Impact of previous hemorrhoid surgery and outpatient hemorrhoid procedures on the results of Stapler Hemorrhoidopexy

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Mohamed Ismail and Pankaj Garg

Abstract

Purpose - To study the impact of previous hemorrhoids surgery and outpatient procedures on results of Stapler Hemorrhoidopexy (SH)

Methods - 1125 patients with grade 3&4 hemorrhoids undergoing SH were retrospectively analyzed. 70 patients had undergone previous surgery (PSx)(conventional hemorrhoidectomy), 66 had previous out-patient procedures (PProc) (Banding=32, Injection Sclerotherapy=34) and 989 patients had no previous procedure(NoP) for hemorrhoids.

Results - Higher percentage of PSx (38/71, 54.3%) patients presented with bleeding PR compared to PProc (24/66, 36.4%) and NoP (290/989, 29.3%) [p<0.0001]. PSx had much higher operating time (27.1±7.4min) compared to NoP (23.6±8.2)[p=0.0006]. Postoperative urinary catheterization rate was significantly higher in PSx (59/70, 84.3%) and PProc (42/66, 63.6%) as compared to NoP (167/989, 16.9%) [p<0.0001]. Percentage of patients highly satisfied by the procedure were significantly higher in NoP (847/989, 85.6%) compared to PProc (39/66, 59.1%) and PSx (28/70, 40%) [p<0.0001]. Incidence of incomplete doughnut, requirement for intra operative suturing for hemostasis, post operative bleeding, anal incontinence, anal stenosis and long term recurrence rates were similar in all three groups.

Conclusions - Previously operated patients and patients with previous out patients procedures done, presented more frequently with bleeding per rectum, had significantly higher operating time, had higher incidence of postoperative urinary catheterization rate and had significantly lower satisfaction rate compared to patients with no previous procedure.

KEYWORDS: hemorrhoids, stapler, mucosectomy, banding, injection, sclerotherapy
Introduction

Stapler Hemorrhoidopexy (SH) has emerged as an alternative to conventional Milligan Morgan hemorrhoidectomy (CH). Even though SH has benefits of decreased post operative pain, early discharge from hospital and early return to work\textsuperscript{1-4, 6-8, 10, 13, 15-18, 20-23}, yet there are reports of higher incidence of recurrence especially the prolapse symptoms compared to CH\textsuperscript{1, 3, 4, 6, 8, 13, 15-19, 21-23}.

Any procedure in the anorectal region is expected to change the anatomy and physiology of the anal canal. This may or may not influence the outcome of any subsequent procedure done in the region. During the literature search, we couldn’t find any study that determined the impact of previous procedures, CH and outpatient hemorrhoid procedures (banding & sclerotherapy), on subsequent SH. We undertook this study in 1145 patients and retrospectively analyzed the impact of previous CH and outpatient procedures on the results and morbidity parameters of SH.

Methods

Between March 2003 and September 2007, 1145 patients with grade 3 & 4 hemorrhoids were included. Exclusion criteria included associated anal disease (fissure, fistula, mucosal prolapse, abscess, incontinence, inflammatory bowel disease, malignancy), patients on anti-coagulants and poor anesthesia risk patients (American Society of Anesthesiologists Grade III & IV).

The note was made of the following pre-operative parameters-age, sex, presenting symptoms (bleeding, prolapse, itching, pain) and history of previous procedures which the patient had undergone for hemorrhoids –conventional hemorrhoidectomy-CH (Closed or open method) or out patient procedures (banding, injection sclerotherapy, infra-red
coagulation, cryotherapy or bipolar coagulation). All the operations were done in lithotomy position under spinal anesthesia (SA), laryngeal mask anesthesia (LMA) or general anesthesia (GA). Intra-operative parameters—operating time, need for intraoperative suturing for hemostasis, incomplete doughnut—was noted. Urinary catheterization, bleeding and incontinence in the postoperative period were taken note of. A single surgeon carried all the operations. The surgeon had undergone a formal training program and had operated 50 cases before starting the study. The approval of the Institute Review Board was obtained.

