

# Reinterventions After Complicated or Failed Stapled Hemorrhoidopexy

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**BACKGROUND:** Stapled hemorrhoidopexy has become increasingly popular over the past five years, mainly because of the assumption that it is associated with less pain. However, persistent tags and recurrence might represent a problem, because piles are not excised and severe complications requiring surgery have been occasionally reported. The aim of the present study is to analyze the causes for and the outcome of reintervention following either severely complicated or failed stapled hemorrhoidopexy. **METHODS:** A total of 232 primary stapled hemorrhoidopexies and 65 reinterventions after stapled hemorrhoidopexy were performed by the authors in five centers devoted to colorectal surgery. Twelve patients of the latter group had the stapled hemorrhoidopexy performed in one of these centers. Thirty-five were males and 30 were females. The mean age was 50 (range, 29–81) years. In all cases the primary indication for stapled hemorrhoidopexy was either third-degree or fourth-degree symptomatic hemorrhoids. In all patients submitted to reoperation the diagnosis of either severely complicated or failed stapled hemorrhoidopexy was made. The clinical history of all of these patients was carefully studied and all underwent inspection, digital exploration, and proctoscopy. After the reintervention, proctoscopy was performed in 61 patients (92 percent) after a median follow-up of 5.5 (range, 1–36) months. **RESULTS:** Our reoperation rate after stapled hemorrhoidopexy was 11 percent. The most frequent indications for reintervention were persistent, severe anal pain (visual analog pain score higher than 7) in 29 patients (45 percent), severe postoperative bleed-

ing in 20 (31 percent), anal fissure in 16 (21 percent), prolapsing piles in 12 (18 percent), rectal polyp in 11 (16 percent), anorectal sepsis in 11 (16 percent), and fecal incontinence in 7 (11 percent). Thirteen different types of reintervention were needed. Excisional hemorrhoidectomy, removal of staples, and fissurectomy and/or internal sphincterotomy were the most frequent operation ( $n = 41$ ). A decrease in anal pain, as measured by visual analog pain score, was observed one month after reintervention, compared with that measured preoperatively (from  $5.6 \pm 3.6$  to  $3.0 \pm 2.9$ ) ( $P < 0.001$ ). Bleeding requiring treatment occurred in six cases (10 percent), anal stricture requiring dilation occurred in three (5 percent), and fecal incontinence in three (5 percent). Proctoscopy showed no recurrences in 52 cases (80 percent) after the reintervention. **CONCLUSION:** Pain and bleeding mostly caused by piles, fissures, and retained staples were the most frequent causes for reoperation after stapled hemorrhoidopexy. Reintervention was associated with a high bleeding and soiling rate, but was effective in treating pain and other symptoms in the majority of patients. Because of the wide spectrum of different interventions required, a failed or complicated stapled hemorrhoidopexy might be better treated by an experienced colorectal surgeon. [Key words: Hemorrhoids; Stapled hemorrhoidopexy; Postoperative complications; Reintervention]

**S**tapled hemorrhoidopexy (SH) has become increasingly popular in the last five years because it seems to be associated with a low postoperative complication rate<sup>1</sup> and is followed by less pain and an earlier return to work than with conventional hemorrhoidectomy.<sup>2,3</sup> However, symptoms from recurrence might represent a problem and necessitate excisional surgery because piles are not excised in the original

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procedure. Early postoperative bleeding may require a surgical revision. Severe complications eventually requiring stoma formation have occasionally been reported.<sup>4,5</sup>

The success of a new procedure is also related to the management of its potential complications and sequelae. These may initially appear quite unusual and odd for the surgical community, and possibly difficult to treat. This is what happened with pouchitis after restorative proctocolectomy and ileoanal reservoir, for instance.

The aim of the present study was to evaluate the causes for either severely complicated or failed SH and the outcome of reinterventions. This study seems to be the first detailed report on this topic in the literature.

## PATIENTS AND METHODS

Sixty-five patients in need of reoperation after SH were admitted to five centers devoted to colorectal surgery. Thirty-five patients were males and 30 were females. The mean age was 50 (range, 29–81) years. Twenty-two female patients had had at least one vaginal delivery before SH (11 multiparous).

