

The Fate of Post-Hemorrhoidectomy Anal Stenosis Presenting as Acute Bowel Obstruction; A Case Report

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Abstract

Anal stenosis occurs in 1.5-3.8% of post-hemorrhoidectomy cases. Post-hemorrhoidectomy anal stenosis accompanied by acute bowel obstruction is extremely rare. We present a 55-year-old lady with acute bowel obstruction after undergoing hemorrhoidectomy procedure. Examination under anesthesia revealed a macerated perianal area with no detectable anoderm layer, and the anal mucosa was adhered cranially, causing an apparent narrowing of the anal canal. We decided on a staged repair. Debridement of the perianal area was performed, and sutures from the overzealous hemorrhoidectomy were removed. We left the wound open for secondary healing with a diverting sigmoid colostomy. Anal stricture developed as the wound healed, and a rhomboid flap anoplasty was done six months after the first surgery. Routine anal dilatation and biofeedback were performed before closure of the ostomy three months after anal reconstruction. Although relatively a low-risk procedure, hemorrhoidectomy could cause debilitating complications. Anal stenosis is a devastating, life-altering complication of an overzealous hemorrhoidectomy.

Keywords: Post-Hemorrhoidectomy; Anal Stenosis; Acute Bowel Obstruction

Introduction

Hemorrhoidectomy, although a relatively low-risk procedure, is not without complications [1]. Anal stenosis, occurring in 1.5-3.8% of post-hemorrhoidectomy cases, is challenging and potentially threatening to a patient's quality of life [1-3]. Post-hemorrhoidectomies account for 90% of anal stenosis [2,4,5]. They also tend to occur after emergency hemorrhoidectomies rather than electives [3]. However, acute bowel obstruction due to post hemorrhoidectomy anal stricture is a rare case.

Here we describe a case of acute bowel obstruction due to anal stricture after emergency hemorrhoidectomy and our management of this case.

Case Illustration

A 55-year-old lady came in with acute bowel obstruction after undergoing an open hemorrhoidectomy. Further investigation revealed that the patient had been admitted to another hospital due to a fever caused by a viral infection and was on bed rest. She was consulted to the surgical department as she had not been able to pass stool and complained of severe discomfort around the perianal area. The surgeon in charge diagnosed her with hemorrhoids and attributed the piles as the cause of constipation. She underwent surgical hemorrhoidectomy the following day. The exact nature and type of procedure were not explicit, but no stapler device was used.

After the surgery, she still could not pass stool, and it got worse as she could not pass gas either. They promptly referred her to our hospital with an incomplete description of the surgery. Upon arrival, she was alert and moderately ill, and her vital sign was within normal limits. She complained of nausea, bloated sensation, and extreme pain around her perianal area. A nasogastric tube was already in place and left flowing, producing around 300 ccs of succus. Two peripheral IV lines provided a route for rehydration and administration of IV analgesics. Physical examination of the anal area was not possible without anesthesia due to pain.

Her blood works were within normal limits. A plain abdominal film obtained at the ER showed dilatation of the large intestines with prominent fecal mass. There was no intraluminal air-fluid level. An abdominal-pelvic contrast CT scan was obtained and revealed a narrowing of the anal canal with no other intraabdominal pathology. Examination of the anal region under anesthesia revealed a macerated perianal area with no detectable anoderm layer. The anal mucosa was adhered cranially, causing a pronounced narrowing of the anal canal. The anal canal was severely narrowed that digital examination was not possible even under anesthesia. We decided on a staged repair due to the extensive injury to the anal canal and perianal region.

Figure 1: Severe anal stenosis six months after the first stage of surgery.

Following the examination of the perianal area and the anal canal, sutures from the overzealous hemorrhoidectomy were removed, followed by the perianal area's debridement. The wound was left open for secondary healing, and we performed a diverting sigmoid colostomy. Anal stricture, which had been anticipated, developed as the wound healed, leaving less than 0.5cm anal opening (Figure 1). We performed a rhomboid flap anoplasty six months following the first surgery while maintaining the colostomy to facilitate healing (Figure 2).

Figure 2: Stage 2 surgery: left-sided lateral internal sphincterotomy and bilateral rhomboid-shaped flap.

The patient was discharged by day five after rhomboid flap surgery without any complications. We performed the first anal dilatation five days after the surgery and educated the patient to perform it routinely. Three months after the reconstruction and routine dilatation, the patient underwent evaluation of the anal canal and rehabilitation of the sphincter and pelvic muscles. Evaluation of the anal canal after rehabilitation revealed an adequate diameter of the anus and a good sphincter tone. We performed reversal of the stoma, and upon follow-ups, the patient did not have any complaints about defecation.

