

Stapled Hemorrhoidopexy With Longo Process in the Treatment of 3rd and 4th Degree Internal Hemorrhoids and Rectal Mucosal Prolapsus: A Prospective Study

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ABSTRACT

BACKGROUND: The hemorrhoid surgery done with a circular stapler is becoming increasingly common in recent years. Longo process first described in 1998 is a stapled hemorrhoidopexy (SH) makes transverse mucosal-submucosal rectal resection in the anal channel using the circular stapler. In this study Longo process was used the treatment of 3rd and 4th degree internal hemorrhoids and rectal mucosal prolapsus.

MATERIALS AND METHODS: Between January 2012-January 2015, at Diyarbakir Gazi Yasargil Training and Research Hospital General Surgery Clinic, a total of 18 patients with complaints of 3rd and 4th degree internal hemorrhoids and mucosal rectal prolapse were included in this prospective study. Circular stapler method using the procedure for proplase & hemorrhoids (PPH03) kit (Ethicon PROXIMATE[®] PPH) was applied to all cases.

RESULTS: Patients' average pain score was 2 on a Visual Analogue Scale of 10. Most patients have no pain at all immediately after surgery. Symptom were bleeding in 2 patients, pain in 12 patients, and gas passing in 4 and constipation in 10 patients. Patients were followed for a median of 14 months. In 6 patients, pain was observed which responded to medical treatment,

symptomatic skin pile was found in 4 patients. None of the patients had septic complication, incontinence and evidence of anal stenosis.

CONCLUSION: hemorrhoidectomy with Longo is easily used acceptable treatment due to shorter healing process and less pain.

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Key words: Longo; Stapled hemorrhoidopexy; Hemorrhoids

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INTRODUCTION

The hemorrhoid surgery done with a circular stapler is becoming increasingly common in recent years. Longo process first described in 1998 is a stapled hemorrhoidopexy (SH) makes transverse mucosal-submucosal rectal resection in the anal channel using the circular stapler^[1]. In stapled hemorrhoidopexy (SH), hemorrhoidal prolapse is excised as a ring or 'donut' of tissue above the hemorrhoidal cushions and immediate re-anastomosis of the mucosa is performed.

Patients with symptomatic third- and fourth-degree hemorrhoids are candidate for SH. Symptomatic second-degree hemorrhoids may also be treated with SH for definitive therapy. In this study Longo process was used the treatment of 3rd and 4th degree internal hemorrhoids and rectal mucosal prolapsus.

MATERIALS AND METHODS

Between January 2012-January 2015, at Diyarbakir Gazi Yasargil Training and Research Hospital General Surgery Clinic, a total of 18

patients with complaints of 3rd and 4th degree internal hemorrhoids and mucosal prolapse were included in this prospective study. Gender, complaints, the degree of hemorrhoids, operative time, and length of hospital stay, postoperative complications and pain were investigated in all patients. The operation was performed under spinal anesthesia in lithotomy position by the same surgeon (Y.Y). A cleaning enema was given preoperatively. First-generation cephalosporin was given for prophylaxis one hour before the operation. Circular stapler method using the procedure for proplase & hemorrhoids (PPH03) kit (Ethicon PROXIMATE® PPH) was applied to all cases. In the techniques, the prolapse of the anoderm and parts of the anal mucous membrane were reduced with the obturator and circular anal dilatator. Then, obturator was removed and circular anal dilator was fixed with 4 stitches at the anal verge. The prolapsed mucous membrane fallen into the lumen of the circular anal dilatator. A purse-string suture with 2-0 polypropylene (Prolene; Ethicon, Inc.) was placed circumferentially 4 cm above the dentate line, around 2cm cranial to the upper border of the hemorrhoids, through the window of anoscope. Then, a hemorrhoidal circular stapler was positioned and fired (Figure 1-4). Mean operative time was 40 minutes. The average length of hospital stay was 36 hours (24-48). Bath sitting 2 to 3 times per day was advised to all patients and all were seen 2-4 weeks postoperatively to allow assessment and possible digital dilation of the staple line in case of stenosis. A visual analog scale for scoring pain was filled out by the patients postoperatively (0 indicates no pain; and 10, maximum pain). Pain scores were evaluated 12 hours later and postoperative 3rd days. Pain therapy consisted of a basic analgesia and addition of injections of contromal, 100 mg i.m. once, on request. At discharge from the hospital, the patients received lactulose, 20 mL daily and basic analgesia. Histological analyses were done to detect skeletal or smooth muscle fibers.