The indication for SH was either third-degree or fourth-degree symptomatic hemorrhoids, usually with a reducible external component. Forty patients (62 percent) were constipated and 14 (22 percent) suffered from some degree of fecal incontinence. None of them was infected by HIV.

The clinical history of all of these patients was carefully studied and all patients underwent inspection, digital exploration, and proctoscopy. This led to the diagnosis of either severely complicated (requiring either admission or reintervention) or failed SH. Plain x-ray of the abdomen and gastrographic enema were performed in one patient who had an intestinal obstruction from rectal obliteration. Anal incontinence was evaluated by a previously validated score.<sup>6</sup> A total of 11 patients (17 percent) underwent some other previous anal surgery before undergoing SH (for fissures, hemorrhoids, or rectal mucosal prolapse).

### Stapled Hemorrhoidopexy

SH was performed by use of the PPH system (Ethicon Endosurgery pursestring sutures at least 4 cm above the dentate line in all patients, except one in whom two sets of pursestring sutures were needed to adequately remove an internal circumferential rectal

mucosal prolapse. Most SH (53 or 81 percent) had been previously performed in other centers.

## Reinterventions

Most patients who underwent reoperation had conservative treatment before reintervention, consisting of analgesics for anal pain, balking laxatives for rectal bleeding, constipation, and fissure, and pelvic exercise for anal incontinence.

Twelve patients (5 percent) had the SH performed in one of the study centers, where we performed a total 232 SH. All reinterventions were performed between 1998 and 2002 by a senior colorectal surgeon in patients severely symptomatic and not responding to conservative treatment. The operation was performed after standard preoperative prophylaxis with metronidazole and/or cephalosporin, under either spinal or general anesthesia, with patients in either lithotomy or jackknife ( $n = 16$ ) position. Operative proctoscopes were used to gently dilate the anal canal. A LoneStar retractor (Texas Instrument™, Houston, TX) was used in three patients. Anal stretch was never performed.

Patients were given painkillers after surgery (usually Ketorolac in one intramuscular dose every 8 hours) and postoperative pain was recorded at 24 hours by means of the visual analog pain score (VAS) scale. The first evacuation was facilitated with mild laxatives and a high-residue diet was prescribed. Most patients were discharged within 48 hours. Postoperative incontinence was evaluated by means of the same previously validated score used earlier.<sup>6</sup>

## Follow-Up

Patients were seen in the office one week after the surgical procedure, and then every two weeks for two months. Pain was evaluated by a VAS of 1 to 10, one month after surgery. Two months after the reintervention, proctoscopy, anorectal manometry, and anal ultrasound were performed in those who had these examinations before reintervention, unless they were refused by the patient. Clinical information was subsequently collected by telephone interviews. All authors completed a questionnaire reporting the clinical data of their patients. Mean follow-up after reintervention was 5.5 (range, 1–36) months. No patient was lost at follow-up. The outcome of reintervention was defined as positive when the patient was either cured or improved, with either no abnormality or very minor lesions at proctoscopy, and negative when symptoms either remained unchanged or worsened.

**Table 1.**  
Indications for Reintervention<sup>a</sup>

Indication	No. of Patients	%
Persistent anal pain <sup>b</sup>	29	44
Severe postoperative bleeding <sup>c</sup>	23	35.4
Anal fissure	18	27.7
Prolapsing piles, mucosal prolapse	13	20
Rectal polyp, anal tag	12	18.5
Anorectal sepsis	11	16.9
Anorectal stricture <sup>d</sup>	9	13.8
Fecal incontinence	7	10.7
Trombosed external piles	5	7.6
Retrorectal hematoma	1	1.5

<sup>a</sup>Some patients (n = 15) had more than one indication.

<sup>b</sup>The visual analog pain score was higher than 7 on a 1 to 10 scale.

<sup>c</sup>An occult adenocarcinoma was found in the excised mucosa specimen of a patient with bleeding.

<sup>d</sup>This caused acute intestinal obstruction in one case.

