

Case Report

Evacuatory Dysfunction after Stapled Hemorrhoidopexy: A Case Report of Rectal Pocket Syndrome

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Abstract

A 60 year-old male was referred to the authors' hospital with a persistent urge to defecate. The patient had undergone stapled hemorrhoidopexy (SH) for the treatment of prolapsed hemorrhoids approximately 10 years earlier. He started to have difficulty with defecation and a false sense of urgency shortly after the surgery. Computed tomography showed a diverticulum-like fistula along the circumference of the rectum. Colonoscopy revealed communication between the diverticular cavity and the rectal lumen. The cavity contained a thumbnail-sized fecalith. When the fecalith was removed, the patient's urge to defecate dissipated. The patient was diagnosed with rectal pocket syndrome secondary to SH. The lower rectum was transected, and the remaining rectum and the anal canal were anastomosed by manual suture. Temporary ileostomy with double orifices was performed. The ileostomy was closed 3 months later. The patient experienced no subsequent difficulty with defecation or urgency.

Keywords

rectal pocket syndrome, stapled hemorrhoidopexy, procedure for prolapse and hemorrhoids (PPH)

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Introduction

Stapled hemorrhoidopexy (SH) is now a common surgical procedure that uses a specific circular stapler[1]. This technique allows for the definitive cure of hemorrhoidal prolapse by circumferential mucosectomy and pulling the prolapsed tissue back to the normal position. However, SH is associated with a non-negligible risk of serious postoperative complications and should therefore be treated and followed up with great care[2]. We report a case of perirectitis and severe evacuatory dysfunction due to rectal pocket syndrome (RPS), also called iatrogenic rectal diverticulum[3], that de-

veloped following SH.

Case Report

Our patient was a male in his sixties who had undergone SH at a local hospital for the treatment of internal hemorrhoids in June 2008. Obstructive defecation developed and gradually worsened shortly after the surgery. The patient was examined endoscopically, but no abnormalities were identified, and he was placed under observation. The defecation problems worsened, leading to a persistent urge to defecate. The patient became anorexic and mentally depressed

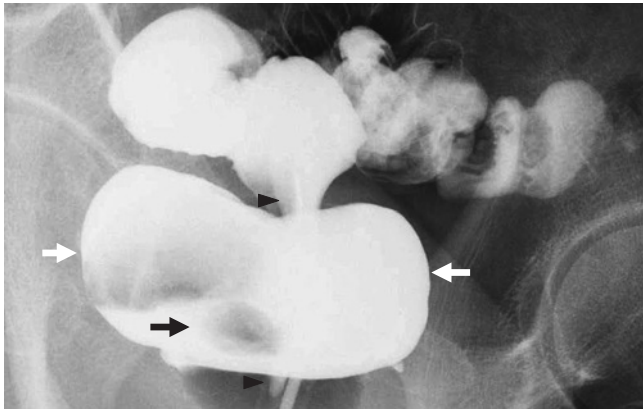


Figure 1. A fluoroscopic defecography image in the anteroposterior projection. A diverticular cavity (*white arrows*) surrounding the rectal lumen (*black arrowheads*) contained a thumbnail-sized fecalith (*black arrow*).

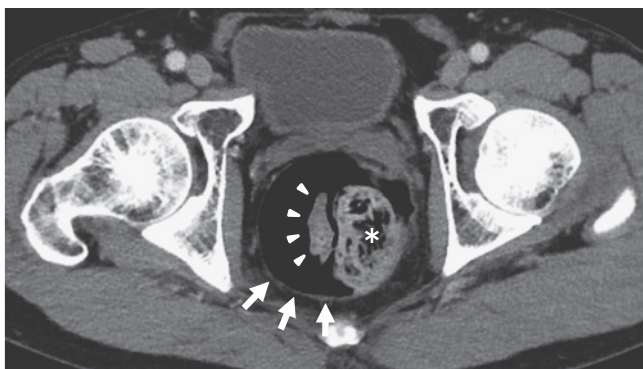


Figure 2. Contrast-enhanced abdominopelvic computed tomography scan at the hip joint level, showing protrusion of a large pocket (*arrows*) into the rectal lumen (*arrowheads*). The pocket contained a fecal mass (*asterisk*).

because of a fear that food ingestion might aggravate his conditions.