RESULTS

In the study, 14 of the 18 patients were male and 4 female. The average age was 43 years. All of the patients had prolapsed internal hemorrhoids and rectal mucosal prolapse. Postoperative complications with special regard to rectal stenosis, defecation habit, frequency, and return to work postoperatively were evaluated. Duration of clinical symptoms ranged from 2-10 years. Patients' average pain score was 2 on a Visual Analogue Scale of 10 (Table 1). Most patients have no pain at all immediately after surgery. At 12th hours VAS score mean 2.1111 and median 2.0 while at 3rd days VAS score mean 1.5 and median 2.0. Postoperatively pain reduced at 3rd day compared to 12th hour ($p=001$). Symptom were bleeding in 2 patients, pain in 12 patients, and gas passing in 4 and constipation in 10 patients. Patients were followed for a median of 14 months. In 6 patients, pain was observed which responded to medical treatment. Symptomatic skin pile was found in 4 patients. None of the patients had septic complication, incontinence and evidence of anal stenosis.

DISCUSSION

Stapled hemorrhoidopexy was conceived over 15 years ago and was first described by Longo [Longo A: Treatment of hemorrhoidal disease by reduction of mucosa and hemorrhoidal prolapse with a circular suturing device: a new procedure, unpublished]. Its potential advantages over traditional surgery include a reduction of operating time, hospital stay, time to return to work and postoperative pain^[2].

Excision hemorrhoidectomy is associated with significant postoperative pain because of trauma of the sensitive anal mucosa of anoderm. Furthermore, the patients have to maintain a precise wound



Figure 1 Grade 4 hemorrhoids.



Figure 2 Circular anal dilatator was fixed with 4 stitches at the anal verge. The prolapsed mucous membrane fallen into the lumen of the circular anal dilatator. A purse-string suture with 2-0 polypropylene was placed circumferentially 4 cm above the dentate line, around 2cm cranial to the upper hemorrhoids.



Figure 3 Hemorrhoidal prolapse is excised as a ring or 'donut' of tissue above the hemorrhoidal cushions and immediate re-anastomosis of the mucosa is performed.

dressing to prevent local infection, because local wound exposure may lead to fecal contamination and prolonged wound healing^[3].

The use of a stapler in the treatment of hemorrhoids remains controversial. The results of a prospective randomized study comparing excision hemorrhoidectomy with the new stapler technique are important. Hetzer *et al*^[3] pointed in their study, a significant reduction of postoperative pain in the patients who underwent SH. The total operating time was found shorter A concern about SH is the potential risk of strictures after rectal wall resection. Cosenza *et al*^[4] studied of 403 patients. In their study, no anal stenosis occurred and only mild bleeding noticed in 41 patients and their conclusion was SH is feasible and safe as a day surgery procedure. Incontinence is another concern of SH. At Manfredelli *et al*^[5] study, 57 incontinence to flatus was noticed in 207 patients; however problem was self-



Figure 4 Appearance of anus after stapler hemorrhoidopexy.

Table 1 Pain presentation by Visual Analogue Scale at postoperative 12th hours and 3rd day.

Patients	VAS score Postop. 12th hour	VAS score Postop. 3rd day
1	0	0
2	0	0
3	1	0
4	1	0
5	1	0
6	1	0
7	2	2
8	2	2
9	2	2
10	2	2
11	3	2
12	3	3
13	3	2
14	3	2
15	4	3
16	3	2
17	2	2
18	5	3

At 12th hours VAS score mean 2.1111 and median 2.0; at 3rd days VAS score mean 1.5 and median 2.0. Pain was reduced at postoperative 3rd day compared to 12th hour ($p=001$).

