

Case Report

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Damage control surgery for perforated retroperitoneal diverticulitis causing a pyomyositis

Gutiérrez Delgado MP*; Fernández Galeano P; González Sánchez A; Aranda Narváez JM; Santoyo Santoyo J

Servicio de Cirugía General y Digestiva del Hospital Regional Universitario de Málaga. España

***Corresponding Author: Pilar Gutierrez**

Servicio de Cirugía General y Digestiva del Hospital
Regional Universitario de Málaga. España
Email: pilargutierrezdelgado@gmail.com

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Abstract

Damage Control Surgery (DCS) is an appropriate approach to the treatment of critically ill patients with severe intraabdominal sepsis. DCS is not a surgical manoeuvre but an alternative treatment mode to primary definitive surgical care. Diverticular perforation is a common complication of diverticulitis and can lead to the creation of abscesses. A retroperitoneal abscess from colonic perforation is an unusual event, that can lead to misdiagnosis due to absence of peritoneal irritation. It requires a high index of clinical suspicion and radiological studies are needed. We present the case of a septic shock due to a perforated retroperitoneal diverticulitis also causing a pyomyositis. A DCS was performed, consisting in a sigmoidectomy, drainage of retroperitoneal infection, necrotizing pyomyositis debridement and leaving a temporary abdominal closure with the assistance of negative pressure therapy, to control the focus of the infection and in a second stage by performing a definitive surgery.

Background

Damage Control Surgery (DCS) is the classic approach to managing severe trauma and is defined as an “abbreviated” laparotomy, Intensive Care Unit (ICU) management, and planned reoperation for definitive repair, in order to avoid the so-called lethal triad of hypothermia, acidosis, and coagulopathy. These days, DCS has also been considered an appropriate approach to the treatment of critically ill patients with severe Intra-Abdominal Sepsis (IAS) [1-3]. Diverticular disease is now one of the most common gastrointestinal disorders among inpatients and outpatients. The high mortality associated with sepsis requires clinicians to maintain a high index of clinical suspicion [4,5]. Retroperitoneal infection is a rare clinical condition that appear to have a higher mortality rate. In these cases, the diagnosis is often delayed and patients have multiple comorbidities [6].

Case report

A 49-year-old woman was admitted at the Emergency Department for the third time in a week complaining about one and a half month of evolution of lower left limb and left hip pain. She denied fever, nausea, or vomiting. She complained about a period of constipation of one week of evolution, which resolved spontaneously, together with a period of diarrhea at the present time. During his stay in the emergency room, she went into a situation of septic shock requiring Vasoactive Drugs (VAD). On the clinical examination, a mild diffuse sensitivity during palpation of the left abdominal area was observed, which extends to the inguinal level and to the left thigh. Her laboratory values included White Blood Cells (WBC) 13,66 K/ μ L with 86.5% neutrophils, Haemoglobin (Hb) 9.9 gr/dL, and haematocrit 34.3%. We considered necessary to carry out a CT scan that showed the presence of a retroperitoneal abscess that seems to have an origin in descending colon-sigmoid (perforated diverticulitis?)

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(Figure 1), which extends through the inguinal canal to the upper limb with involvement of the musculature, muscle fasciae and subcutaneous cellular tissue (pyomyositis) and possible bone involvement of the femur (osteomyelitis). Given the initial situation of IAS, we decided on a strategy of DCS. An urgent intervention was carried out draining the retroperitoneal abscess and performing an initial necrotizing pyomyositis debridement. After a first urgent surgical approach, a first stabilization was achieved. In the first 24 postoperative hours, a CT enema scan was performed, confirming the evident fistula between the sigmoid colon and the collection (Figure 2). Although the patient was still in septic shock, it was considered necessary to perform a sigmoidectomy in order to control the origin of the soft tissue infection and to leave a temporary abdominal closure, with the assistance of Negative Pressure Therapy (NPT) provided by AB-THERATM (3M KCI, Saint Paul, Minnesota, EEUU).



Figure 1: CT scan that showed the presence of a retroperitoneal abscess with origin in descending colon-sigmoid, which extends through the inguinal canal to the upper limb.



Figure 2: CT enema scan that showed the fistula between the sigmoid colon and the collection.

48 hours later of stabilization in ICU, the patient was hemodynamically stable so was reoperated for performing a definitive surgery, consisting in a colorectal anastomosis and closure of the abdominal wall.

After performing it, the patient progressed favorably, with an initial stay in ICU of 4 days. She made a slow but complete recovery requiring several wound cures, including the use of NPT in the lower left limb. Finally, the patient was discharged

on the 30th day, with adequate oral tolerance and preserved intestinal passage. Definitive pathological anatomy showed the presence of complicated diverticular disease with signs of perforation and peritonitis with the absence of histological signs of malignancy.

Discussion

DCS concept was defined as surgery with the aim “to enhance patient recovery by means of an initial rapid source control procedure and resuscitation of the patient at the ICU. The decision on the definitive surgical resolution can be postponed to an elective setting in a hemodynamically stable patient to allow delayed reconstruction of bowel continuity” [1]. According to WSES guidelines [3,5], some patients suffering from IAS may experience a disease progression to septic shock with no possibility of definitive surgical procedures. In these cases, surgical operation should be abbreviated and in hypotensive patients requiring high-dose vasopressors infusion, intestinal continuity restoration may be deferred. This strategy allows both the control of the infectious focus and the decreasing of the stoma rate.

Retroperitoneal infections are related to a mortality rate near 20% [6,7]. A retroperitoneal abscess from colonic perforation is an unusual event. The presence of air or pus in soft tissues of the body represents a particular sign of retroperitoneal colonic perforation. This type of infections is related with necrotizing fasciitis, where, there is a rapid spread of the infection and gas in tissues, caused in most cases, by the presence of aerobic and anaerobic bacteria. The most common cause of colonic retroperitoneal perforation is diverticular disease. This kind of infection can be associated with two different clinical manifestations: Subcutaneous emphysema with pneumoretroperitoneum and muscle psoas abscesses [4,8]. The management of retroperitoneal abscess from visceral perforation in complicated diverticular diseases is still a challenge during the common surgical treatment of colonic diverticulitis [6].

We describe a case of septic shock due to perforated retroperitoneal diverticulitis with associated necrotizing pyomyositis, with a delayed diagnosis because of a month history of left groin and lower limb pain. The delayed diagnosis in this patient placed her at high risk of serious consequences, such as septic shock that was treated with a strategy of DCS with the aim of eliminating the infectious focus, followed by an hemodynamic stabilization in ICU and subsequently completing a definitive surgery.

Conclusions

Damage control surgery is not a surgical manoeuvre but an alternative treatment mode to primary definitive surgical care, allowing surgeons to control the infectious focus in an abbreviated laparotomy, Intensive Care Unit (ICU) management to hemodynamic stabilization, and planned reoperation for definitive repair, in order to avoid the so-called lethal triad. Retroperitoneal infections are associated with a high rate of mortality. For this reason, it requires a high index of clinical suspicion and radiological studies are needed to diagnose these conditions.

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