Chirurgia (2014) 109: 693-696
No. 5, September - October
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Peristomal Necrotizing Fasciitis - Peculiar Evolution of a Patient with Metachronous Colonic Tumors

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Rezumat

Fasceita necrozantă peristomală - evoluție particulară a unui pacient cu tumori metacrone de colon

Prezentăm cazul unui pacient cu un istoric neoplazic și chirurgical particular. M.V. este un pacient de 54 de ani care a prezentat în urmă cu 2 ani o ocluzie intestinală prin neoplasm sigmoidian, pentru care s-a practicat rezecție recto-sigmoidiană segmentară Hartmann. Pacientul a avut ulterior alte 2 intervenții chirurgicale, în alt serviciu: tentativa de reîncadrare a colonului în tranzit și cura chirurgicală a eventrației parastomale, ambele eșuate datorită sindromului aderențial postoperator. S-a internat pentru o leziune de gangrenă parietală peristomală extinsă și fasceită necrozantă la acest nivel. S-a intervenit chirurgical de urgență pentru rezolvarea supurației parietale. Evoluția postoperatorie a fost favorabilă la nivel local, ceea ce a permis plastie de piele pentru rezolvarea defectului tegumentar parietal. După 2 luni, pacientul s-a reinternat pentru apariția ocluziei intestinale prin tumora metacronă extinsă de unghi splenic al colonului. Rezolvarea a constat în completarea hemicolectomiei stângi, gastrectomie totală, splenopancreatectomie caudală și suprarenalectomie stângă. Evoluția post-operatorie imediată și după 1 an a fost favorabilă.
Concluzie: Remarcăm evoluția foarte gravă a supurației parietale peristomale, cât și evoluția rapid progresivă spre ocluzie a tumorii metacrone.

Cuvinte cheie: fasceită necrozantă, tumori colonice metacrone

Abstract

We hereby present a case report of a patient with an unusual neoplasic and surgical history. M.V. is a 54-year-old patient who had been operated, two years ago, for intestinal obstruction caused by a sigmoid tumor; a segmental rectal and sigmoid resection (Hartmann's procedure) was then performed. Two other surgical procedures were attempted during the last two years, in another surgical department: a colo-rectal anastomosis and a repair of the parastomal hernia, both failed due to post-operative adhesions syndrome. The patient was hospitalized for peristomal gangrene with necrotizing fasciitis. Emergency action was taken to resolve the parietal gangrene. The post-operative local evolution of the wound was favourable and allowed a skin graft for parietal restoration. An intestinal obstruction occurred 2 months later, caused by an extended metachronous tumor of the splenic flexure. The patient underwent other surgeries including the completion of the left hemicolectomy, total gastrectomy, caudal splenopancreatectomy and left adrenalectomy. The patient has a favourable post-operative evolution after 1 year.
Conclusion: We noticed a very severe evolution of the peristomal gangrene and the rapid growth towards intestinal obstruction of the metachronous colonic tumor.

Key words: necrotizing fasciitis, metachronous colon tumors

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Introduction

Necrotizing fasciitis (NF) is a life-threatening rapidly progressive infection, mainly involving necrosis of subcutaneous and fascial tissues, with thrombosis of the subcutaneous blood vessels (1). NF may have many contributing factors including previous surgery, radiotherapy, intestinal fistulas and malignancy; in our case, this cause was a metachronous tumor.

Case report

A 54-year-old male patient had a surgical history of bilateral inguinal hernia repair and an intestinal obstruction, caused by a sigmoid tumor (2010), for which he underwent a rectal and sigmoid resection, with left iliac colostomy. The operation was followed by radiotherapy, with 2 other attempted surgeries in the past year: restoration of the intestinal transit and parastomal hernia repair, both failed due to postoperative adhesions syndrome.

