



Case report

Necrotizing soft tissue infection of the thigh associated with retroperitoneal abscess in a patient with locally advanced ascending colon cancer: A case report



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ABSTRACT

Necrotizing soft tissue infection (NSTI) is a rare but rapidly progressing soft-tissue infection. Few reports of NSTI caused by colon cancer have been published. We present a rare case of NSTI of the thigh associated with retroperitoneal spread of ascending colon cancer. A 64-year-old man had noticed right hip pain since 3 months before admission, he felt pain in the right thigh which was reddening, and he had difficulty in walking. He was referred to Yokosuka general hospital Uwamachi. Anterolateral aspect of his right thigh was reddening and swelling. The patient was diagnosed with a psoas abscess and a NSTI of the right thigh caused by penetration of ascending colon tumor. The patient underwent debridement of severely necrotized tissue in the right thigh, diverting ileostomy and subsequently a right hemicolectomy with reversal of the ileostomy were performed. He was discharged 70 days after the first surgery. Colon cancer can be a cause of retroperitoneal abscess accompanied by NSTI of the thigh. Two-stage surgery was an efficient option in this patient with NSTI of the thigh associated with locally advanced ascending colon cancer.

Introduction

Necrotizing soft tissue infection (NSTI) is a rare but life-threatening infection of the skin and soft tissues. Broad-spectrum antibacterials and multiple surgical debridements are required in the early stage in order to reduce the associated high mortality rate, which ranges between 20% and 40% [1–7]. Immunocompromised and diabetic patients are at higher risks of developing NSTI [8]. NSTI could develop in any area of the body but is commonly seen in the extremities, perineum, and genitalia [9]. NSTI can be caused not only by trauma to the skin or mucosal surface, such as that induced by animal and insect bites, scratches, and abrasion, but also by surgical wounds in the perineum and lower extremities [10]. Other less common causes include intestinal diseases; such as perforated or penetrated diverticulitis, ruptured appendix, and inflammatory bowel diseases [11]. At present, few reports of NSTI in an extremity associated with colon cancer have been published. We present a rare case of NSTI of the thigh associated with

the retroperitoneal spread of ascending colon cancer.

Case report

A 64-year-old man had noticed right hip pain for 3 months before admission without consulting a physician. Two months later, he had felt pain in the right thigh which was reddening, and he had difficulty in walking. He was referred to Yokosuka general hospital Uwamachi with no past medical history and no significant family history. He had no past medical history, and no familial history. On physical examination, his blood pressure was 106/66 mmHg with a pulse rate of 112 beats and respiratory rate of 24 per minute and body temperature of 38.6 °C. The anterolateral aspect of his right thigh was erythematous and swollen. There was a palpable mass in the right lower abdomen with no rebound tenderness. Laboratory analysis showed a high C-reactive protein level of 11.13 mg/L, white blood cell count was 17,700/μL. Tumor markers were within normal range as follows, CEA; 3.9 ng/mL

Abbreviations: NSTI, necrotizing soft tissue infection; CT, computed tomography

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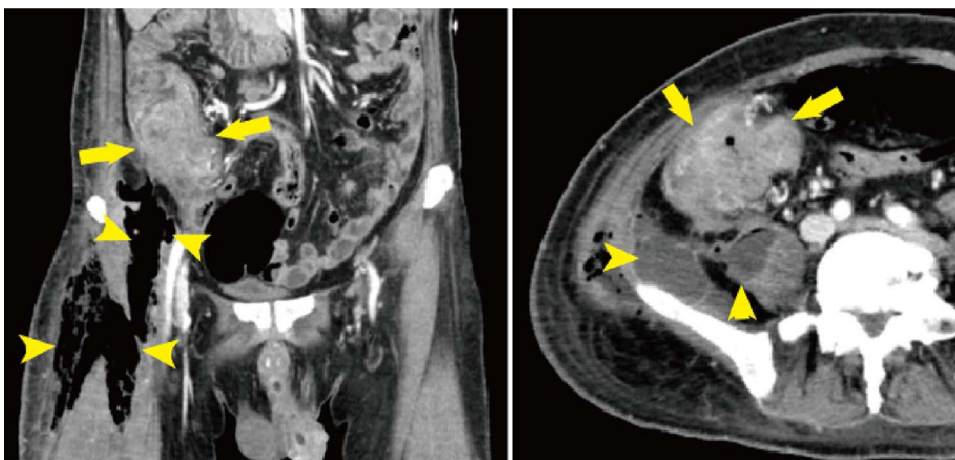