In June 2018, the patient was referred to our department of gastrointestinal medicine and underwent fluoroscopic defecography, abdominal computed tomography (CT), and lower gastrointestinal endoscopy. Lower gastrointestinal endoscopy revealed no mucosal abnormalities. However, scar formation related to the SH excision was seen above the dentate line, with considerable interruption. A mucosal cavity in the disrupted area was found to be entrapping a thumbnail-sized fecalith. Removal of the fecal matter relieved the patient of the urge to evacuate. Fluoroscopic defecography and CT scans showed that the mucosal cavity was present along half of the overall circumference of the lower rectum (Figure 1, 2). These preoperative findings suggested that incomplete SH had led to rectocele formation and evacuatory disorder. Consequently, we developed a surgical plan to transect the lower rectum, anastomose the remaining

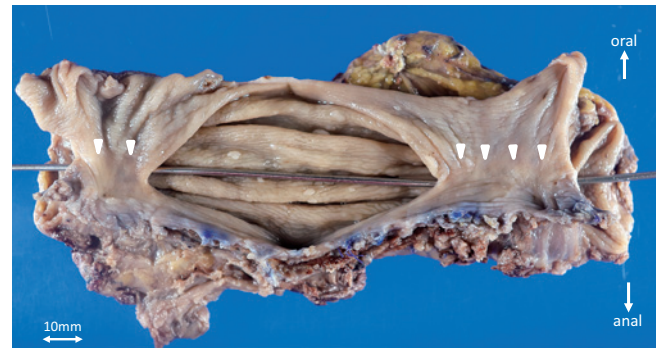


Figure 3. Excised specimen showing a partial opening along the suture line (*arrowheads*); the opening communicated with the periluminal pocket.

rectum and the anal canal, and perform temporary ileostomy with double orifices.

Intraoperatively, severe inflammation-induced adhesion of the lower rectum was observed, which was particularly notable around the rectocele extending to the anorectal junction. The rectum was approached anteriorly and detached from the surrounding tissue down to the anorectal junction. The distal rectal mucosa was removed transanally, and the wound was closed using Vicryl® 3-0 suture. The mobilized rectum was then approached posteriorly, and a 6 cm distal portion of the lower rectum, which included the rectocele, was transected. The remaining rectum and the anal canal were anastomosed using the simple interrupted suture technique with Vicryl® 3-0 suture on a 24 mm surgical needle.

The resected rectal specimen showed partial disappearance of the procedure for prolapse and hemorrhoids (PPH) scar and the formation of an intramural sinus flanked on both sides by developing endorectal orifices (Figure 3). This fistula was diagnosed preoperatively as a rectocele (Figure 3). The internal surface of the rectal pocket was mostly covered by mucosa, with partial exposure of the muscular layer.

The patient developed paralytic ileus postoperatively, but it improved following conservative therapy, and the patient was discharged. The sensation of incomplete bowel evacuation resolved after the surgery. The patient was readmitted for the closure of the artificial anus in November 2018 and was discharged in December 2018 with healthy bowel movements and a stable mental state.

Discussion

Stapled hemorrhoidectomy, initially described by Dr. Peck in 1987, involves using a double purse-string suture to secure hemorrhoidal tissue to a circular stapler, then firing the stapler to remove the tissue[4]. In 1998, Drs. Longo and Milito developed SH, also called PPH, using a circular stapler[4]. This procedure is widely accepted by surgeons as being superior to hemorrhoidal ligation in terms of technical

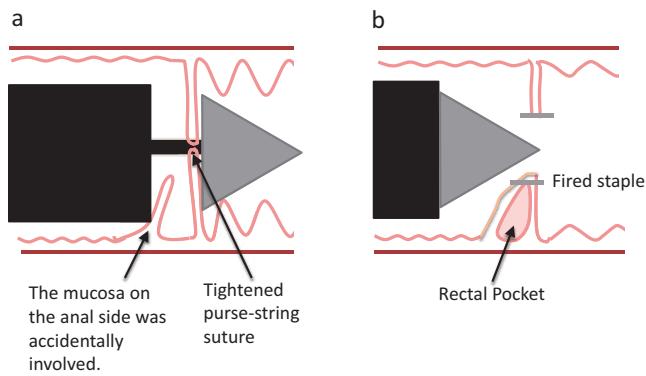


Figure 4. A proposed mechanism for rectal pocket formation.