### Statistics

Values are expressed as mean  $\pm$  standard deviation of the mean. Chi-squared and paired *t*-test for dependent samples were used for statistical comparisons and a level of statistical significance was fixed at  $P < 0.05$ .

### RESULTS

The reoperation rate in outside centers was 11 percent. The indications for reintervention are listed in Table 1. Pain and bleeding were commonly related to either recurrent piles or anal fissures as the most frequent causes. Most patients with severe pain (*i.e.*, 7 or more on the VAS) after SH had retained staples. The interval between SH and reintervention ranged between two days and two years. Pain score decreased from  $5.6 \pm 3.6$  to  $3.0 \pm 2.9$  after surgery ( $P < 0.001$ ; *t*-test for matched samples). Constipation, incontinence, and bleeding also significantly improved after reintervention ( $P < 0.05$ ) (Fig. 1). Thirteen different types of reinterventions were performed and are listed in Table 2. The effect of reoperation on post-SH symptoms is reported in Figure 1. A manual ligation-anopexy done according to Hussein<sup>7</sup> was performed when dealing with residual or recurrent internal third-degree piles with a reducible external component. A double-flap rectal-cutaneous anoplasty<sup>8</sup> was performed to prevent anal stricture in a widely disepithelialized anal canal. Residual staples were removed when encountered and judged to be responsible for

**Table 2.**  
Type of Reintervention Performed After Complicated or Failed Stapled Hemorrhoidopexy<sup>a</sup>

Reintervention	No. of Patients	%
Hemorrhoidectomy <sup>b</sup>	14	21.5
Fissurectomy and LIS	14	21.5
Staples removal	13	20
Abscess drainage/curettage	10	15.3
Anoplasty	8	12.3
Transanal prolapsectomy	7	10.6
Excision of tag and/or polyp	5	7.6
Suture of bleeding vessel	4	6.1
Stapled/manual anopexy	3	4.6
Sphincteroplasty	2	3
Trombectomy	2	3
Doppler-guided HAL	1	1.5
Rectopexy	1	1.5
Radiofrequency <sup>c</sup>	1	1.5

HAL= hemorrhoid artery ligation; LIS = lateral internal sphincterotomy.

<sup>a</sup>Some patients had more than one operation.

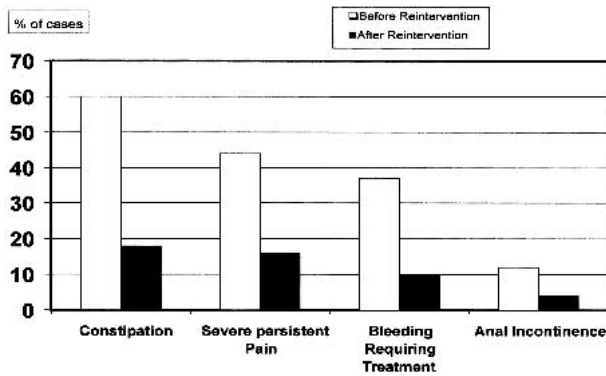
<sup>b</sup>Ferguson (n = 11), semiclosed (n = 2), Milligan-Morgan (n = 1).

<sup>c</sup>This was done through use of the SECCA procedure (Curon Med, Inc., Sunnyvale, CA) for the management of post-SH fecal soiling.

pain and/or bleeding. Pain and bleeding were relieved in most of these patients.

No postoperative mortality has been reported. Twenty-five patients had their VAS score measured both before and after the reintervention. Three patients had anal stricture (severe in one and mild in two cases). Two patients had perirectal sepsis and a suture dehiscence was found in three cases after the reintervention. Anorectal sepsis necessitated a reoperation in 11 of our patients (17 percent). The overall number of patients without anorectal lesions when examined at proctoscopy 5.5 months after reintervention was 42 or 65 percent.

Three patients (5 percent) needed further surgery for recurrent disease. Fourteen patients (20 percent), all but one multiparous woman, complained of some degree of mucus soiling and/or mild anal pain after reoperation. These patients had an incontinence score between A1 (occasional to mucus, score 2) and B1 (occasional to liquid stool, score 3). Incontinence was transient in ten of them. Eleven patients (17 percent) complained of postoperative constipation; one patient had fecal urgency. Sixteen of 21 patients (76 percent) who had had at least one previous vaginal delivery (11 multiparous) had a reintervention after SH because of either anal pain (n = 14) or fecal incontinence (n = 2).