In November 2012 the patient was admitted in our hospital for peristomal gangrene with intensely fetid necrotizing fasciitis, which had been developing for about 72 hours (Fig. 1). He underwent an emergency surgical intervention: the parietal gangrene areas with necrotizing fasciitis were excised, pus and a significant amount of faeces drained (Fig. 2), without identifying the presence of a fistula at the surgical site. Bacteriological examination of the wound revealed the presence of Escherichia coli. A total number of 6 consecutive operations were needed, with the aim of achieving a complete excision of the necrotic tissue and cleaning the wound. Furthermore, we established a negative-pressure therapy system. The patient was discharged after 19 days (Fig. 3) and was admitted in December in a Plastic Surgery Department, where skin grafts were performed (Fig. 4).

The patient was admitted again after 8 weeks, in January 2013, complaining of a significant abdominal distension and of an absence of transit for stool in the last 72 hrs and for gas in the last 24 hrs. The symptoms were suggestive of a recurrent intestinal obstruction. Abdominal X-ray revealed major distension of the transverse colon. CT examination revealed a 12/11/7 cm tumor of the splenic flexure of the colon, that had invaded the stomach and the left adrenal gland. During surgery, we found the tumor of the splenic flexure, with stenosis and significant dilatation of the transverse colon, ascending colon and caecum. A large resection of the organs involved was performed, including a segmental resection of the colon, which completed the left hemicolectomy, followed by a terminal colostomy, as well as total gastrectomy with eso-jejunal anastomosis, caudal splenopancreatectomy, left adrenalectomy (Fig. 5). The postoperative evolution was favourable. The patient was discharged 18 days after the admission. Late follow-up has shown no signs of neoplasic recurrence.

Discussions

NF can be classified in 4 pathogenic groups, in terms of clinical evolution, type and number of etiological agents and features of host. Type I of NF is the most common (80%), affecting patients with immunodeficiencies or those with underlying abdominal pathology such as: gastrointestinal malignancy, surgery, perforated viscera or trauma, chronic liver disease (2). It is characterized by synergistic mixture of anaerobic, aerobic and facultative anaerobic germs, such as



Figure 1. *Peristomal gangrene with necrotizing fasciitis*



Figure 2. *Intraoperative image: drainage of pus and faeces*



Figure 3. *Postoperative result, at the moment of discharge*



Figure 4. *Postoperative image, after skin graft*

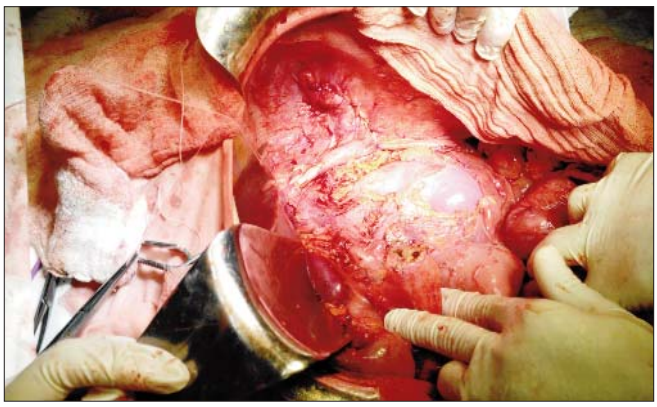


Figure 5. *Total gastrectomy with eso-jejunal anastomosis, caudal splenopancreatectomy, left adrenalectomy - final intra-operative image*

Escherichia Coli, Pseudomonas spp, and Bacteroides spp (3). In our case, bacteriological examination of the wound revealed Escherichia Coli.

The onset of the disease was characterized by the presence of erythema, tenderness and local warmth, with peristomal location, extended to the left side of the abdomen, followed by blisters or bullae, areas of fluctuation or induration (4). When the patient was admitted, after 48 hours of progression of the disease, physical examination revealed intensely fetid skin necrosis progressing to gangrene, with faeces spontaneously elapsing from the parietal gangrene area.

Laboratory results may be useful, especially the LRINEC score for NF consisting of C-reactive protein, leucocytosis, hemoglobin, sodium, creatinine and glucose level (2). Although some of these tests were not run from the beginning, the number of the leucocytes remained normal throughout the patient's hospital stay.