Fig. 1. Abdominal computed tomography (CT) revealed ascending colon tumor (arrows), free air through the abdominal cavity to the intra muscular space of the right thigh, and fluid collection in the retroperitoneal cavity and psoas muscle (arrow heads).

and CA19-9; 5.2 U/ml, and blood gas analysis revealed pH; 7.549, pCO₂; 30.5 mmHg, HCO₃; 26.6 mEq/L, Lactate; 2.3 mmol/L. Abdominal computed tomography (CT) revealed ascending colon tumor, a large amount of free air between abdominal cavity and right thigh, and fluid collection in the retroperitoneal cavity and the psoas muscle (Fig. 1). Chest CT revealed multiple enhanced masses in the bilateral lungs with the maximum size of 15 mm.

From these findings, the patient was diagnosed with psoas abscess and NSTI of the right thigh caused by penetration of an ascending colon tumor. The patient underwent urgent surgery. Debridement was performed to right thigh which was severely necrotic and had abscess collection (Fig. 2). Intraoperatively, the tumor was located in the ascending colon (ileocecal region), and was adhered to ventral and dorsal peritoneum. The route of extension of infection into the thigh appeared to be through the femoral canal. The patient underwent ileostomy. Consequently, the patient was treated with antimicrobial therapy using meropenem, and clindamycin. Anaerobic cultures obtained from the abscess grew *Streptococcus anginosus*, *Escherichia coli*, *Klebsiella pneumoniae*. On the basis of these bacterial findings, the antibacterials were deescalated to ceftriaxone. After the first operation, negative pressure wound therapy with instillation had been performed for the right thigh. Five and 8 days after the debridement operation, the patient underwent additional debridement under the total anesthesia. The patients had started oral intake on 14 days after the first operation, then second operation was underwent on the 30 days after the first operation. There was little ascites and peritoneal dissemination of tumor was not found. The ascending colon was found to invade the iliopsoas muscle. A reversal of the ileostomy and right hemicolectomy were performed (Fig. 3) On the 62 days after the first surgery, 32 days after the latest surgery, the skin defect of the right thigh was covered by a split-thickness skin graft. He was discharged from the hospital on day 70 after the first surgery and 42 days after the last surgery.



Fig. 2. Intra-operative findings after the debridement of right thigh which was severely necrotic and had abscess collection.



Fig. 3. The resected specimen showed a type 2 tumor with the size of 10 × 9 cm in the ascending colon. Histological analysis showed moderately differentiated adenocarcinoma invaded into peritoneum.

Discussion

NSTI is a rare but life-threatening infection involving the skin, soft tissue and deep fascia that is characterized by progressive and potentially fatal soft tissue infection that requires prompt, radical, and often multiple surgical debridement of all involved tissue. Immunocompromised and diabetic patients are at higher risks of developing NSTI [8]. Development of abscess or NSTI in the thigh associated with colorectal carcinoma is uncommon. In a literature review, 5 cases have been reported as NSTI in the thigh associated with colorectal cancer. Three of them developed NSTI during the chemotherapy [12,13] or radiotherapy [14] for the treatment of colorectal cancer. The other 2 cases were diagnosed with NSTI accompanied by colorectal cancer [15,16]. Although further accumulation of cases is needed, two-stage surgery might be more safety than simultaneously surgery of colectomy and debridement. If the patient developed with NSTI in the thigh without any risks such as immunocompromised or diabetes mellitus, physicians should take locally advanced colorectal cancer into account as a cause of this life-threatening infection disease, and also NSTI should be considered during chemotherapy or radiotherapy for the treatment of colon cancer. Colon cancer could be a cause of retroperitoneal abscess accompanied by NSTI of the thigh. Early diagnosis and appropriate treatment can help reduce mortality rate associated with NSTI. This case report is compliant with SCARE guidelines [17].

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Authors' contributions

SH, TK participated in the patient's treatment, data analysis and writing of the article. SO, KN, RM, KN, HK and TS participated in the patient's care and data collection. CT, AY managed negative-pressure wound therapy and performed covering skin defect of the thigh by a split-thickness skin graft.

SH, TK and TS participated in revising the manuscript critically. All authors read and approved the final manuscript.

Ethics approval and consent to participate

All procedures performed in the treatment of this patient were in accordance with the ethical standards of our institution and with the ethical guidelines of the Declaration of Helsinki.

Competing interests

The authors declare that they have no competing interests.

Consent for publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

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