The operation was done as described by Longo\textsuperscript{12}. After examining the anorectal region under anesthesia, all the hemorrhoids were reduced. A purse string suture with 1-0 polypropylene was taken 3-4 cm above the dentate line. Care was taken to include only the mucosa and submucosa in the suture. The PPH03\textsuperscript{TM} stapling gun (Ethicon Endo-Surgery, Cincinnati, Ohio, USA) was opened to its maximum position and introduced through the anus. A purse string suture was tied to the stapler shaft and the head of the instrument was closed on the anvil incorporating the mucosal and submucosal tissue in the purse string suture in the head of the gun. The stapler was fully tightened, fired and gently withdrawn. The staple line was inspected for bleeding points and any active bleeding points were ligated with a figure of eight with 2-0 polyglactin. In case residual prolapsing hemorrhoids were noted on the table after firing the stapler, a horizontal mattress suture was taken above and below the staple line at that point with 2-0 polyglactin. This would further pull the mucosa upwards thereby correcting the residual prolapse. A small gauze was kept in the anal canal, which was removed 3 hours after the operation.
Patients were started orally in the evening of the day of surgery. Intramuscular analgesics (Diclofenac-75 mg) were given 8 hourly for 24 hours. After that oral analgesic (Tab Ibuprofen 600 mg) was advised as per need basis. Parenteral antibiotics (Ciprofloxacin – 500 mg and Metronidazole-500mg) were given intra operatively and 2 doses post operatively. **We followed a policy of low threshold and early urinary catheterization.** The catheter was put on receiving the first complaint of difficulty in urine passage. The patients were discharged on the first postoperative day provided there was minimal bleeding or pain. All patients were advised high fiber diet for at least 8 weeks. They were told to keep a record and inform in case of bleeding, prolapse, itching, urgency or incontinence to gas, liquids or solids. **Clinical evaluation was done at two weeks and four weeks.** After that they were followed up at six months and one year and told to report back in case of any problem. In pre-operative and the immediate post-operative period, the symptoms, signs and the disease related information was recorded in the patient’s case sheet. On the clinical visit at four weeks, clinical examination, satisfaction scores and other parameters were recorded. After this, the patients were assessed telephonically by the questionnaire (and by sending the questionnaire by post to individuals not having a telephone) by a secretary who had no information regarding the details and the benefits of the operative procedure. Any patient reporting a complication telephonically was called for clinical evaluation for confirming and grading the severity of the complication. Pain assessment and patient satisfaction scoring was done by asking the patient to categorize his/her overall experience with the procedure in one of the four categories- highly satisfied=1, somewhat satisfied=2, somewhat unsatisfied=3 and highly unsatisfied=4.
**Statistical Analysis**

Comparison of categorical variables was performed by chi-squared analysis or Fisher’s exact test, where appropriate. The continuous variables were assessed by ANOVA or t-test. The significant cut off point was set at p<0.05.

**Results**

Out of 1145 total patients enrolled, 1125 patients with minimum follow up of 6 months were included in the final analysis and 20 patients were lost to follow up. Out of these, 70 patients had undergone previous surgery (PSx), 66 had previous out-patient procedures (PProc) (Banding=32, Injection Sclerotherapy=34) and 989 patients had no previous procedure (NoP) for hemorrhoids. The median follow up was 12 months (range, 6-24 months).

