

Asymptomatic Anisakiasis of the Colon Diagnosed and Treated by Colonoscopy

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Abstract

Anisakiasis can involve any part of the digestive tract, but most cases reported have involved the stomach; few reports have described colonic anisakiasis. Furthermore, asymptomatic colonic anisakiasis has been reported to be very rare. A 58-year-old Japanese male asymptotically received colonoscopy due to a fecal occult blood testing positive, and an *Anisakis* larva was removed in the ascending colon. After colonoscopy, a detailed questioning concerning eating raw fish revealed that the patient ate the liver of raw filefish 21 days before the colonoscopy. Thus, questionings concerning eating the raw fish were very important and helpful for correct diagnosis. This case report demonstrated that colonic anisakiasis can be diagnosed by colonoscopy before severe complications (intestinal obstruction, perforation, and cancer development) occur. Also, biopsy forceps could be used to remove the *Anisakis* worms, demonstrating that diagnosis and treatment can be simultaneously performed.

Keywords

Asymptomatic, Anisakiasis, Ascending Colon, Colonoscopy, Risk Factor for Cancer

1. Introduction

Anisakiasis can involve any part of the digestive tract, but most cases reported have involved the stomach; few reports have described colonic anisakiasis [1] [2]. Furthermore, asymptomatic colonic anisakiasis has been reported to be very

rare [2].

Anisakiasis has four major clinical forms: 1) gastric anisakiasis with epigastralgia, nausea and vomiting, which is abrupt in onset and occurs 1 - 12 hour after ingestion of raw seafood infested by *Anisakis* larvae; 2) intestinal anisakiasis, which presents with intermittent or constant abdominal pain 5 - 7 days after ingesting food infested with *Anisakis* larvae and sometimes with ascites or peritoneal signs; 3) ectopic or extra-gastrointestinal anisakiasis, caused by *Anisakis* larvae penetrating the stomach or intestine; and 4) allergic reactions, presenting as anaphylaxis, urticarial and angioedema [3] [4] [5]. Rarely occurring colonic anisakiasis is difficult to diagnose and patients sometimes complained of abdominal pain lasting several weeks [6]. The present case was asymptomatic and was detected by colonic fiber due to a fecal occult blood extrovert by medical examination. Questionings after colonoscopy, concerning eating raw fish were very important and helpful for correct diagnosis.

Association between inflammation and carcinogenesis has been well postulated. Inflammation involves an interaction among various immune cells, chemokines, cytokines and other mediators, which can lead to signaling toward oncogenic microenvironment, tumor cell proliferation, growth and invasion [7] [8]. Several parasites could contribute to preneoplastic changes through the direct effect of their antigens [9]. Indeed, previous exposure to *Anisakis* has been reported to be as a potential risk factor for gastric or colorectal cancer [10].

We report here an asymptomatic anisakiasis case in the ascending colon diagnosed and treated during colonoscopy, and no other (pre)neoplastic lesions in the stomach nor colon have been detected.

2. Case Report

A 58-year-old Japanese male visited to colonic fiber due to a fecal occult blood positive by medical examination in 2019. He underwent colonoscopy using the Olympus video colonoscope (Evis Lucera, Elite, CV-290, Olympus Corporation, Tokyo, Japan) was used. After cecal intubation, the colonoscope was withdrawn to hepatic flexure to perform a forward-viewing examination. The retroflexion technique was performed, and we noticed a worm suspected to be an *Anisakis* larva embedding in the mucosa of the ascending colon (**Figure 1**). We removed the larva using a biopsy forceps and submitted for further microbiological examination, and confirmed an *Anisakis* larva by the presence of a simple digestive tube, esophagus-ventriculus-intestine [11] [12] (**Figure 2**). We observed that the larva showed Y-shaped lateral epidermal cords on the cross-section (data not shown). Other pathological lesions could not be detected in the colorectum. Subsequent further gastroscopic check revealed no other pathological findings including worms. The patient had no complaints before and during colonoscopy. After colonoscopy and gastroscopy, questionings concerning eating raw fish showed that the patient ate the liver of raw filefish 21 days before this colonoscopy day. We suspected that the liver of raw filefishes eaten three weeks ago is the

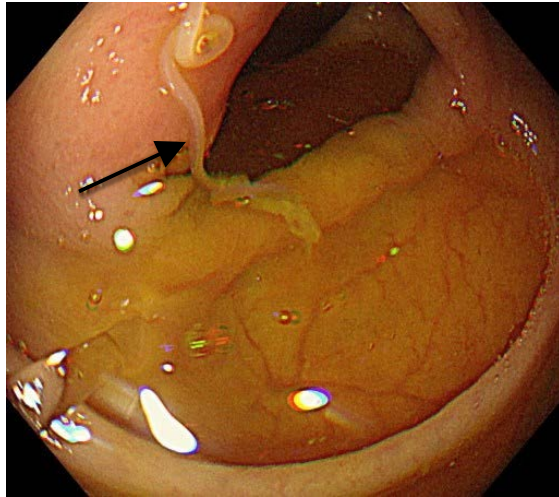


Figure 1. A larva (arrow) is noted on the surface of edematous mucosa of the ascending colon during the colonoscopy.



