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Colorectal anastomosis dehiscence - a solution with quality of life – Case Report

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Abstract: Rectal cancer is the fifth most frequent neoplasm in both sexes in Portugal. Anterior rectal resection has become the gold standard in the treatment of this condition and surgical treatment is the only cure. The rate of low rectal anastomotic leak (AL) is approximately 10% of all ALs in colorectal surgery. Management of AL is variable and could be challenging. Endo-SPONGE® (a type of endoscopic vacuum therapy (EVT)) has been applied in the management of ALs after colorectal surgery. In the literature, EVT has been shown to accelerate wound healing by increasing local blood flow, reducing bacterial load and stimulating the growth of granulation tissue; it has the advantages of being less invasive than surgery, reducing hospital stay time and reducing the risk of complications; however, it can present some risks such as bleeding, infection, intestinal perforation and intestinal obstruction. In this paper, we describe EVT as a method for treating AL after rectal resection that appears to be a minimally invasive, safe and effective treatment modality for patients with a significant colorectal leak without any generalized peritonitis with high clinical and technical success rates. However, due to the delay in starting therapy, the anastomosis became complicated with stenosis after a year, and surgical treatment resulted in good physiological and oncological results.

Keywords: Anastomotic leak; Endoluminal vacuum therapy; Colorectal surgery.

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1. Introduction

Rectal cancer is the fifth most frequent neoplasm in both sexes in Portugal. With the evolution of preoperative imaging tests, surgical technique and neoadjuvant therapy, anterior rectal resection (ARR) has become the gold standard in the treatment of this condition. Intestinal anastomotic complications are associated with an increased patient mortality and morbidity. Following colorectal surgery, anastomotic leak (AL) has an incidence of 2% to 7%, the rate may be as high as 10% to 20% in coloanal anastomosis [1].

The management of AD is not standardized. The patient's clinical condition is the major determining factor for management. Once an AL has been recognized, patients should receive intravenous fluid resuscitation and broad-spectrum antibiotics. If patient stability permits, radiologic investigation to localize the leak and determine its severity should be performed. Management strategies include observation, bowel rest, percutaneous drainage, colonic stenting, surgical revision, diversion, or drainage [2]. Stable patients can be considered for endoscopic therapy [3]. Various endoscopic treatments have evolved for the management of AL in colorectal surgery, and these include endoscopic self-expanding metal stents, endoscopic clips, and endoscopic vacuum-assisted closure devices. Smaller leaks are usually managed with stents or clips while endoscopic vacuum

therapy (EVT) is preferred for larger leaks (> 2 cm) or for leaks with an associated abscess [2, 4].

The use of an endoluminal vacuum system as a treatment option for rectal ALs has been suggested as a minimally invasive method of treatment with a higher success rate. First described in a case series by Weidenhagen and colleagues in 2008, it involves an open-pored polyurethane sponge placed in the abscess cavity attached to a low-vacuum suction device [4]. Clinical success was defined as closure of the AL, confirmed via endoscopy or contrast enhanced computed tomography imaging [5]. The benefits of EVT are: less invasive than surgery, can reduce hospital stay time and may reduce the risk of complications; the endo-sponge risks are: bleeding, infection, bowel perforation and bowel obstruction. We present a case of a patient with colorectal anastomosis leakage where initial non-surgical treatment with endo-sponge placement was possible. After a year, due to stenosis of the anastomosis, he underwent trans-anal anastomosis repair, allowing the preservation of the anastomosis.

We present the following case in accordance with the CARE (Case Reports) reporting checklist.

2. Case Report

Male, 68 years old, with type 2 Diabetes Mellitus, high blood pressure followed by a general surgery consultation due to rectal adenocarcinoma with preoperative staging T1/2N0Mx. Submitted to Rectum Anterior Resection VL with no intraoperative complications. On the 6th postoperative day, partial dehiscence of the colorectal anastomosis (Figure 1) without abscess was noted (Figure 2).