The mean age and sex distribution (males) in PSx, PProc and NoP groups were 55.1±3.2, 44.3±12.3, 44.7±15.9 years and 52/70(74.3%), 50/66(75.8%), 746/989(75.4%) respectively. Age in PSx group was significantly higher than the other groups (p<0.0001). Prolapse was present in all the patients as only grade 3 and 4 hemorrhoids were included in the study. Bleeding as a symptom was present significantly more in PSx group (38/70-54.3%) compared to PProc(24/66-36.4%) and NoP(290/989, 29.3%) groups (p<0.0001). Itching was more commonly present in NoP group (94/989, 9.5%) compared to PSx (0/70) and PProc(1/66-1.5%) groups(p=0.0025). The proportion of grade 4 patients were significantly higher in NoP group (162/989-16.4%) compared PSx(2/70-2.86%) and PProc(3/66-4.55%) groups(p=0.0004) (Table-1).

The operating time in PProc group (25.5±6.9 min) was comparable to other two groups whereas the PSx group(27.1±7.4 min) took significantly more time than NoP.
The need for intra operative haemostatic suturing and incidence of incomplete doughnut were similar in all the three groups (Table-2).

The incidence of urinary catheterization in PSx (59/70-84.3%) and PProc (42/66-63.6%) groups was significantly higher than NoP (167/989-16.9%) group (p<0.0001). The proportion of patients who were highly satisfied with the procedure (score=1) after 6 months were significantly higher in NoP (847/989-85.6%) than PProc (39/66-59.1%) and PSx (28/70-40%) groups (p<0.0001). The recurrence rates, incontinence rates and long term pain rates were comparable and non-significant in all the three groups (Table-3).

**Discussion**

Since Longo described Stapler Hemorrhoidopexy (SH) in 1998\(^{12}\), the procedure has evoked quite an interest in surgical fraternity. Our study highlighted that the previous conventional surgery (CH) and outpatient procedures for hemorrhoids substantially influenced the postoperative morbidity parameters.

The age in PSx (previous surgery) group was significantly higher than PProc (previous procedure) and NoP (no previous procedure) groups (55.1±3.3 vs. 44.3±12.3 vs. 44.7±15.9 years respectively, p<0.0001). This could be possible due to reluctance on part of the patients to undergo a second surgery for the same disease after failure of the first one. The NoP group had significantly higher proportion of patients with grade 4 hemorrhoids (16.4% vs. 4.6% & 2.9% in PProc and PSx respectively, p=0.0004). The fibrosis resulting from the previous surgery and procedures could be responsible for this.

Since the grading of hemorrhoids is done on the basis of degree of prolapse, fibrosis in the anorectal region could be responsible for the lesser degree of prolapse in the recurring hemorrhoids. The NoP group (9.5%) had significantly higher incidence of pre operative
itching compared to PSx (0%) and PProc (1.5%) groups (p=0.0025). This could be expected as NoP group had higher proportion of grade 4 hemorrhoid patients. Itching, as a symptom of hemorrhoids, is primarily due to irritation of perianal skin by mucus secreted by prolapsing hemorrhoidal mucosa. The incidence of pre-operative bleeding in our series varied from 29-54%. This is in contrast to the series by Ng et al\(^ {14}\) in which 81% patients presented with pre-operative bleeding and 60% patients presented with prolapse symptoms. The reason for this could be that Ng et al included all patients in their study whereas we included only grade 3 & 4 hemorrhoids in our study. So prolapse, as a symptom was present in all of our patients and bleeding in only few of them.

The operating time was significantly higher in PSx (27.1±7.4 min) compared to NoP (23.6±8.2 min) group (p=0.0006). Though the difference is statistically significant, yet it is of only 4 minutes, which did not seem to have much relevance in the clinical setting. Resultant fibrosis because of previous surgery leading to loss of planes and relative difficulty of anal canal to easily dilate (to accommodate the anal dilator and the anoscope) could be responsible for this. The incidence of incomplete doughnut and need to take haemostatic sutures was similar in all the three groups.