limited within 45 days after intervention. Anal stenosis was in 7 patients, bleeding in 12, anal prolapse in 7 and recurrence in 4 were developed. Authors accepted SH are gold standard for III grade hemorrhoids with mucous prolapse. In a large series of 409 patients of Diurni^[6] study, SH was associated with less postoperative pain and shorter postoperative symptoms, compared with Milligan-Morgan hemorrhoidectomy (MMH). At Stolfi *et al*^[7] study of 95 patients, SH is associated with less postoperative pain and shorter postoperative symptoms, compared with MMH. At Reboa *et al*^[8] study of 430 patients, the wider prolapse resection well correlated with a clear-cut reduction of hemorrhoidal relapse, a high index of patient satisfaction, and clinically relevant reduction of constipations scores. Raahave *et al*^[9] studied 258 patients, the pain after SH was low, recovery was rapid, complications were few, and patient satisfaction was high. A recurrent (or persistent) prolapse was alleviated by a repeated SH for cure. However, there was a high risk of reintervention after a SH. Sakr *et al*^[10] compared LigaSure hemorrhoidectomy and SH, both yield comparable good results, with a short operative time and minimal side effects in the treatment of grade III and IV hemorrhoids, but with a lower rate of residual prolapse for the LigaSure procedure. Both procedures offer low levels of postoperative pain and therefore are excellent therapeutic options for prolapsed grade III and IV hemorrhoids. Lal *et al*^[11] arrived to conclusion that SH procedure is safe, easy to learn, and technically sound.

Ommer *et al*^[12] studied prospectively long-term results after SH with a 6-year follow-up. At follow-up of 224 patients, 195 patients were satisfied or very satisfied with the operation. 19 patients were moderately satisfied; and 10 were not satisfied. Regarding preoperative anal symptoms, complete relief was observed in 179 patients for prolapse, 172 for bleeding, 139 for mucus discharge, 139 for burning sensation, and 115 for itching. Stapled hemorrhoidopexy can achieve a high level of patient satisfaction and symptom control, with a low rate of reoperation for recurrent hemorrhoidal symptoms. Kim *et al*^[13] studied long-term results of SH versus MMH in circumferential third-degree hemorrhoids. Recurrence rates after 5 years were 18 % ($n=11$) in the SH group and 23 % ($n=14$) in the MMH group. Patients who underwent stapled hemorrhoidopexy had significantly less postoperative pain with mean VAS scores at week 1: 3.1 vs 6.2; week 2: 0.5 vs 3; week 4: 0.05 vs 0.6 ($p<0.001$), and demonstrated less burning/itching sensation 4 weeks after surgery compared with the MMH group (4.9 vs 19.7 %; $p<0.001$). Postoperative incontinence symptoms (6.6 % vs 3.3 %; $p=0.40$) resolved within the first 6 months. The results show a similar rate of recurrence in the long term and suggest increased patient comfort in the early postoperative course after stapled hemorrhoidopexy. In patients with circumferential third-degree hemorrhoids, SH is as effective as the MMH. Avgoustou *et al*^[14] studied SH for hemorrhoidal disease: 14-year experience from 800 cases. Distance from dentate line to staple line and width of resected doughnut were recorded. Postoperative pain was measured. Mean measured distance of staple to dentate line was 2.6 cm. Patient satisfaction at 12 weeks was high (98.5%). Thirty-two patients (4%) developed late procedure-related complications that required surgery, with 24 (3%) displaying the most important recurrence. Considerable experience of SH in the treatment of grades II-IV HD confirms it as safe and effective procedure with sustained favorable results.

We believe the clear advantage of SH are less pain afterwards surgery, less bleeding during surgery, short postoperative hospital stay and able to return to everyday activities sooner. The weak points are that if too much muscle tissue is drawn into the device, it can damage the rectal wall resulting in inflammation or infection. Long-term dysfunction, such as severe pain or incontinence could result

from internal sphincter muscles damage due to entrance to the back passage.

As a conclusion, hemorrhoidectomy with Longo is easily used acceptable treatment due to shorter healing process and less pain. SH is faster than traditional hemorrhoidectomy, taking approximately 30 minutes. The complication of SH include bleeding, infection, anal fissuring with tearing, anal canal stenosis, cutting the anal sphincter muscle by accidentally taking it into the stapler, persistent hemorrhoids. Patient has less pain and return to work earlier.

CONFLICT OF INTERESTS

There are no conflicts of interest with regard to the present study.

