

Case report

Outpatient closure in a late colo-cutaneous postoperative anastomotic leak managed with EVAC in Bucaramanga, Colombia. Case report.

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ARTICLE INFO

Keywords:

Endo-vac
Case report
Late anastomotic leak
Outpatient basis
Colombia

ABSTRACT

Introduction: After Hartmann-type colostomy, the adequate selection of some patients allows reversal and closure of the colostomy, however, this reversal is not free of complications. Among complications, anastomotic leaks and fistulae can have functional, economic, and oncological consequences. Complications have been treated with surgery; yet, this management has changed considerably in recent years, moving towards less invasive therapies. **Presentation of case:** This is the report of a 42-year-old man with a history of closed abdominal trauma with perforation of the sigmoid colon managed with a Hartmann-type colostomy. Six months later, he was admitted for a Hartmann reversal procedure without immediate complications. He was assessed again after 4 months observing a small area of erythema and periumbilical edema. EUS was performed without evidence of collections. Colonoscopy evidenced a 7-mm fistulous orifice in the colocolonic anastomosis. The Endo-VAC system was used, performing endoscopically exchanges twice a week following a low-residue diet. The procedure was performed on an outpatient basis and the closure of the leak hole in the colonic anastomosis was achieved in 30 days.

Discussion: Endoluminal vacuum therapy or EVAC, is an adaptation of the therapy used for negative pressure wound closure. This minimally invasive technique has been used for the treatment of gastrointestinal leaks and fistulae in selected patients and within a hospital setting. Our case presents the use of this technique in a late colocolic postoperative leak on an outpatient basis.

Conclusion: To the best of our knowledge we report the first case of a late colocolic anastomotic leak managed with EVAC on an outpatient basis.

1. Introduction

Postoperative complications of Hartmann-type colostomy closure have a high prevalence and occur in 21 % to 36 % of the cases [1] being the most frequent: infection of the operative site, dehiscence of the anastomosis, anastomotic leaks and fistula, which can be early or late; bleeding, and hemoperitoneum, pneumoperitoneum, evisceration, intestinal obstruction, and injury to the left ureter [2,3].

Of the already mentioned complications, anastomotic leaks and fistulae can have functional, economic and oncological consequences [4]. Conventional treatment in patients without clinical signs of peritonitis and present leaks from the rectal stump includes antibiotics, percutaneous drainage, and transrectal drainage [5,6]. In 2008, the endoluminal vacuum system (EVAC) was presented and described; through a series of cases, as new alternative management to treat

anastomotic leaks [7]. This minimally invasive technique has been used in gastrointestinal leaks and fistulae treatment in selected patients and within a hospital setting [8].

In this case, we report the closure of a late post-surgical anastomotic leak assisted by endoluminal vacuum therapy (E-VAC) on an outpatient basis. This case was managed in a private practice setting. This work has been reported in line with the SCARE criteria [9].

2. Case report

This is the report of a 42-year-old farmer man with a history of a closed abdominal trauma with perforation of the sigmoid colon, being initially managed with a Hartmann-type colostomy in a second-level hospital. Six months later, he was admitted for a scheduled laparoscopic colostomy closure (Hartmann reversal procedure) without

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<https://doi.org/10.1016/j.ijscr.2022.107737>

Received 31 August 2022; Received in revised form 21 September 2022; Accepted 4 October 2022

Available online 12 October 2022

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immediate complications. Hospital discharge was decided on the second postoperative day. Regarding his psychosocial history, he is a heavy smoker (two packs a day).

He was assessed after a month by external consultation without complications. He was assessed after four months again, and it was observed a small area of erythema and periumbilical edema. An abdominal ultrasonography was performed without evidence of collections. Due to suspicion of colocutaneous fistula, it was decided to perform a total colonoscopy, finding a 7-mm leak hole in the colocolonic anastomosis, which created a low output fistula (Fig. 1). He presented two holes in the skin: one abdominal wall skin of 3 mm and other in the colon with a diameter of 5 mm. He did not have any collections, clinically without systematic inflammatory response, and ultrasound without collections and the fistula emptied to the skin.

Considering the patient's general condition; he was hemodynamically stable without sign of peritoneal irritation, clinical or paraclinical sepsis markers, we opted for endoscopic fistula management, following the current recommendations in the scientific literature for this type of fistula.

It was decided to use the Endo-VAC (EVAC) system, as it is an efficient and cheaper option compared endoscopic clips and is less invasive compared to surgery. The patient understood and accepted the treatment proposal along with his relatives, recognizing the importance of his adherence for the successful closure of the fistula.

The aforementioned drainage system was created with a GranuFoam™ sponge, which was tubulized and sutured to a Nelaton® No. 18 catheter with polypropylene 0, and later, this catheter was connected to an intermittent negative pressure drainage system of the EXO VAC type.

The procedure was carried out in the endoscopy unit as follows: Previously, we obtained the procedure's informed consent and the patient had colon preparation, adequate fasting, and monitoring of vital signs, without requiring sedation, the patient was placed on left lateral decubitus.

We used the Olympus CF-H180 equipment with serial 2800353.

The Endovac was advanced with the help of foreign body forceps, under direct vision, until the fistulous orifice was identified. The sponge was placed on the fistula and the probe was externalized through the anus, later this probe was connected to the exovac (Fig. 2).

It should be also noted that this approach was carried out on an outpatient basis, performing endoscopically exchanges twice a week. Simultaneously, the patient was guided and managed with a 2000 kcal low-residue diet divided in three small meals and two snacks with oligomeric formula.

In total, 8 replacements were performed during the month of treatment, concluding with the ana successful closure (Fig. 3). And the



Fig. 1. Leak hole in the colonic anastomosis.