Figure 2. A larva has a simple digestive tube, esophagus-ventriculus-intestine, suggesting *Anisakis simplex*.

cause of the colonic Anisakiasis. His fecal occult blood extrovert was supposed due to the colonic Anisakiasis. After removing colonic Anisakiasis, he received the gastroscopy and colonoscopy over a year and no neoplastic and preneoplastic lesions were detected.

3. Discussion

Human anisakiasis is caused by infection with the third-stage larvae of *Anisakis* sp. or *Pseudoterranova decipiens*, that are common nematode parasites of marine mammals [13]. The disease condition occurs after consumption of infected salt-water fish or cephalopod mollusk species, including mackerel, squid, sardine, horse mackerel, salmon, and bonito [14]. This serious zoonotic disease was first described by van Thiel *et al.* [15] in 1960. The prevalence of anisakiasis is

clearly related to dietary habit of consuming raw, lightly cooked, or marinated seafood, such as Japanese sushi and sashimi, Dutch salted or smoked herring, Scandinavian gravlax, Hawaiian lomi-lomi, and Latin American ceviche [14] [16]. Anisakiasis is increasing in countries such as Spain, Italy, and Japan, where raw or lightly cooked fish is highly consumed [10] [14] [17]. However, the frequency of the disease could be underestimated in other countries where the consumption of these dishes is less frequent because it can be easily misdiagnosed as appendicitis, gastric/colonic ulcer, or other food allergies [14].

Approximate over twenty thousand cases of anisakiasis are reported every year and over 90% are from Japan [5]. Colonic anisakiasis usually presents with intermittent or constant abdominal pain 5 - 7 days after ingestion of food infested with *Anisakis* larvae [4] [5]. Only 0.25% of colonic anisakiasis was found in 30,000 reported cases in Japan [6]. The rarity of colonic anisakiasis might be too far from the mouth for orally ingested larvae to reach [6] [18]. Although the *Anisakis* larvae were found in the each part of the colon, the ascending colon was reported to be the most location found in colonic anisakiasis [19]. The more frequent found in the ascending colon may be related with gradual peristalsis and slow transit [18]. Males (79%) are predominantly affected with colonic anisakiasis, and their mean age is reported to be 54-year-old [19]. The present case was asymptotically found an *Anisakiasis* larva in the ascending colon in 58-year-old Japanese male. In Japan, males might tend to like raw fish to eat than females.

In this case, the patient did not complain any symptoms including abdominal pain, nausea, vomiting, and constipation that are common clinical symptoms of bowel anisakiasis [20]. The patient was found that the fecal occult blood test performed in the medical checkup was positive, then he decided to receive the colonoscopy to find the cause of positive result in the fecal occult blood test. After our findings of colonic *Anisakis* larvae in his ascending colon, detailed questionings, especially eating history of raw fish revealed that he ate raw livers of filefish 21 days before the colonoscopy. Fortunately, he had no symptoms, including abdominal pain and allergic reactions. However, our detection was relatively late when compared to the reported cases of colonic anisakiasis [21].

A few reports describing colonic anisakiasis were mostly short case reports and asymptomatic colonic anisakiasis appears to be very rare [1] [2] [22] [23] [24] [25] [26]. Colonic anisakiasis often manifests as a submucosal tumor (SMT) due to persistent local inflammation and granulation [25], which sometimes cause intussusception [27]. *Anisakis* larvae have also been incidentally found in the surface of gastric and colonic tumors [1] [22]. Some cases might be re-diagnosed as colonic anisakiasis following the treatment for SMT [27]. Intestinal anisakiasis occasionally causes penetration of the intestinal wall and results in granulomatous mass if no treatments are provided. In our case, we did not observe inflammatory signs, granulomatous lesions or SMT in the colon infected by an *Anisakis* larva during the colonoscopy.

Infection with *Anisakis* larvae might be a possible risk factor for developing

cancers in the colon and stomach [9] [10]. After treating gastro-intestinal anisakiasis, we should carefully follow-up the patients by the fecal occult blood test and/or gastroscopy or colonoscopy. This case report demonstrated that colonic anisakiasis can be diagnosed by colonoscopy before severe complications, such as intestinal obstruction or perforation, occur. Also, biopsy forceps could be used to remove the *Anisakis* worms, demonstrating that diagnosis and treatment can be simultaneously performed.

4. Conclusion

In conclusion, by colonoscopy we correctly diagnosed and treated intestinal anisakiasis. Early colonoscopy is helpful in the diagnosis and treatment of colonic anisakiasis when the patient has a history of ingestion of raw fish. In addition, colonic anisakiasis could be diagnosed by colonoscopy when an asymptomatic patient has a history of eating raw fish. We also noticed that questionings concerning eating history of raw fish were very important.

Consent

Verbal consent was obtained from the patient before writing this case report.

Ethical Approval

This was obtained from the ethical committee of our hospital before writing this case report.

Authors' Contributions

Authors' contributions	TT	KN	AS	AK	KH	YM	MT	MK	KN	TT
Research concept and design	y	y	n	n	n	n	n	n	y	n
Collection and/or assembly of data	n	y	y	n	n	y	y	y	y	n
Data analysis and interpretation	y	y	y	y	y	y	n	y	y	n
Writing the article	n	y	n	n	n	n	n	n	n	y
Critical revision of the article	y	y	n	n	n	n	n	n	n	y
Final approval of article	y	y	y	y	y	y	y	y	y	y

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Conflicts of Interest

The authors declare that they have no competing interests.

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