Case Report

Necrotizing fasciitis as an initial manifestation of perforated rectal cancer in a young man

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Abstract

Necrotizing fasciitis, commonly known as flesh-eating disease or flesh-eating bacteria syndrome, is a rare infection that affects and easily spreads across the deep fascia of the skin and subcutaneous tissues. Literature reviews have identified several related risk factors and these include malignancy, alcoholism, malnutrition, diabetes, male gender, and old age. There are few case reports in the literature describing this rare disease in association with colorectal malignancy. Perforated colorectal carcinoma often presents as an acute abdomen infection in most cases. Here we report a young man with a unique case of perforated rectal cancer that was disclosed by necrotizing fasciitis of the right lower limb without any sign or symptom of peritonitis. This case highlights the need for prompt diagnosis, urgent aggressive surgical debridement and consideration of a rare underlying cause when managing necrotizing fasciitis.

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1. Introduction

Necrotizing fasciitis (NF) is a rare but devastating infection that affects the deep fascia and involves secondary necrosis of the subcutaneous tissues. The infection can be difficult to recognize at an early stage, but it rapidly progress and the disease’s spread is directly proportional to the thickness of the subcutaneous layer. The disease requires aggressive treatment in order to combat the associated high morbidity and mortality. NF can be secondary to trauma, surgery, and/or wound infection or be idiopathic in origin. General risk factors include immunosuppression, malignancy, diabetes, malnutrition, alcoholism, and old age.

NF can be difficult to recognize at an early stages, but is rapidly progressive with an overall mortality of 50% to 70%. The affected area is initially very painful but without visible change in appearance. The tissues later become erythematous, swollen with necrosis and the crepitus could be palpated. Patients are typically unwell when they present at a later stage with septic shock.

There are few case reports in the literature describing the disease’s rare association with colorectal malignancy, and most of these cases are attributable to bowel perforation resulting in NF in the perineal or abdominal region. Isolated upper or lower limb infections without any signs of an acute abdominal infection are exceedingly uncommon. Therefore, early recognition with a high index of suspicion is very important in order to avoid the devastating outcome of NF. We present a unique case of a young male patient who developed rare fulminant NF of the right lower limb as a result of perforated rectal cancer.

2. Case report

A 28-year-old male presented at our emergency department with a one-week history of severe pain together with progressive swelling and redness in his right lower limb. He denied any previous history of trauma. No wound or skin abrasions could be identified over his right lower limb. In
addition to the swollen right lower limb, the patient also complained of abdominal fullness as well as intractable and progressive hiccups for 2 days. He was noticed to have unexplained sinus tachycardia despite a normal haemodynamic status and normal oxygen saturation. His vital signs were: blood pressure 123/67 mmHg, pulse rate 125/minute, respiratory rate 20/minute, and body temperature 38.7 °C.

On examination, he was lethargic, febrile, and tachycardic but normotensive. His right lower limb was erythematous, edematous, and warm and there was severe tenderness associated with palpable crepitus from the gluteal fold to ankle. His abdomen was distended but not tender and there was no rebounding pain on palpation.

His blood parameters revealed marked leukocytosis (WBC $13.1 \times 10^9/L$) with an elevated C-reactive protein (195 mg/L). A plain x-ray of the patient’s right lower limb showed extensive gas in both the subcutaneous tissue and deep fascia of the right thigh and extending below the knee.

A provisional diagnosis of NF with sepsis was made. An urgent computed tomography (CT) scan of the abdomen and right lower limb was performed, which revealed abscess formation at mesorectum, right obturator foramen, and right gluteal region to right lower extremity with extensive gas present along the fascial planes (Fig. 1). Perforated rectal cancer was also suspected from the CT scan.

The patient was admitted to the surgical intensive care unit under the impression of right lower limb NF as a result of perforated rectal cancer. An emergency colostomy and fasciotomy with extensive debridement of right lower limb was performed. Microbiology showed the profuse growth of *Escherichia coli* and the patient was treated with broad-spectrum antibiotics. Serial aggressive debridement was performed as soon as the patient was admitted to the hospital.

3. Discussion

Perforated colorectal carcinoma in the absence of acute abdominal symptoms and signs as seen in this patient is very unusual. Although rare, necrotizing fasciitis involving the perineum (Fournier’s gangrene) or abdominal wall subsequent to perforated colorectal carcinoma has been reported. Perforations into the retroperitoneum have also been reported to cause psoas abscesses, which can be present in the anterior or medial thigh. NF as a result of colorectal cancer is rare in itself, but this case is unique because it presented both without any sign or symptom of peritonitis and as NF of the posterior thigh.

A CT scan is the radiological investigation of choice when NF is a possibility, although magnetic resonance imaging may also be useful. The presence of soft-tissue gas dissecting along the fascial planes is suggestive of NF and its characteristic CT appearance is important to establishing the diagnosis.

The infective organism may be aerobic, anaerobic, or a mixed flora, and the expected clinical course varies from patient to patient. At an early stage, blood cultures are rarely positive because the disease process primarily affects the subdermal tissues. Elliott et al. concluded that most cases of NF are polymicrobial and that the initial antibiotic cover should be effective against Gram-positive cocci, Gram-negative rods, and anaerobes.

Perforated colorectal cancer has serious complications that place the patient in double jeopardy, both from the insult of the cancer and also from the local infection that usually manifests as peritonitis. In this case, unusually, it was the NF rather than the peritonitis or rectal cancer that proved almost fatal. Interestingly, our patient presented with a perforation of the rectal cancer in the absence of acute abdominal symptoms and signs, which is in itself very unusual. Perforated colorectal cancer normally occurs intraperitoneally, but when it occurs extraperitoneally and presents late, can be catastrophic. In essence, perforated colorectal cancer represents an entry focus for bacterial translocation that might penetrate the subcutaneous soft tissues and lead to a necrotizing infection.

This case highlights the importance of considering rare underlying causes of NF. Therefore, an early recognition with
a high index of suspicion followed by prompt surgical intervention is the cornerstone of treatment that will help to improve an otherwise dismal outcome. Any delay in diagnosis and surgical treatment will contribute to the demise of the patient.

References