The urinary catheterization rates were higher in PSx group (84.3%) and PProc group (63.6%) and were significantly lower in NoP group (16.9%) compared to other two groups (P<0.0001). The reason for higher incidence of urinary catheterization in PSx and PProc group could not be ascertained. Higher age distribution in PSX group could be a confounding factor partly responsible for this. Compared to other studies\(^ 5, 9, 11\) which report urinary retention rates ranging from 3-6%, the rates of urinary catheterization in our study were higher. The overall urinary catheterization rates were 23.8% (268/1125) in...
our series. As explained, the prime reason for this was lower threshold and putting the urinary catheter on the first complaint of difficulty in urine passage by the patient. Though a significant proportion of such patients would eventually pass urine with conservative measures (ambulation, hot fomentation, listening to running water etc), yet to avoid straining and putting pressure on staple line, the policy of early catheterization was adopted. So this can be taken as the prophylactic urinary catheterization rate rather than the urinary retention rate, as is conventionally reported. The catheter used to be taken out the next morning.

The incidence of postoperative bleeding, recurrence rates, incontinence rates, pain at one month and anal stenosis rates were comparable in all the three groups. The satisfaction score at one-month post operatively, a cumulative indicator of all the morbidity parameters (pain, urinary retention, bleeding and recurrence rates) was significantly different in the three groups. The proportion of patients who were highly satisfied with the procedure (score=1) were significantly higher in NoP (85.6%) group compared to PProc (59.1%) and PSx (40%) groups (p<0.0001). This could be primarily due to higher pain and higher urinary symptoms in PSx and PProc groups.

The study had some drawbacks. Though subjective post operative pain recording was done but objective scoring on visual analogue scale (VAS) was not done. So satisfaction score was the objective indicator used to assess the pain. Secondly, age in PSx group was significantly higher than other two groups. This could have confounding influence on some of the results.

To conclude, PSx (previous surgery) patients and PProc(previous out patient procedure for hemorrhoids), presented more frequently with bleeding per rectum, had significantly
higher operating time, had higher incidence of post operative urinary retention and had 
significantly lower satisfaction rates compared to NoP patients (no previous procedure 
done). A prospective controlled trial is needed to corroborate the findings of this study.

References

trial of diathermy hemorrhoidectomy vs. stapled hemorrhoidectomy in an 
intended day-care setting with longer-term follow-up. Dis Colon Rectum. 2003; 
46: 491-497

2. Chung CC, Cheung HY, Chan ES, Kwok SY, Li MK. Stapled hemorrhoidopexy 
2005; 48: 1213-1219

3. Correa-Rovelo JM, Tellez O, Obregon L, Miranda-Gomez A, Moran S. Stapled 
rectal mucosectomy vs. closed hemorrhoidectomy: a randomized, clinical trial. 
Dis Colon Rectum. 2002; 45: 1367-1374; discussion 1374-1365

4. Ganio E, Altomare DF, Gabrielli F, Milito G, Canuti S. Prospective randomized 
m multicentre trial comparing stapled with open haemorrhoidectomy. Br J Surg. 
2001; 88: 669-674

5. Goldstein SD, Meslin KP, Mazza T, et al. Stapled hemorrhoidopexy: outcome 

6. Gravie JF, Lehur PA, Huten N, et al. Stapled hemorrhoidopexy versus milligan-
morgan hemorrhoidectomy: a prospective, randomized, multicenter trial with 2-