**Figure 1.** Diagram showing the improvement of symptoms after reintervention following either complicated or failed stapled hemorrhoidectomy. Some patients ( $n = 15$ ) had more than one symptom.

Twenty-two patients (34 percent) had bleeding after reintervention; 5 of them needed a rubber band ligation of a bleeding pile and one needed diathermy of the bleeding area. Overall, 10 percent of the patients needed some further treatment to manage postoperative bleeding. One of the patients who needed blood transfusion and suturing of a bleeding vessel had malignant changes in the specimen, *i.e.*, poorly differentiated polypoid adenocarcinoma with an infiltration depth of 4 mm. One patient who developed a retrorectal hematoma, possibly the result of a rectal laceration that went unrecognized at the time of SH, needed further surgery because of the same complication after the reintervention. Overall, three patients needed more than one reintervention.

## DISCUSSION

The most common causes for reintervention after SH were persistent anal pain and postoperative bleeding caused by recurrent piles, troublesome retained staples, and anal fissures. Excisional hemorrhoidectomy, fissurectomy with or without lateral internal sphincterotomy, and removal of retained staples were the most frequently performed operations. Thirteen different types of procedures were required. This suggests that a complicated or failed SH might be better managed by an experienced specialist.

The reoperation rate in our survey was as low as 5.1 percent, whereas a higher reintervention rate of 20 percent has been reported by others.<sup>4</sup>

Severe, persistent pain was reported to be frequent by Cheetham *et al.*,<sup>9</sup> but most authors have reported it as an occasional problem.<sup>1,3</sup> This pain represented

an indication for a reintervention in nearly one-half of our patients and was mainly caused by fissures, thrombosed piles, and retained staples. Reintervention solved the problem in most cases. The need for reintervention on account of recurrent prolapsing piles after SH has been occasionally reported in the literature. Restapling hemorrhoidectomy after failed SH has been reported by Beattie *et al.*<sup>10</sup> In our survey, however, only 3 of 18 patients with recurrent piles after SH were submitted to an anopexy, thus indicating our preference for an excisional hemorrhoidectomy.

Recently, two prospective, randomized studies reported a higher percentage of recurrent piles after SH than after manual hemorrhoidectomy.<sup>4,11</sup> A diathermy hemorrhoidectomy was needed to excise persistent symptomatic piles in 3 of 15 cases of SH (20 percent).<sup>4</sup> A lower reintervention rate of 7.5 percent has been reported at long-term follow-up after Ferguson hemorrhoidectomy.<sup>12</sup> Recurrent hemorrhoidal prolapse after SH was reported in only 1 of 95 patients by Shalaby and Desoky,<sup>13</sup> but in 10 of 50 patients by Ganio *et al.*<sup>3</sup> According to Ortiz *et al.*,<sup>11</sup> the recurrence rate was higher after SH than after diathermy hemorrhoidectomy, especially in patients with fourth-degree piles. Neoplastic changes in a specimen of excised polypoid lesion mimicking hypertrophied anal papilla were found in one patient after SH, who subsequently needed a reintervention for severe bleeding. The patient was followed up for six months with endoscopy CT scan and no recurrence was found. A similar case has been previously reported.<sup>14</sup> This should alert the surgical community about the risk of leaving a malignancy *in situ*, a rare but possible event when performing SH. Excisional surgery allowing histologic examination may be preferred to hemorrhoidectomy in cases of polypoid piles.

Anal fissure may be related to a stretch of the anal canal during insertion of the large anal dilator of the PPH device.<sup>4</sup> Despite most cases reported in the literature being successfully treated with trinitroglycerol ointment, 14 of our patients (21 percent) required either fissurectomy or internal sphincterotomy. Most post-SH fissures were neither painful nor associated with sphincter spasm.