Figure 1. Peri-anastomotic site at the beginning of treatment.

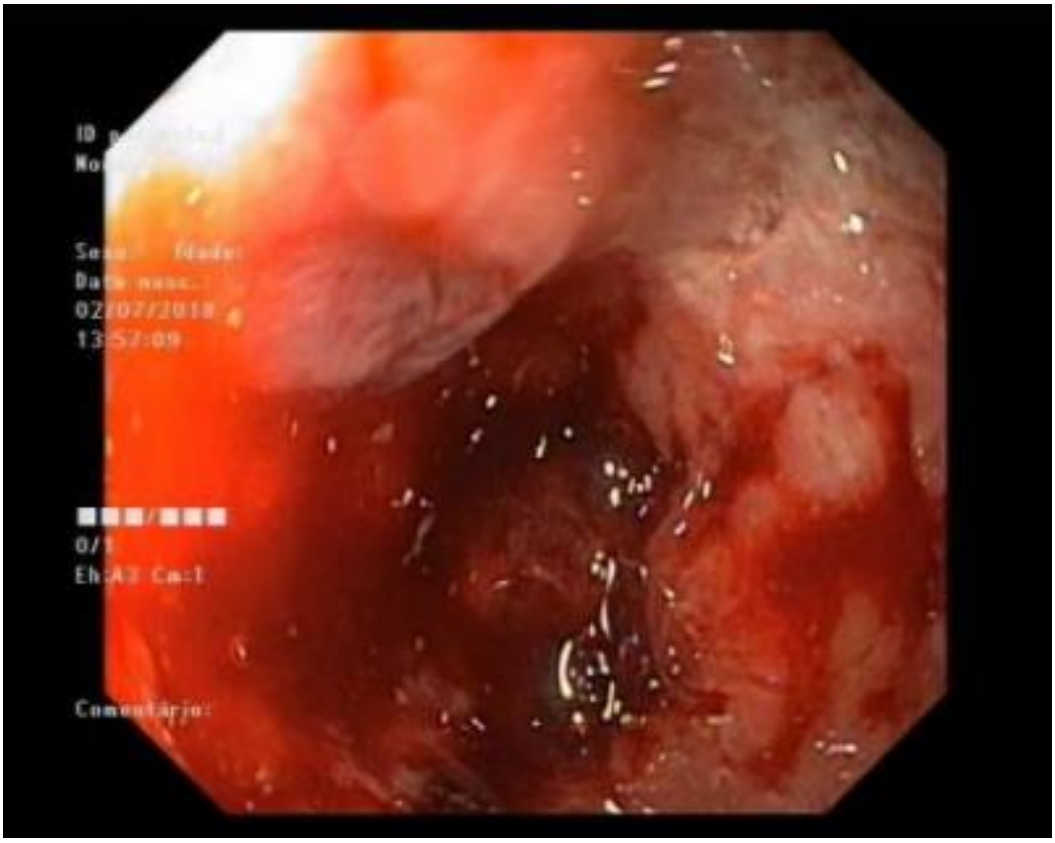
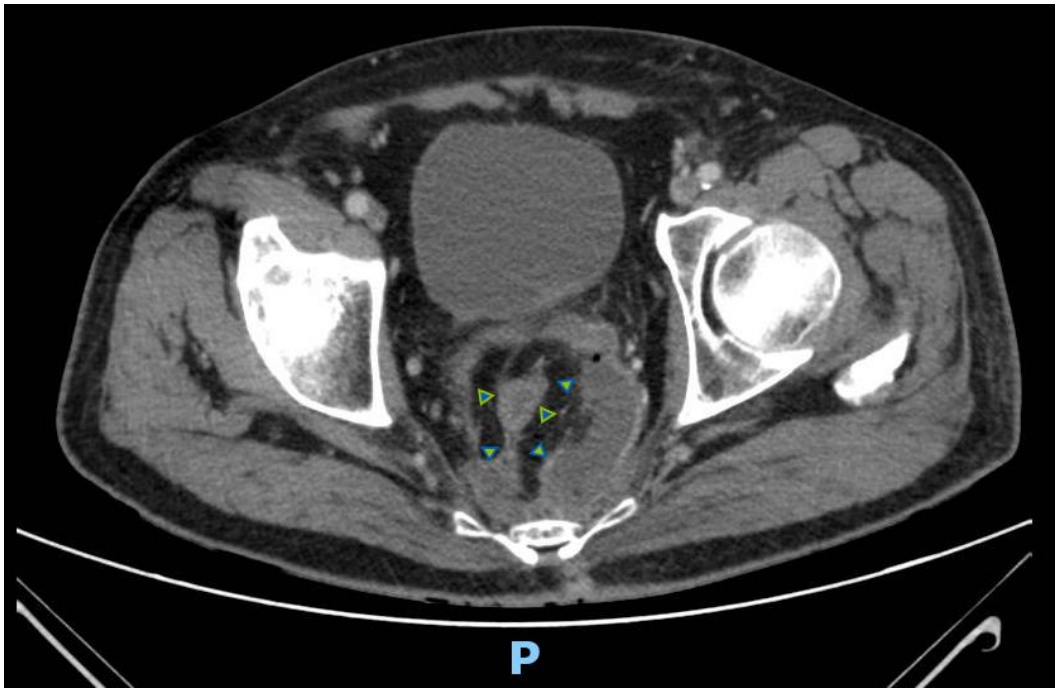