Discussion

Hemorrhoidectomy is performed in nearly 10% of patients with symptomatic hemorrhoidal disease, especially in those where non-operative management failed. Although they are the most effective therapy to eliminate symptoms and are relatively low-risk surgery, hemorrhoidectomy is not without drawbacks. Hemorrhoidectomy is associated with increased complications and is more painful than nonoperative intervention. Therefore, it is advisable that in most cases, hemorrhoidectomy should be avoided unless nonoperative management fails [1].

One potentially life-altering complication of hemorrhoidectomy is anal stenosis. Although it is an uncommon complication, occurring in less than 5% of cases, almost 90% of anal stenosis is due to overzealous hemorrhoidectomies [2,4,5]. Anal stenosis is defined by a circular narrowing of the anal canal with a fibrous band or a scar-like appearance to the anal aperture [1,3]. The patient typically presents with pain at defecation, constipation, narrow stool caliber, bleeding, and fear of defecation may also be present. Obstructive symptoms may be present but usually develop over time [1,5]. Acute bowel obstruction caused by anal stenosis immediately following hemorrhoidectomy is extremely rare.

Classically, post hemorrhoidectomy anal stricture has been primarily associated with "Whitehead hemorrhoidectomy," in which the procedure is composed of removal of all hemorrhoid-bearing rectal mucosa and anastomosis at the dentate line. Anal stenoses have also been reported after stapler hemorrhoidectomy. The most common catastrophic complication occurs when performs an overzealous hemorrhoidectomy that strips large parts of the anoderm and hemorrhoidal tissue from the anal canal lining, during excisional hemorrhoidectomy, without sparing adequate mucocutaneous bridges that lead to scarring and progressive stricture [5,6]. In addition, stapled line dehiscence or superficial placement of a stapler may also cause scarring and subsequent anal stenosis following a stapler hemorrhoidectomy [5,7]. In 2002, Cipriani, *et al.* reported a case of acute bowel obstruction after PPH (procedure for prolapse and hemorrhoids) stapled hemorrhoidectomy. The obstruction was caused residual closed purse-string used during the procedure [7]. Post-hemorrhoidectomy acute bowel obstruction after a conventional hemorrhoidectomy has never been reported before.

The patient was referred to us with acute small bowel obstruction following a hemorrhoidectomy procedure. Although the refer-

ral surgical note was incomplete, we are confident that there were no stapler or other devices used in treating her hemorrhoids upon interviewing the patient. Furthermore, upon an exploration of the anal region under anesthesia, there was no stapler line found. Our best guess was that the previous surgeon had performed a modified conventional hemorrhoidectomy crudely, excising most of the anoderm layer, causing stenosis. However, the indication for the hemorrhoidectomy procedure in this patient was unclear. A thorough interview revealed that the patient was admitted for a fever and was bedridden for several days, hence developing constipation along with discomfort around the anal region, which she had attributed to her long-known piles. In our opinion, had the patient been in our care, we would have started with nonoperative management of the hemorrhoids and managing constipation with stool softeners instead of going directly to the OR, especially in an acute phase. Emergency hemorrhoidectomies for prolapsed and thrombosed fourth-degree hemorrhoids are believed to be more likely to cause anal stenosis than elective procedures for small uncomplicated hemorrhoids. This is due to the large, edematous, and often gangrenous nature of the hemorrhoids in these settings leading the surgeon to excise overzealously, often taking too much of the anoderm resulting in stricture formation [1-3].

Upon examination under anesthesia, we discovered that the anoderm layer was almost non-existent. The surgeon who performed the hemorrhoidectomy had anchored the anal mucosa towards the rectum, causing severe stricture, and the surrounding anal area was severely macerated. These findings suggested that a Whitehead hemorrhoidectomy was attempted and performed inaccurately, or rather overzealously, causing a painful devastating complication in our patient. Looking at the extent of the damage, we decided a staged repair was the best option to manage the patient. We removed all sutures and performed debridement along with a diverting sigmoid colostomy at the initial stage. Development of anal stenosis requiring anoplasty was anticipated and planned as the second stage surgery three months after the initial surgery.

Two months after the surgery, the anal wound had healed nicely. However, severe anal stenosis developed as we anticipated (Figure 1). Based on physical examinations, the severity of anal stenosis is classified into mild, moderate, and severe. It is considered mild if digital rectal examination (DRE) is possible with a well-lubricated finger of a small anoscope. In moderate stenosis, insertion of a finger or anoscope requires a lot of lubricant and dilatation. In contrast, in severe cases, DRE with the little finger requires forced dila-

tation or, in most cases, is not possible without anesthesia [1,2,6,8]. In our patient, DRE was performed with the little finger with forced dilation revealing less than 0.5cm opening of the anus.