### Table-1- Demography and symptoms

<table>
<thead>
<tr>
<th></th>
<th>Previous Surgery (PSx)</th>
<th>Previous out patient procedure (PProc)</th>
<th>No previous procedure (NoP)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>70</td>
<td>66</td>
<td>989</td>
<td></td>
</tr>
<tr>
<td>Age (yrs)</td>
<td>55.1±3.3</td>
<td>44.3±12.3</td>
<td>44.7±15.9</td>
<td>p&lt;0.0001, ANOVA</td>
</tr>
<tr>
<td>Sex</td>
<td>Males</td>
<td>52 (74.3%)</td>
<td>50/66(75.8%)</td>
<td>p=0.18, ANOVA</td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>18 (25.7%)</td>
<td>16 (24.2%)</td>
<td></td>
</tr>
<tr>
<td>Preoperative bleeding</td>
<td>38 (54.3%)</td>
<td>24 (36.4%)</td>
<td>290 (29.3%)</td>
<td>p&lt;0.0001, Chi square</td>
</tr>
<tr>
<td>Prolapse</td>
<td>70 (100%)</td>
<td>66 (100%)</td>
<td>989 (100%)</td>
<td>p=1.0, Chi square</td>
</tr>
<tr>
<td>Itching</td>
<td>0</td>
<td>1 (1.5%)</td>
<td>94 (9.5%)</td>
<td>p=0.0025, Chi square test</td>
</tr>
<tr>
<td>Grade 4 hemorrhoids</td>
<td>2 (2.9%)</td>
<td>3 (4.6%)</td>
<td>162 (16.4%)</td>
<td>p=0.0004, Chi square test</td>
</tr>
<tr>
<td></td>
<td>Previous Surgery (PSx) [n=70]</td>
<td>Previous out-patient procedure (PProc) [n=66]</td>
<td>No previous procedure (NoP) [n=989]</td>
<td>p value</td>
</tr>
<tr>
<td>--------------------------</td>
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</tr>
<tr>
<td>Anesthesia</td>
<td>SA</td>
<td>70 (100%)</td>
<td>64 (96.9%)</td>
<td>916 (92.6%)</td>
</tr>
<tr>
<td></td>
<td>GA+LMV</td>
<td>0</td>
<td>2 (3.1%)</td>
<td>73 (7.4%)</td>
</tr>
<tr>
<td>Operating time (min)</td>
<td>27.1±7.4</td>
<td>25.5±6.9</td>
<td>23.6± 8.2</td>
<td>P=0.0006, ANOVA</td>
</tr>
<tr>
<td>Intra operative suturing</td>
<td>2 (2.9%)</td>
<td>2 (3.0%)</td>
<td>48 (4.9%)</td>
<td>p=0.99, Chi square</td>
</tr>
<tr>
<td>Incomplete doughnut</td>
<td>1 (1.4%)</td>
<td>2 (3.0%)</td>
<td>21 (2.1%)</td>
<td>P=1.0, Chi square</td>
</tr>
</tbody>
</table>
Table-3- Post operative parameters

<table>
<thead>
<tr>
<th></th>
<th>Previous Surgery (PSx)[n=70]</th>
<th>Previous out-patient procedure (PProc) [n=66]</th>
<th>No previous procedure (NoP) [n=989]</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urinary retention</td>
<td>59 (84.3%)</td>
<td>42 (63.6%)</td>
<td>167 (16.9%)</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Chi square</td>
</tr>
<tr>
<td>Bleeding</td>
<td>2 (2.9%)</td>
<td>1 (1.5%)</td>
<td>21 (2.1%)</td>
<td>P=0.86,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ch square</td>
</tr>
<tr>
<td>Highly satisfied (Score=1)</td>
<td>28 (40%)</td>
<td>39 (59.1%)</td>
<td>847 (85.6%)</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Chi square</td>
</tr>
<tr>
<td>Pain- long term (one month)</td>
<td>0</td>
<td>0</td>
<td>12 (1.2%)</td>
<td>p=0.43,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ch square</td>
</tr>
<tr>
<td>Recurrence</td>
<td>1 (1.4%)</td>
<td>0</td>
<td>18 (1.82%)</td>
<td>p=0.53,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ch square</td>
</tr>
<tr>
<td>Incontinence</td>
<td>1 (1.4%)</td>
<td>0</td>
<td>3 (0.3%)</td>
<td>p=0.27,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ch square</td>
</tr>
<tr>
<td>Anal stenosis</td>
<td>0</td>
<td>0</td>
<td>6(0.6%)</td>
<td>P=0.66,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Chi square</td>
</tr>
</tbody>
</table>