Figure 2. CT scan of the pelvis showing a peri-anastomotic collection, with presacral and left pararectal components, measuring 81 x 52 x 28 mm, with slight densification of the perirectal fat. Red arrows point to the contours of the rectum; yellow arrows show the peri-anastomotic collection, where a gas bubble is also visible.



Considering the patient's clinical stability, it was decided to initiate antibiotic therapy and, subsequently, treatment with minimally invasive Endoscopic vacuum therapy (EVT). Due to bureaucratic complications, the placement of the EVT was delayed having started treatment 1 month after dehiscence (Figures 3 and 4).

Figure 3. Pelvic CT scan showing the endo-Sponge® placed in the cavity. Red arrows point to the contours of the rectum; yellow arrow shows the EVT.

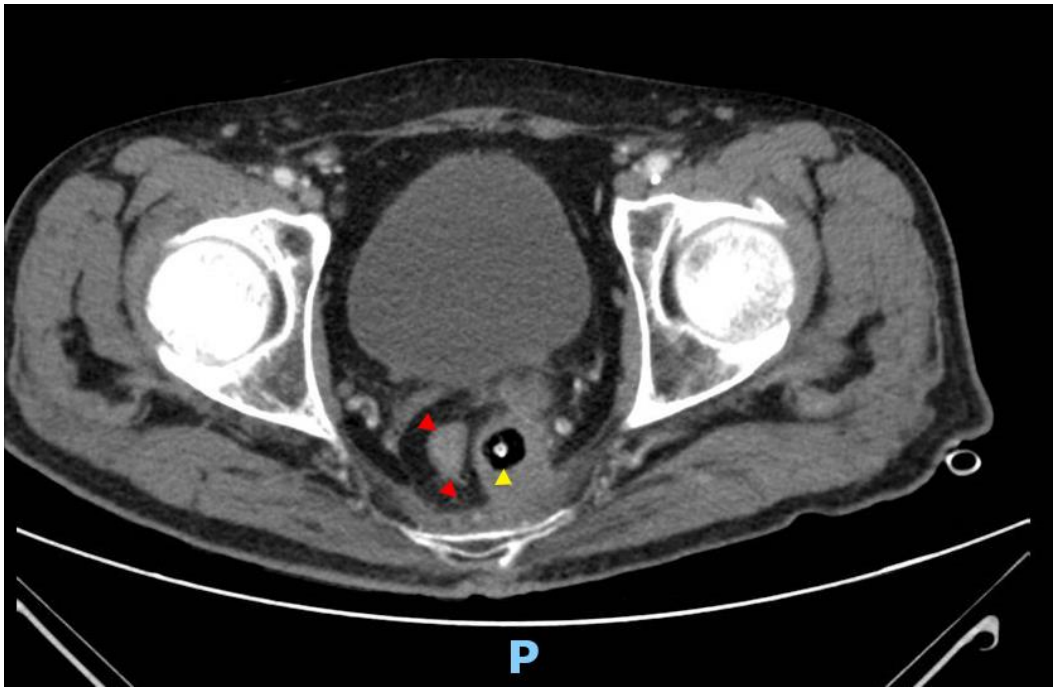
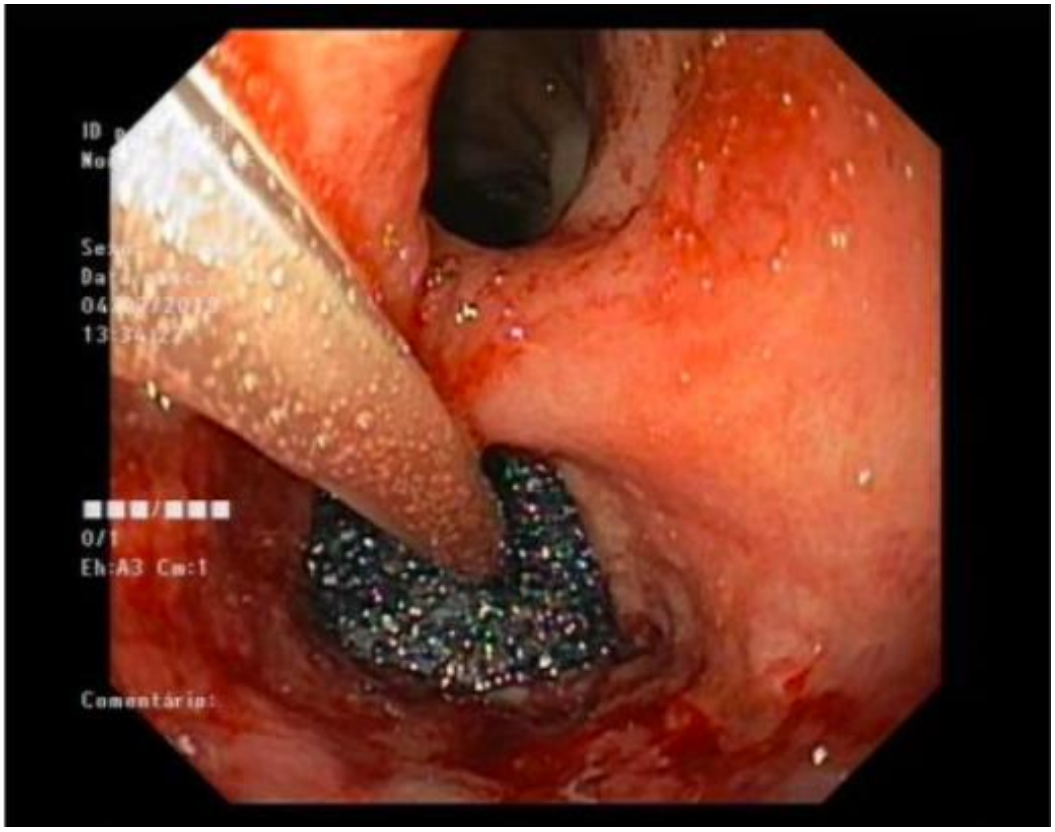
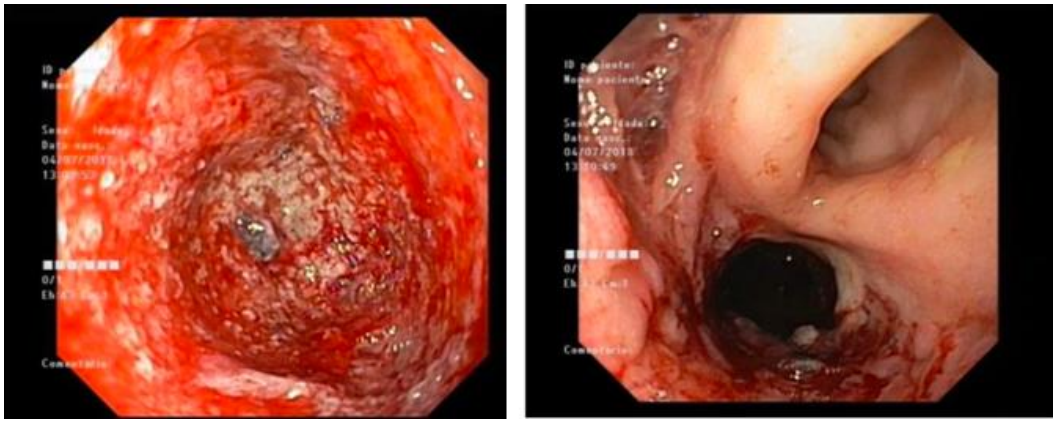