Painful retained staples had to be removed when located in the upper anal canal very close to the sensitive epithelium or when they caused rectal inflammation, as reported by others.<sup>1</sup> Retained staples caused bleeding in some cases, as reported by others.<sup>15</sup> Rectal obliteration causing acute intestinal ob-

struction was easily managed simply by releasing a double pursestring entrapped by the staples. The question arises if retained staples detected at proctoscopy should be removed. We believe that this should be done only when staples are located below the anorectal ring at the level of sensitive epithelium, where they are likely to be the cause of pain, and when they are clearly causing bleeding at proctoscopy.

A sphincteroplasty was necessary in two cases of fecal incontinence. No other case of sphincter damage requiring surgery had been previously reported in the literature; however, internal sphincter damage has been described after SH.<sup>16</sup> Fecal incontinence may occur after both a Ferguson and Milligan-Morgan operation with a rate of approximately 3 percent,<sup>16,17</sup> whereas in our study a higher percentage of 20 percent was found following reintervention after SH. This discrepancy might be a result of a proportion of our patients having previous complaints of some degree of soiling before SH. The use of an intraoperative anal retractor should be minimized to avoid sphincter stretch in patients who have had previous anal surgery. A smaller-size stapling device, *e.g.*, 29 mm, together with a nontraumatizing Lonestar™ retractor, may be advisable in patients with weak sphincters. Fecal urgency occurred only in one patient after reoperation in our survey, but in a recent study it was observed in as many as 33 percent of patients four years after SH.<sup>18</sup>

Fortunately, none of the patients undergoing reoperation for anorectal sepsis needed either rectal resection or stoma formation, as reported by others.<sup>5</sup> Possibly, antibiotic prophylaxis might have played a positive role in limiting the consequences of postoperative infection. Even if significant bacteremia is not observed after SH,<sup>19</sup> some authors suggest use of antibiotic prophylaxis before SH<sup>5</sup> because rectal injury causing either hematoma or retroperitoneal sepsis may occur after the procedure.

Tag excision was performed as a second operation in five patients. This is a relatively low number, considering that residual tags have been reported as being the main cause of postoperative symptoms in some reported series.<sup>10</sup>

Rectal bleeding from an early hemorrhage (requiring a revisional surgery with suturing of the bleeding point at the staple line) has occurred in our series and has been reported in 2 of 15 cases after SH (13 percent) in a prospective trial at St. Mark's Hospital.<sup>4</sup> A lower reoperation rate of 4 percent after Milligan-

Morgan hemorrhoidectomy has been reported.<sup>22</sup> Others studies, however, indicate that the incidence of bleeding two weeks after surgery is reduced after SH.<sup>23</sup>

A reoperation rate of 1.7 percent has been reported in 545 cases operated on with elective hemorrhoidectomy.<sup>24</sup>

Postoperative bleeding requiring treatment following either SH or manual hemorrhoidectomy is usually below 5 percent,<sup>3,23</sup> but it was double that following reintervention in our patients. Therefore, a reintervention after failed or complicated SH is likely to be more risky because of the expected higher bleeding rate, and it might be advisable not to perform SH on an outpatient basis. A closed hemorrhoidectomy might be safer in this case, as shown by our series and by other authors, who reported an 11 percent reoperation rate with postoperative bleeding after an open procedure compared with 0 percent after a closed operation.<sup>17</sup> Either a closed or semiclosed hemorrhoidectomy may reduce the risk of postoperative bleeding in such circumstances.

Reoperation significantly decreased anal pain, accounting for a median score of 3, a rate similar to that reported after primary SH in most series.<sup>3</sup> This similarity probably stems from the fact that only a few of the reoperated cases required painful excisional surgery. Moreover, preoperative pain from thrombosed piles was relieved in some cases after surgery.

## CONCLUSIONS

Pain and bleeding were the most frequent causes for a reintervention after SH. Staple removal, excisional hemorrhoidectomy, and internal sphincterotomy were needed in most cases. The reintervention was followed by a relatively higher bleeding and soiling rate but was effective in most patients. Because a large number of procedures were needed, patients with either complicated or failed SH might be better managed by a specialist colorectal surgeon.

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