REFERENCES

- 1 Longo A. Treatment of hemorrhoids disease by reduction of mucosa and hemorrhoidal prolapse with a circular-suturing device: a new procedure. Proceedings of the Sixth World Congress of Endoscopic Surgery, Rome, Italy, 1998
- 2 Watson AJ, Bruhn H, MacLeod K, McDonald A, McPherson G, Kilonzo M, Norrie J, Loudon MA, McCormack K, Buckley B, Brown S, Curran F, Jayne D, Rajagopal R, Cook JA; eTHoS study group. Trials. A pragmatic, multicentre, randomized controlled trial comparing stapled hemorrhoidopexy to traditional excisional surgery for hemorrhoidal disease (eTHoS): study protocol for a randomized controlled trial. 2014 Nov 11; 15:439. Doi: 10.1186/1745-6215-15-439.
- 3 Hetzer FH, Demartines N, Handschin AE, Clavien PA. Stapled vs. excision hemorrhoidectomy: long-term results of a prospective randomized trial. *Arch Surg* 2002; **137**(3): 337-340
- 4 Cosenza UM, Conte S, Mari FS, Nigri G, Milillo A, Gasparrini M, Pancaldi A, Brescia A. Stapled anopexy as a day surgery procedure: our experience over 400 cases. *Surgeon* 2013; **11 Suppl 1**: S10-3. Doi: 10.1016/j.surge.2012.09.005. Epub 2012 Nov 17.
- 5 Manfredelli S, Montalto G, Leonetti G, Covotta M, Amatucci C, Covotta A, Forte A. Conventional Ann Ital Chir. 2012 Mar-Apr; 83(2):129-34
- 6 Diurni M, Di Giuseppe M. Hemorrhoidectomy in day surgery. *Int J Surg* 2008; **6 Suppl 1**:S53-5. Doi: 10.1016/j.ijsu.2008.12.018. Epub 2008 Dec 13. Review.
- 7 Stolfi VM, Sileri P, Micossi C, Carbonaro I, Venza M, Gentileschi P, Rossi P, Falchetti A, and Gaspari A. Treatment of hemorrhoids in day surgery: stapled hemorrhoidopexy vs. Milligan-Morgan hemorrhoidectomy. *J Gastrointest Surg* 2008 May; **12**(5): 795-801. Doi: 10.1007/s11605-008-0497-8. Epub 2008 Mar 11.
- 8 Reboa G, Gipponi M, Rattaro A, Ciotta G, Tarantello M, Caviglia A, Pagliazzo A, Masoni L, Caldarelli G, Gaj F, Masci B, Verdi A. Residual Prolapse in Patients with III-IV Degree Hemorrhoids Undergoing Stapled Hemorrhoidopexy with CPH34 HV: Results of an Italian Multicentric Clinical Study. *Surg Res Pract* 2014; **2014**: 710128. Doi: 10.1155/2014/710128. Epub 2014 Jun 15.
- 9 Raahave D1, Jepsen LV, Pedersen IK. Primary and repeated stapled hemorrhoidopexy for relapsing hemorrhoids: follow-up to five years. *Dis Colon Rectum*. 2008 Mar; **51**(3) 334-41. Doi: 10.1007/s10350-007-9102-6. Epub 2008 Jan 19.
- 10 Sakr MF, Moussa MM. LigaSure hemorrhoidectomy versus stapled hemorrhoidopexy: a prospective, randomized clinical trial. *Dis Colon Rectum*. 2010 Aug; **53**(8): 1161-7. Doi: 10.1007/DCR.0b013e3181e1a1
- 11 Lal P, Kayla RK, Jain SK, Chandler J, Arntek VK. Stapled hemorrhoidopexy: a technique for applying the crucial purse string suture (MAMC Technique). *Surg Laparosc Endosc Paricutin Tech*. 2007 Dec; **17**(6): 500-503
- 12 Ommer A, Hinrichs J, Möllenberg H, Marla B, and Walz MK. Long-term results after stapled hemorrhoidopexy: a prospective study with a 6-year follow-up. *Dis Colon Rectum*. 2011 May; **54**(5): 601-8. Doi: 10.1007/DCR.0b013e3182098df2.
- 13 Kim JS, Vashist YK, Thielges S, Zehler O, Gawad KA, Yekebas EF, Izbicki JR, Kutup A. Stapled hemorrhoidopexy versus Milligan-Morgan hemorrhoidectomy in circumferential third-degree hemorrhoids: long-term results of a randomized controlled trial. *J Gastrointest Surg*. 2013 Jul; **17**(7): 1292-8. Doi: 10.1007/s11605-013-2220-7. Epub 2013 May 14.
- 14 Avgoustou C, Belegris C, Papazoglou A, Kotsalis G, Penlidis P. Evaluation of stapled hemorrhoidopexy for hemorrhoidal disease: 14-year experience from 800 cases. *Minerva Chir*. 2014 Jun; **69**(3): 155-66.

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