Figure 4. Placement of the EVT in the defect of the anastomosis.



The first fibroscopy revealed a dehiscence measuring approximately 4 cm in length. As the treatment progressed, the local decreased in size with the formation of granulation tissue, closing with complete healing of the anastomosis at the end of 2 months of treatment (Figure 5).

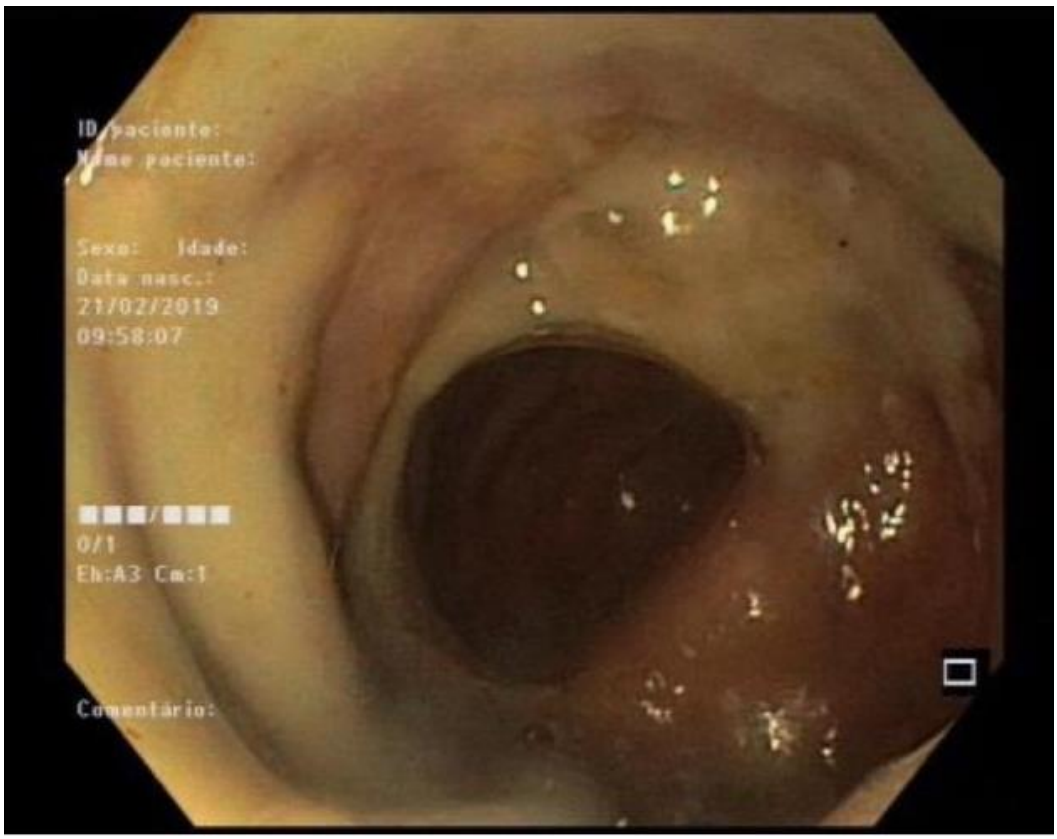
Figure 5. The cavity after the first treatment (2 days).



