 and 4). The nematode sections were identified as those of an *Anisakis* species larva.

DISCUSSION

In the present case, the larval nematode sections in a lymph node at the mesocolon were diagnosed as *Anisakis* species based on the morphology of lateral chord, renette cell, muscle cells and intestine (Binford and Conner, 1976). Reproductive organs were not observed in the pseudocoelom. Dimensions of the section were also compatible with the identification. A peculiar feature of the sectioned nematode was the often serrated outer margins of thickened cuticle which formed small spikes or projections outward. We thought the deformed cuticle represented degenerative processes of the larva.

In experimental rabbit models of anisakiasis, the larval nematodes maintained their structural integrity for 2 weeks but they began to degenerate and calcify within 5 months (Hong and Lee, 1987). Therefore, the main lesion of the present patient was not related to the anisakiasis because the lymph node lesion of this case might develop in recent 10 days or 2 weeks.

In Japan, extragastrintestinal anisakiasis comprised 0.4% of all cases (Ishikura, 1990). A case of codworm anisakiasis (larval *Pseudoterranova decipiens* infection), of the 241 reported human anisakiasis in Korea (Im *et al.*, 1995), was recorded with the worm in the peritoneal cavity (Seo *et al.*, 1984). But the case was exceptional in the aspect of worm

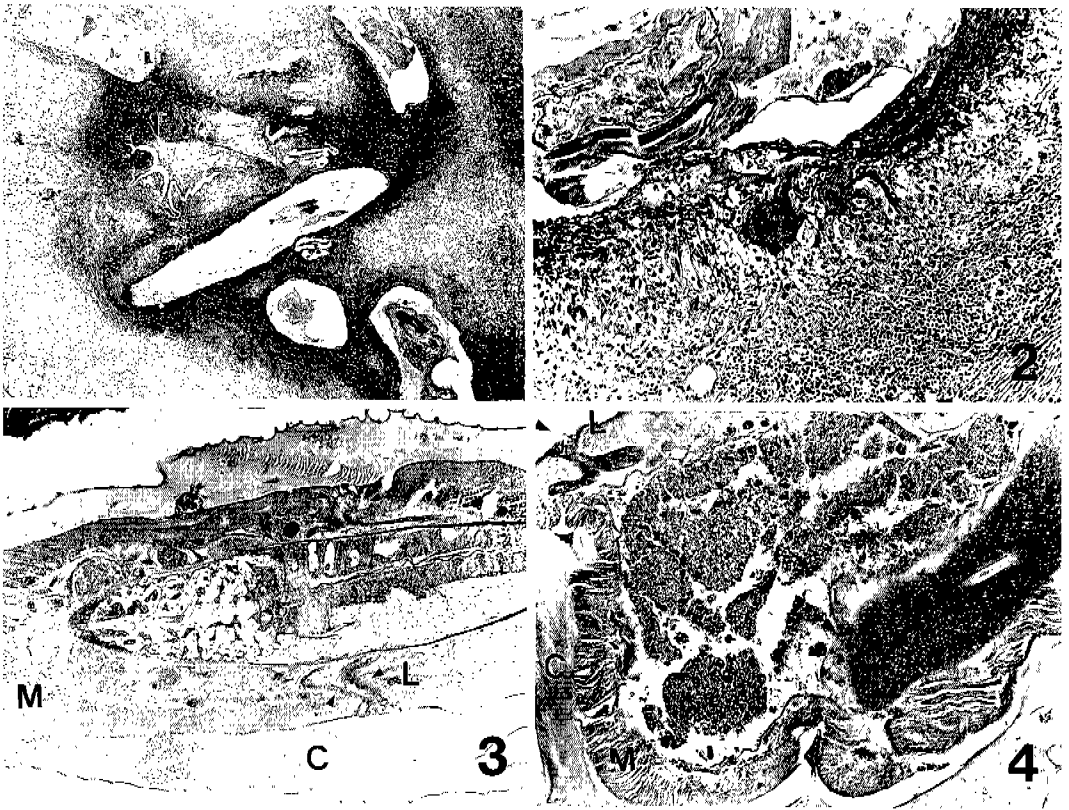


Fig. 1. Tortuous track made by *Anisakis* species larva was surrounded by necrotizing eosinophilic granulomatous inflammation. **Fig. 2.** Palisading histiocytes comprised the granuloma wall with scattered multinucleated giant cells and lymphocytic and eosinophilic infiltration. **Fig. 3.** Longitudinal stump of *Anisakis* species larva (**L**, Y-shaped lateral cord; **C**, swollen eosinophilic cuticle; **M**, polymyarian muscle cell). **Fig. 4.** Cross stump of the *Anisakis* species larva (**E**, excretory gland cell (renette cell); **I**, intestine).

location (Oshima, 1987). Another point to discuss is that some cases of reported extragastrointestinal anisakiasis should be regarded as gastrointestinal even if the worm was found at the peritoneal cavity (Kagei *et al.*, 1995). Though the lesion at intestinal wall was not described in the case of Seo *et al.* (1984), it can be regarded as the intestinal anisakiasis (Oshima, 1987; Kagei *et al.* 1995).

It is necessary to differentiate anisakiasis involving lymph nodes from metastatic lesions of primary cancer, as in the present case. Its epidemiological significance is still obscure because we do not know exactly how many cases of the extragastrointestinal anisakiasis was identified. So far, incidental detection of the lesions has been all those we know about extragastrointestinal anisakiasis. In the future, imaging diagnosis by ultrasonography,

biopsy during endoscopic laparoscopy and incidental detection of the antibody positive cases may contribute increased detections of such lesions (Yoshimura *et al.*, 1979).

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=초록=

횡행결장간막의 림프절을 침범한 고래회충유충증의 장외감염 1례

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고래회충의 유충감염증은 주로 위장관을 침범하여 육아종을 형성하고 급성복통 등 임상증상을 유발한다. 그러나 감염 일부에서 유충은 위장관 벽을 통과하고 복강내 기관에서 육아종을 형성하는 경우가 있으며 일본에서는 이러한 장외감염이 전체 고래회충증의 0.4%를 차지한다고 보고된 바 있다. 우리나라에서는 이와 같은 증례가 보고된 바 없어 이를 기록하고자 한다. 환자는 43세된 남자로 서울에 거주하며, 입원 3주일 전부터 피곤감과 식욕부진 증상이 나타나고 3일전 부터는 혈변이 있어서 복부 전산화 단층촬영을 시행한 결과 위 중간부 전벽에서 종양이 발견되었다. 종괴를 수술하는 과정에서 횡행결장간막의 림프절이 커진 것이 발견되어 생검하였다. 림프절의 크기는 0.8 × 0.6 cm였으며, 조직병리학적 검색 결과 호산구의 침윤이 심한 육아종이었고 육아종 중심에서 선충의 절편이 발견되었다. Y-자 모양의 축선, 근육세포의 수와 모양, 배설세포의 모양과 크기, 전체 절편의 크기 등을 기초로 고래회충(*Anisakis* species) 유충으로 진단하였다. 그러나 이 환자의 주병변과 고래회충의 장외감염과는 관련이 없다고 생각하였다.

[기생충학집지 35(1): 63-66, 1997년 3월]