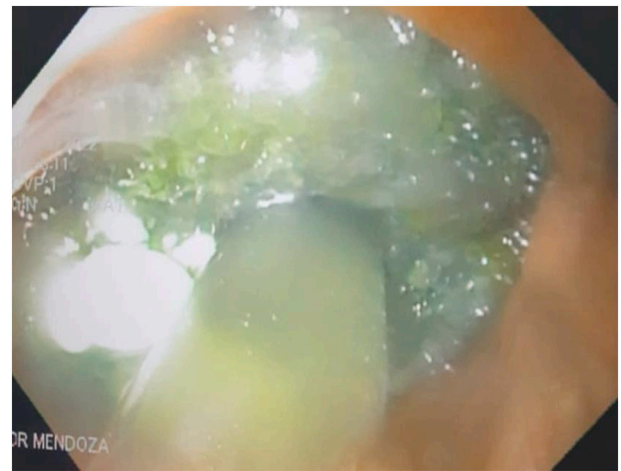


Fig. 2. Endo-Vac in contact with leak hole in the colonic anastomosis.



Fig. 3. Appearance of the anastomosis one month after finishing outpatient treatment with Endo-Vac.

stability of the system was achieved thanks to the type of anastomosis that he had (lateral-lateral); and the external system was fixed in the gluteus.

3. Discussion

The Hartmann procedure consists of performing an intestinal resection at the rectosigmoid level, associated with the closure of the rectal stump and the formation of an end colostomy. This procedure is indicated in patients with oncological, inflammatory, or traumatic pathology [10].

The adequate selection of some patients allows reversal and closure of the colostomy, however, this reversal is not free of complications. In 2018, Hallam and colleagues conducted a retrospective audit of all patients who underwent Hartmann's procedure. They also recorded a reversal of Hartmann's rate, timing, American Society of Anesthesiologists grade, length of stay, and complication. The results showed an overall complication rate from Hartmann's reversal of 21 % [1].

The presence of postoperative fistulae has been reported by multiple authors in case series, with a prevalence of 3.6 % to 5.7 % [2].

According to data from Latin America, in a series of cases from the University of Chile, the prevalence of post-surgical fistulae was 0.2 %, being the rectovesical fistula the most frequent complication [3].

Once the anastomotic leak, fistulous tract, volume, and content of the

drainage are identified, and according to the clinical condition of the patient, it is essential to establish the management.

Management has changed considerably in recent years, moving towards less invasive therapies, increasingly leaving aside the surgical approach as the main choice, as was the case 15 to 20 years ago [11]. In fact, from 2015 to the present, non-surgical treatment has become the main approach modality in these patients [12].

Other than non-surgical treatment, endoscopic therapeutic options offer minimally invasive management of these complications and include the use of endoclips TTS (two-pronged through-the-scope) and OTSC (over-the-scope clips), partially covered stents, fibrin glue, endosuture, and more recently, endoscopic vacuum therapy [11].

This last option called endoluminal vacuum therapy or EVAC is an adaptation of the therapy used for negative pressure wound closure and its principles remain the same regardless of its location. These principles are continuous or intermittent suction and drainage through an open pore polyurethane sponge [13]. This approach decreases bacterial contamination, secretions, and local edema, promoting tissue perfusion and granulation.

Compared to conventional treatments, this technique offers greater advantages, evidencing a faster and improved wound healing process [14]. Its success rate has been reported in several case series and it ranges between 84 % and 91 % [15,16]. Similarly, several studies have compared this technique with other conservative methods of treatment such as rectal lavage for anastomotic insufficiency, and found that wound healing was significantly accelerated in the group treated with Endo-Vac therapy and hospitalization time was slightly minor [17].

Recent reports show that on average 47 (range 40–105) days of treatment are required, while others report an average of 27 days, with the Endo-Vac to obtain complete healing of colorectal anastomotic fistulas and leaks [18–19]. Likewise, a change of the sponge every 2 or 3 days is suggested [18,19], although each case must be individualized. In our particular case, the closure was achieved after completing 30 days, making the replacements every 4 days.

The use of this technique has been reported in Colombia for the closure of post esophagogastric anastomosis fistula [20]. In this case, the treatment lasted two weeks with system replacements every seven days, achieving adequate closure. It should be also noted that all the approach and treatment was performed at the hospital level.

In each of the studies and reports where this technique was used; including the aforementioned Colombian case, the EndoVac implementation, management, controls were performed in a hospital setting.

To the best of our knowledge, our case report is the first one in the academic literature where this technique was used on an outpatient basis.

4. Conclusion

The use of the Endo-Vac system for the treatment of post-surgical colorectal fistulae is feasible and represents an effective technique for their closure.

This case shows us that in properly selected patients, it is possible to successfully perform this procedure on an outpatient basis, using easily accessible and low-cost supplies.

Provenance and peer-reviewed

Not commissioned, externally peer-reviewed.

Funding

Nothing to declare, personal funding.

Ethical approval

In our institute, the approval of the ethics committee for the

retrospective analysis of a clinical case report is not required.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Author contribution

Jairo Enrique Mendoza Saavedra: study concept, design, data analysis, writing the paper.

Cesar Andrés Torres Carrillo: study concept, design, data analysis, writing the paper, reviewing the manuscript.

Gloria Liliana Mendoza Valbuena: Design, data analysis, writing the paper, reviewing the manuscript.

Research registration number

This study is exempt from the registration of research studies, is a case report.

Guarantor

César Torres Carrillo.

Jairo Enrique Mendoza Saavedra.

Declaration of competing interest

Nothing to declare.

Acknowledgements

Sandra Juliana Rodriguez García: Data collection and healthcare support.

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