The total duration of treatment with endo-Sponge® was 2 months, with fibroscopic reassessment every 3 days. The protective ileostomy was closed after the wound had healed, three months after starting treatment with Endo-Sponge. However, the anastomosis became complicated with stenosis after 1 year. Surgical transanal treatment resulted in good physiological result.

Follow-up is maintained after 6 years with good oncological outcomes, functional colorectal anastomosis and no associated complications (Figure 6).

Figure 6. Colon lumen after closure of dehiscence.



3. Discussion

Despite all efforts within the last decade, the incidence of colorectal AL still varies between 12 and 20% and it is therefore highly relevant for the postoperative patients' outcome. AD represents a major complication in patients undergoing colorectal surgery and it correlates with increased health care costs [7]. AL management is heterogeneous since it depends on patient's clinical condition and leakage characteristics. Vacuum-assisted closure therapy has been applied in surgery, for several years for complicated wounds (e.g.: complex diabetic foot wounds, traumatic wounds and postoperative infected wounds) with good outcomes. Its beneficial effect on wound healing is related to an increase of blood flow, stimulation of granulation tissue formation, and decrease of bacterial contamination. Recently Endo-SPONGE®, was introduced alike as a method for the treatment of AL after colorectal surgery, allowing continuous drainage, debridement and rapid cleaning of the wound cavity. It was shown to be an effective alternative in the treatment of colorectal AL with local infection in the minor pelvis [8, 9].

In our patient the number of days required until resolution of the cavity can be explained by the late onset of the vacuum therapy (number of days elapsed between the beginning of the therapeutic and colorectal surgery). The overall success of EVT is increased when it is used as an early intervention and showed a higher clinical success rate when compared to late endoluminal therapy performed after 15 days. The poor outcomes seen with delayed intervention were largely attributed to the development of fibrosis of the neorectum, which impairs healing and closure.

Despite the time taken to close the local, the patient maintained the colorectal anastomosis with subsequent closure of the ileostomy. We assume that the anastomotic stenosis was due to the delay in starting vacuum treatment, however, the resolution of the condition allowed a transanal approach, avoiding major surgery and definitive stoma, which would have been necessary to resolve the dehiscence without this treatment [7].

Follow-up is maintained after 6 years, with good oncological outcomes, functional colorectal anastomosis, and no associated complications. The main limitation of this work is the fact that it is only a clinical case, not allowing generalized conclusions to be drawn. The delay in introducing treatment is also a bias as it does not evaluate its effect if it had been applied as recommended, as soon as anastomosis leakage is identified.

4. Conclusions

Long-term functional outcomes of patients undergoing conservative management of AL may be improved with endoluminal vacuum therapy. Delayed treatment may be associated with complications of the anastomosis such as stenosis, however its treatment is possible through a minor surgical approach. This case demonstrates the success of this treatment with an improvement in the patient's quality of life and good oncological results, avoiding definitive colostomy.

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Research Ethics Committee Approval: We declare that the patient approved the study by signing an informed consent form and the study followed the ethical guidelines established by the Declaration of Helsinki.

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Conflicts of Interest: The authors declare no conflicts of interest.

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