

Case Report

Vacuum-assisted closure for treating chronic pelvic abscess following rectal stump leak after Hartmann's procedure for low rectal cancer

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Summary

Rectal stump leak following Hartmann's procedure resulting in an abscess formation is quite a rare complication. The size of the cavity, the healing process, neoadjuvant radiotherapy, and the patient's overall condition may play a huge role in the stoma reversal rates, functional outcomes, and the patient's quality of life. Moreover, it can lead to septic complications if not treated properly. We present a case of a 75-year-old male patient who underwent Hartmann's procedure due to low rectal carcinoma. He presented one month after the procedure in our office with a fever and anal secretion. He was treated with three different types of antibiotics, drainage of the abscess cavity, and dressing twice a day of the wound with a povidone-iodine solution without success. Amputation of the rectal stump, debridement of the necrotic tissue, and VAC therapy resolved the symptoms and closed the perineal defect. VAC therapy may be used successfully for chronic pelvic inflammatory complications after Hartmann's procedure.

Key words: rectal cancer, vacuum-assisted closure, Hartmann's procedure



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Introduction

Rectal stump leak is a rare but serious complication after colorectal surgery (Sverrisson et al. 2015; Mariusdottir et al. 2022; Huang et al. 2023). It can lead to a presacral abscess cavity and, therefore, result in sepsis with a high mortality rate. In most cases, it depends on the size of the abscess cavity and the patient's general condition if the surgeon will proceed with the watch-and-wait approach, conservative treatment, or any surgical procedure (Johnston and De Lacavalerie 2020). Amputation of the rectal stump is considered a radical yet effective treatment, but it has disadvantages. After the extirpation of the rectum and the anus, a large cavity is formed, gathering blood and other fluids, making it a potential infection site (Heah et al. 1997; Smedh et al. 2016; Popiolek et al. 2019). Vacuum-assisted closure is used to manage a hard-to-heal wound, where negative pressure is applied through a sterile wound foam dressing covered by adhesive tape (Argenta and Morykwas 1997; Cozza et al. 2018; Agarwal et al. 2019). A draining tube is then connected to a system that delivers negative pressure, intermittent or continuous, to the operational site and a container

for any liquid coming from the wound. This therapy helps diminish edema and bacterial load, improves perfusion of the tissues, and stimulates growth factor secretion by deforming the cells on the wound's surface. This helps diminish the cavity's size and overall patient healing by shortening the inflammatory and proliferative phase of wound healing. We report a case of chronic pelvic abscess after Hartmann's procedure following a rectal stump leak when simple drainage of the cavity, combined with antibiotic usage, was ineffective.

Case report

A 75-year-old male presented to our office with low rectal carcinoma. After the biopsy, staging a CT scan and MRI, and accessing the local status of the patient, he was considered for neoadjuvant chemoradiation. The tumor was at 2 cm from the anal verge, on the posterior rectal wall, immobile to the adjacent structures. Two months after the completion of the neoadjuvant treatment, he underwent Hartmann's procedure. The postoperative period went without any major complications. One month later, the patient is admitted to the hospital with complaints of fever and rectal discharge. After a digital exam, we found a rectal stump defect around 1 cm in diameter, and 200 ml of pus was evacuated from an abscess cavity formed just above the leak. No ultrasound, CT scan, or MRI were performed. A sample for microbiology examination was taken. Drainage of the cavity and antibiotics – Ceftriaxone, 2 g/twice a day, and Metronidazole 500 mg/ three times per day were administered. After five days of treatment, the patient was stabilized without a fever, leukocytosis, and secretion from the anus. A month later, the same patient presented with the same symptoms. This time, the antibiotic was changed to a combination of cefoperazone and sulbactam. Despite the resolution of the symptoms, two weeks after the treatment, at the beginning of adjuvant chemotherapy, fever, and rectal discharge occurred again. Antibiotics were prescribed, based on the last microbiology sample and antibiogram – tigecycline 100 mg daily. On the third day, C-reactive protein was 30 mg/L, down from 160 mg/L on the first day in the hospital. An amputation of the anus and the rectal stump was performed (Figs 1, 2). Due to increased bacterial load at the operational site and the large tissue defect, a VAC system was set in place. It was followed by changing the



Figure 1. Rectal stump.



Figure 2. Rectal stump – cut.



Figure 3. Perineal wound after 6 days of VAC therapy.

system under local anesthesia every 72 hours and keeping continuous negative pressure at around 150 mmHg. Newly formed granulation tissue was seen at the first change of the VAC system, with the system changing four times (Figs 3, 4). In the end, the perineal defect was around 20 mm, and we were able to suture the skin without compromising the healing process.

Discussion

Although the percentage of rectal stump leaks after Hartmann's procedure is relatively low, 11.6%–14%, there are some proven risk factors such as preoperative radiation of the pelvis, surgical technique, inflammatory conditions, low blood protein levels, comorbidity of the patients and indication for operation that can be taken in consideration before operating (Huang



Figure 4. Perineal wound before suturing.

et al. 2023). Some retrospective research suggested that male sex, body mass index, and tumor site (if the operation is because of colon cancer) are independent risk factors for rectal stump leak. Some studies suggest that a compromised rectal stump staple line may be one of the factors for rectal stump leak and forming an abscess. Even though Hartmann's procedure requires a more advanced surgical technique, because of the mobilization of the rectum below the tumor, it is preferred over abdominoperineal excision when it comes to low rectal tumors. The last one is associated with a higher risk of perineal wound complications and longer hospital stays (Heah et al. 1997). Some studies compare Hartmann's procedure with intersphincteric abdominoperineal excision (Smedh et al. 2016; Popiolek et al. 2019). They reported a longer operational time for the group that underwent intersphincteric abdominoperineal excision, but fewer complications classified Clavien-Dindo 3–4 – 10%, compared to Hartmann's procedure – 32% (Popiolek et al. 2019). In the second year after the operation, 15% of the patients after Hartman's procedure had a rectal discharge. More studies are yet to be conducted. When a rectal stump leak occurs, in most cases, it can be assessed only by watch-and-wait, or if the defect is wider, an endo-vac system can be used. If the defect of the stump takes up all the circumference, adequate drainage should be considered in this case. It is reported that drainage and continuous irrigation of the stump should be enough, and the drains can be either transanal or transabdominal (Johnston and De Lacavalerie 2020). Forming of an abscess cavity with chronic inflammation can lead to sepsis and unfavorable outcomes for the patient (Tøttrup and Frost 2005). In this case, it is recommended a thorough debridement and, if necessary – amputation of the rectal stump. The perineal defect after such an operation is often large, and primary healing is unachievable (Gultekin et al., Using the vacuum-assisted closure system can lead to positive results in those cases. Diminishing the edema and bacterial load, promoting blood flow through the wound walls, as well as forming granulation tissue facilitates the closing of the defect. There are reported cases of using muscle flaps such as gracilis muscle to ensure better results.

Conclusion

A rectal stump leak after Hartmann's procedure is a rare complication, but there are no specific guidelines for its management. In cases when simple drainage of the cavity, combined with antibiotic usage, is ineffective, a perineal amputation of the rectal stump and VAC system may be helpful.

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