

Damage control surgery by transverse colon perforation: case report

Summary

Obstruction and perforation due to colorectal cancer represent challenging matters in terms of diagnosis, life-saving strategies, obstruction resolution and oncologic challenge. The outcomes of these different resections when performed in acute clinical situations remain substantially unexplored.

Case report: 65 years old diabetic and obese female, with abdominal pain accompanied by the absence of channeling of flatus and bowel movements as well as countless vomiting of low intestinal content, which is why they refer to the emergency of the IAHULA, Merida Venezuela. Physical examination: tachycardic, tachypneic, with, HR: 130 TA: 90/60, FR: 28m oxygen saturation 89%. Abdomen distended, diminished hydro aerial sounds, painful on palpation, with voluntary muscular defense. An emergency laparotomy show: general fecal peritonitis, perforations of the transverse colon, stenosing sigmoid tumor. For this reason, phase I damage control surgery was performed by transversectomy + placement of proximal and distal threads, requiring phase II in an intensive care unit, ventilatory support and vasopressor drugs. Phase III was planned in 48 to 72 hours for probable complete left colectomy, however, the patient died after 18 hours of postoperative.

Discussion: damage control surgery has been considered an appropriate approach to the treatment of critically ill patients with severe intra-abdominal sepsis.

Conclusion: Abdominal sepsis and a septic shock are both possible as a critical scenarios in patients with perforation and obstruction of the colon secondary tumors and carcinomas, for that reason it is important to know which patient can be selected to a damage control surgery in order to improve the morbimortality.

Keywords: damage, control, perforation, obstruction, tumor

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Introduction

Colorectal cancers can be characterized by their primary tumour location within the colon. The left-sided colon, derived from the hindgut, includes the distal third of the transverse colon, splenic flexure, descending colon, sigmoid colon and rectum.¹ Some cases can be challenging, includes all those patients who has an initial symptoms as a bowel obstruction than can complicate with a perforation. The cause of colonic perforation varies, including colonic pseudo-obstruction, diverticulitis, stercoral perforation and medication-induced perforation.² Obstruction and perforation due to colorectal cancer represent challenging matters in terms of diagnosis, life-saving strategies, obstruction resolution and oncologic challenge.³ In recent years, several studies have questioned which type of resection would provide the best surgical and oncological outcomes in patients with colorectal cancers. In contrast, the outcomes of these different resections when performed in acute clinical situations remain substantially unexplored.⁴ Also, obstruction or perforation for CRC could lead to instability of the clinical conditions: some reasons can be recognised in fluid and electrolyte imbalance, bacterial overgrowth with translocation across the intestinal wall, peritonitis and pre-existing comorbidities.³ Here, we report a case of an obese and elderly diabetic woman, with an obstruction and perforation of transverse colon due to left colon tumor who requires a damage control surgery due to septic shock.

Case report

A 65 years old female patient from El Vigia, Merida state, with a history of Diabetes Mellitus and Covid 19 infection, who

reports the onset of the current disease 10 days prior to admission, characterized by abdominal pain in the mesogastrium, colic type of mild to moderate intensity that later radiates diffusely, accompanied by the absence of channeling of flatus and bowel movements as well as countless vomiting of low intestinal content, which is why he goes to his local doctor from where they refer to the emergency of adults of the University Hospital of Los Andes where it is valued by the General Surgery service (Figure 1).



Figure 1 Adults Emergency Department at the IAHULA, Merida, Venezuela.

No personal or family history of cancer and with a surgical history of 1 segmental cesarean section. On physical examination, the patient was in fair general condition, afebrile to the touch, tachycardic, tachypneic, with nasal flaring and dependent on oxygen therapy, HR: 130 TA: 90/60, FR: 28m Oxygen saturation 89%, body

temperature 37.5 degrees. Auscultable vesicular murmur in both lung fields without aggregates, rhythmic heart sounds without murmurs, abdomen distended, overweight, frankly diminished hydro arial sounds, painful on palpation generalized, with voluntary muscular defense. Reason why, without having radiological studies and due to the clinical condition of the patient, she was taken to an emergency laparotomy, showing the following findings: general fecal peritonitis, multiple 2 cm perforations of the entire transverse colon from the hepatic flexure to the splenic flexure, stenosing tumor of the sigmoid colon that does not infiltrate the serosa (Figure 2 & 3).

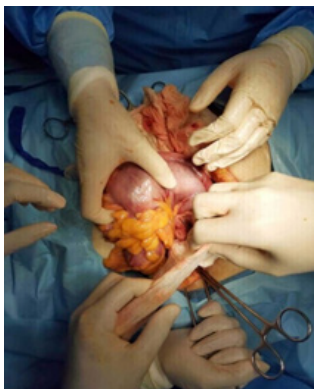


Figure 2 Stenosing tumor of the sigmoid colon.

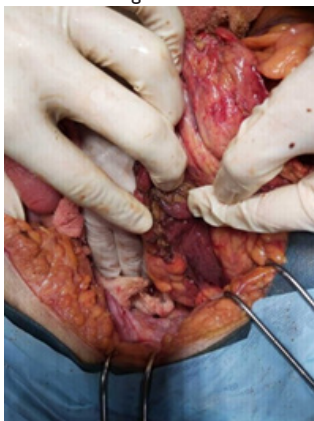


Figure 3 Perforations of the entire transverse colon.