In stapled hemorrhoidopexy, the purse-string suture is tightened and tied around the shaft of the opened stapler head. Inadvertent incorporation of extra mucosal-submucosal tissue between the stapler jaws results in the formation of a rectal pocket.

ease, postoperative pain, hospital stay, and time to return to work[1,5].

Increasing clinical experience with SH has led to publications regarding its postoperative complications. Typical early complications include hemorrhage and pain, and severe complications, though rare, include perirectal abscess, rectal perforation, and rectovaginal fistula. Examples of common late complications include rehemorrhage, rectal stenosis, and evacuatory disorders[2,6]. RPS, characterized by a diverticulum-like recess that forms after SH, was first reported in 2006 and has since attracted the attention of the medical community[3,7-9]. RPS has been reported not only in patients treated with SH but also in those who undergo lower anterior resection and sigmoidectomy[10,11]. RPS typically involves evacuatory difficulty caused by an enlarged diverticulum, as well as defecatory urge and chronic bacterial infection resulting from entrapped fecaliths. Our patient's conditions, including the severe rectal adhesion that suggested chronic infection, were consistent with these descriptions.

The causes of RPS are still undetermined, although RPS occurs with a certain frequency (2.5%-15%) after the operation with SH[2,3,8,12].

Pescatori et al. suggested the following scenarios for rectal pocket formation: 1) the distance between the two circumferential suture levels is excessive in a double purse-string suture and 2) one or more stitches in a single purse-string suture are placed too superficially to staple the entire circumference[8]. Given that a single purse-string suture is most frequently employed in SH, Scenario 1 is unlikely to account for recent cases of RPS. Regarding Scenario 2, diverticulum formation does not necessarily result from failure to achieve complete resection along the circumference of the anastomosis. In terms of postoperative complications after SH, a recent study reported partial SH as a new procedure

to potentially reduce the rates of several morbidities associated with conventional SH, including anastomotic stenosis, rectovaginal fistula, defecatory dysfunction, and RPS[13]. Additionally, the partial SH procedure, which is performed by preserving the mucosal bridges, is noninferior to SH. This approach is anticipated to preserve compliant tissue because fewer staples are deployed.

In our case, gross observation identified an interruption of the SH staple line. An intramural lumen was formed, with endorectal orifices located on both sides. The inner surface of the lumen was mostly covered with a mucosal layer. The etiology of this case was presumably the inadvertent incorporation of extra mucosal-submucosal tissue between the stapler jaws (Figure 4). Surgeons should carefully prevent extraintestinal or excessive tissue from being stapled. Diameter mismatch between the rectum and the stapler should be avoided during SH because it increases the risks of bleeding, insufficient suturing, tissue damage, and other significant complications. Patients with anal prolapse and rectal mucosal prolapse often have redundant mucosal tissue, which increases the risk of additional tissue being stapled. It is conceivable that the inclusion of additional tissue in the staple line may result in formation of a "tunnel" with openings on both ends (Figure 4), which will entrap fecal matter and become a source of bacterial inflammation. The plausibility of this hypothesis is supported by recent studies reporting RPS in patients who underwent low anterior resection and other non-SH operations involving the use of a circular stapler[10].

RPS may occasionally cause fecalith development, with subsequent inflammation and local sepsis mimicking a perirectal or perianal abscess. Proctalgia and chronic prostatitis may also then occur, possibly because of bacterial translocation. Although the transanal lay-open of the pocket is effective in most cases, as in our case, massive surgery must be considered for these conditions[10]. The indications for SH should be carefully considered given the non-negligible risk of RPS.

Here, we reported the development of RPS in a patient who underwent SH for surgical treatment of internal hemorrhoids. Despite its technical ease, SH may cause a variety of complications and should therefore be carefully performed by skilled surgeons. Prior to SH, surgeons should provide patients with sufficient information on the procedure's advantages and disadvantages and postoperatively should listen attentively to any complaints that their SH-treated patients may have.

Conflicts of Interest

There are no conflicts of interest.

Author Contributions

Taku Maejima and Toru Kono contributed equally to this

work; Taku Maejima and Toru Kono did the literature research and wrote the manuscript under the supervision of Susumu Fukahori, Daitaro Yoshikawa, Hidenori Karasaki, Yasumi Araki, Tomoyuki Ohta and Kazuo Nagashima.

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