Management of anal stenosis depends on its severity. Nonoperative intervention that ranges from dietary changes utilizes stool softeners to manual anal dilation and is usually adequate for patients with mild to moderate stenosis. In moderate cases that failed nonoperative management and in severe cases like our patient, operative intervention is necessary [1,2,5,6]. In addition to the severity, the stenoses' underlying pathology should be evaluated and considered in deciding the best surgical option.

Anal stenoses can be either an anatomical or a functional pathology or a combined pathology. In functional anal stenosis, the internal sphincter complex's relaxation is impaired without signs of external anal scarring. Meanwhile, anatomical anal stenoses are caused by scarring or contracture of the anal canal itself, as presented in our case. In most functional anal stenoses, a lateral internal sphincterotomy would suffice to relieve the symptoms. Surgery for anatomical stenosis aims to divide the stricture and widen the anal canal by utilizing either the rectal mucosa or the perianal skin flaps into the anal canal, giving additional healthy and pliable tissue and restoring the excessive loss of the anoderm. These surgeries, known as anoplasties, can be divided into three categories: transverse closure, simple random flaps, and full-thickness advancement flaps. Anoplasties can be performed with or without sphincterotomy [1,5,6,8,9].

In 2009 Duieb., *et al.* proposed a surgical algorithm to offer a tension-free anoplasty, consisting of starting with a longitudinal incision through the stricture and assessing whether the stricture consists of a muscular component. The superficial fibers of the internal sphincter would be incised in that case, creating a diamond shape opening and a transverse closure attempted. However, if there was too much tension, a V-shaped incision at the anal verge end of the longitudinal incision is proposed, and a Y-V advancement flap is attempted. In the worst-case scenario where there is still tension, then the next step is to further incise the V-flap into a complete diamond incision creating a diamond island flap. A similar procedure at the opposite side of the anus could be done bilaterally in cases with severe stenosis.

Figure 3: Surgical algorithm for anal stenosis, adapted from Duieb., *et al.* (2009) [9].

We performed an advancement flap as the second stage of the surgery three months after the first surgery. We re-evaluated the anal canal under anesthesia; there was severe stenosis with evident scarring and functional stenosis. A unilateral left-sided lateral internal sphincterotomy and a bilateral rhomboid flap were done (Figure 2). A bilateral rhomboid advancement flap was chosen owing to the severity of the stenosis. The rhomboid shape allows a more effortless and better mobilization and transposition of the flap into the anal canal with a broad base, avoiding potential ischemic complications caused by a narrow apex. In addition, a rhomboid-shaped anoplasty provides the surgeon with a choice of

the best size of the flap for each patient [5]. The colostomy was not taken down at this time. We conducted the first anal dilation with Hegar dilators at postoperative day (POD)-5 before discharging the patient. The wound was healing nicely, with no sign of necrotic flap, and the anal tone was adequate. We also educated the patient and family on how to perform the dilation at home and advised them to perform it daily. Maintaining anal hygiene with sitz baths and wound care with topical antibiotics were also advised.

Conclusion

Three months after the anal reconstruction and routine dilatation, evaluation of the anal canal showed a lovely 1 cm diameter anus with good sphincter tone. She underwent biofeedback and pelvic muscle exercises under the supervision of the rehabilitation clinic, and a stoma reversal was performed after adequate training. Upon follow-ups, the patient's bowel movements were regular; there was no difficulty in defecation, there was no soiling, and the patient was happy with the result.

Although this case is considered successful management of post hemorrhoidectomy complications, we are still vigilant in case of any long-term complications. Restenosis of the anal canal may occur in the long term; thus, in anticipation, we educated the patient on the importance of continuing the pelvic and biofeedback exercises and performing routine dilatation, although not as frequently as before. It has been a year since the stoma closure, and a recent update from the patient had no complaints in defecation and leading an everyday active life.

Learning Points that are important and can be applied in daily practice

- Anal stenosis could be a devastating, life-altering complication of overzealous hemorrhoidectomy where an excessive anoderm layer was excised, most commonly occurring after emergency hemorrhoidectomy.
- Acute intestinal obstruction after hemorrhoidectomy, although extremely rare, could occur with the obliteration of the anal canal and distal rectum.
- Although relatively low-risk, hemorrhoidectomy is not without debilitating complications and increased pain compared to nonoperative management. Therefore, in most cases, operative hemorrhoidectomy is better avoided until nonoperative intervention fails.

- The stepwise surgical algorithm for anal stenosis provides better management tailored to each patient.
- Rhomboid shape flaps provide an excellent option for a tailored management of anal stenosis and have a broad base that avoids ischemia of the narrow apex-shaped flaps and is more straightforward and better mobilization and transposition of the flap into the anal canal.

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