For this reason, phase I damage control surgery was performed by transversectomy + placement of proximal and distal threads, requiring phase II in an intensive care unit under ventilatory support and with vasopressor drugs. Phase III was planned in 48 to 72 hours for probable complete left colectomy, however, the patient died after 18 hours of postoperative (Figure 4).

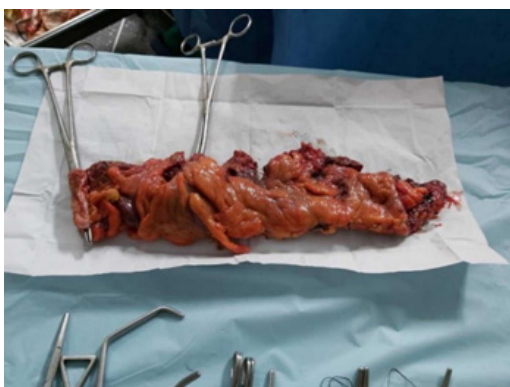


Figure 4 Transversectomy + placement of proximal and distal threads.

Discussion

Surgical source control is one of the oldest concepts in the management of intra-abdominal sepsis. Today, timely surgical intervention, aggressive source control, antibiotics, supportive therapies, and intensive care remain the critical principles in the management of generalized peritonitis due to intra-abdominal sepsis.⁵

Despite many advances, intra-abdominal sepsis is still associated with high mortality, mainly when associated with septic shock in frail patients.⁵ Similar to the management of severe trauma, early surgical treatment of generalized peritonitis is time-dependent and is vital to survival. 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 (laparotomy, washout, resection of diseased segment, temporary abdominal closure, stabilization in ICU, reoperation with either end colostomy or anastomosis). The aim is to avoid the so-called lethal tetrad of hypothermia, acidosis, coagulopathy and hypocalcemia.⁵ More recently, damage control surgery has also been considered an appropriate approach to the treatment of critically ill patients with severe intra-abdominal sepsis. So, when facing this scenario, the emergency physician, the surgeon, and the anesthesiologist should keep in mind the appropriateness of the damage control philosophy. Correct patient selection is crucial to maximise the benefit of damage control surgery (DCS), avoiding at the same time its overuse.³

In this case, the patient was taken to the emergency service with advanced critically state secondary to obstruction and perforation of the transverse colon as a consequence of the left colon tumor, a fact that has no relation with the publication of Stintzinga S, et al.¹ whom describe that right cancer colon are more likely to have a more advanced tumour stage at initial presentation compared with left cancer colon. However, it has relation with the literature of Tsung-Ming Chen, Yen-Ta Huang and Guan-Chyuan Wang⁷ whom says that emergency complications of colon cancer include perforation and obstruction, and 15–40% of patients with colorectal cancer initially present these conditions, and also according the distribution of colon cancer with perforation and obstruction in their patients, the sigmoid colon was the predominant anatomic side of the tumor like in our case.

Due to the patient clinical condition, she was taken to an emergency laparotomy to can make a damage control surgery, a fact that has a strong relation with the publication of Pisano M, et al.³ whom describe that a patient with perforation/obstruction due to colorectal cancer should be considered unstable and therefore amenable for damage control treatment.

Despite the quickly treatment and de DCS, the patient died, maybe not only by the septic shock state, but also the two comorbidities: diabetes mellitus and obesity in elderly patient wich develop a stercoral perforation by the colon tumor contributing to the “perfect storm” that represents this challenging treatment case, showing the relation with the described by Hyung Jin L, et al.⁸ whom says that stercoral perforation of the colon (SPC), which is defined as a perforation due to pressure necrosis from fecal mass, frequently leads to generalized peritonitis, a rare and possibly fatal critical situation.

In order to consider others factors that can explain this strepitous clinical case, the patient was a 65 years old, obese and female, those facts has a strong relation with the investigation of Tartaglia D, et al.⁹ whom described in their results 19 females (56%) with a mean age of 66.9 years (SD ± 12.7) and mean BMI was 28.42 kg/m2 (SD±3.33).

Finally, we can mention the importance that has the prevention of comorbidities that has relation with colorectal cancer like obesity in orden with the described by Baxter B, D Parker K, Nosler M, Rao S *et al* ⁽¹⁰⁾ whom says that Obesity is a risk factor for colorectal cancer, yet metabolic distinctions between healthy right and left colon tissue, before cancer is diagnosed, remains largely unknown, so they compared right-ascending and left-descending colon tissue metabolomes to identify differences from the stool metabolome in normal weight, overweight, and obese adults.

Conclusion

Abdominal sepsis and a septic shock are both possible as a critical scenarios in patients with perforation and obstruction of the colon secondary tumors and carcinomas, for that reason it is important to know wich patient can be selected to a damage control surgery in orden to improve the morbimortality.

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Chiefs, Surgeons and Residents of the General Surgery Service at IAHULA, Merida, Venezuela.

Conflicts of interest

The author declare no conflicts of interest.

Ethical approval

This research complies with the World Medical Association Declaration of Helsinki on medical protocols and ethics. As the images of the patient were essential to this paper, the patient's sister gave written consent.

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