Imaging methods, such as X-rays or ultrasonography, may have revealed gas in the abdominal wall, while a CT-scan could have identified the extent and the source of the infectious process, as well as the subsequently discovered colonic tumor. In our case, an emergency operation was considered mandatory. An aggressive surgical exploration and debridement of all the nonviable tissue was only the first step; the parietal gangrene areas with necrotizing fasciitis were excised, pus was collected for a bacteriologic exam and a sizeable amount of faeces were drained, without identifying the presence of a colonic fistula. Negative pressure wound therapy (NPWT) was established and repeated every 48 hrs.

The expected benefits of NPWT were controlling the exudate, a reduced number of dressings (as well as the decreasing of the pain associated with the changing of dressing), rapid wound granulation and a lower risk of infection (5).

NPWT is not indicated in: osteomyelitis, malignancy, non-enteric and unexplored fistula, exposed blood vessels or nerves, anastomotic sites and organs, necrotic tissue. Its limits are: the presence of weakened blood vessels, the exposure of internal organs, bleeding and enteric fistula (6).

We noticed the presence of a parastomal hernia, which is a complication that occurs in up to 80% of patients, five years after the operation (7). An inadequate surgical technique is the most widespread cause of parastomal hernias. Several studies concluded that using a sublay or onlay prophylactic mesh for the primary stoma formation procedure is a viable method, which may decrease the incidence rate of parastomal hernia, including severely contaminated wounds (7,8). Several randomized studies suggest that using a large-pore mesh with low content of polypropylene and high content of asorbable product placed in a sublay position may be the best approach, causing a very low rate of parastomal hernia (9). The relocation of a stoma should be performed on the opposite side of the midline of the abdominal wall, since very high recurrence rates have been reported when the relocation is done on the same side of the midline.

Gastrointestinal surgery, inflammatory bowel disease, neoplasia and radiation are the main causes for the majority of entero-cutaneous fistula. The preoperative factors that increase the likelihood of fistula development include malnutrition, infection and emergency procedures (10). Up to three quarters of patients undergoing abdominal or pelvic radiation will suffer some degree of radiation enteritis and some will also develop fistulous complications (11). In the event of a fistula, especially in a patient with a known history of malignancy, further imaging is needed, such as computed tomography (CT) or magnetic resonance imaging (MRI). Contrast studies are expected to demonstrate intestinal and extraintestinal pathology, including residual cancer or carcinomatosis, abdominal or pelvic abscesses and the topography of the fistula (12)

We limited the first intervention to exploration and proper drainage, because no obvious cause of the fistula was found and the patient showed no sign of peritonitis process. We concluded that the infection source was above the fascia. An expanded free skin graft was performed in a specialized unit, 2 weeks after the first intervention.

At the time of the follow-up visit, after 6 weeks, the patient suffered from severe bloating, diffuse abdominal pain and absence of the intestinal transit for the last 48 hrs. Plain

X-ray showed important transverse colon distension and CT examination revealed a 12/11/7 cm tumor of the colon, that invaded the stomach and the left adrenal gland. We found a voluminous, obstructive tumor of the splenic flexure, which invaded the greater curvature of the stomach as well as the spleen and the adrenal gland. Therefore, a widely extended resection was performed, which included all the above-mentioned organs. Colostomy was maintained and relocated, since the patient's status did not allow a safe primary anastomosis (13). The patient completely recovered and was discharged from the hospital 18 days after this operation.

Metachronous and synchronous tumors account for 3-5% of the patients with colonic cancer. Metachronous colon tumors are usually diagnosed 6 to 12 months after the first surgery (14,15). Postoperative scheduled follow-up is mandatory; patients with metachronous and synchronous tumors have lower survival rates than the general population (16).

In the case of our patient, moderately differentiated adenocarcinoma with desmoplastic reaction and chronic inflammatory infiltrate was found at histopathological examination both in 2010 (pT3 pN1 pMx G2) and 2012 (pT4 pNo pMx G2).

Conclusions

In this case, we noticed a very severe evolution of the peristomal parietal suppuration and also a rapidly progressive metachronous tumor development. The presence of parietal suppurative phenomena and the presence of neoplasia in the patient's history guided us in determining the etiology. In NF emergency surgery is a must to improve the patient's vital prognosis.

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