

A Comparative Study Between Stapled Hemorrhoidopexy and Harmonic Scalpel Hemorrhoidectomy in Management of The Third and The Fourth-degree Piles: A Randomized Clinical Trial.

Mohamed Ali Mohamed Nada¹, Basma Hussein Abdelaziz Hassan^{1*}, Philobater Bahgat Adly Awad¹, Andrew Morcos Azmy Kirolos¹, Mostafa Mohamed Abdelaziz¹, Karim Mohamed Saad Mohamed¹, Kerolos Bahgat Adly Awad¹.

¹.General Surgery Department, Faculty of Medicine, Ain Shams University, Cairo, Egypt ,2022.

Corresponding Author: Basma Hussein Abdelaziz Hassan

drmoahemd_nada@med.asu.edu.eg

basmaabasam0100667@med.asu.edu.eg

filopatirbahgat0100071@med.asu.edu.eg

andrew.morcos2@gmail.com

mostafa.mohamed.abdelaziz1992@gmail.com

Karimsaad11@gmail.com

7life7@gmail.com

Abstract

Background: The complexity of piles management necessitates the development of new techniques on a regular basis in order to achieve the safest technique with a high level of patient satisfaction, which is one of the most difficult aspects in the management of piles. This study compares two of the most effective techniques in piles management based on post-operative results and the patient satisfaction.

Objective: To compare results of stapled hemorrhoidopexy (SH) and harmonic scalpel hemorrhoidectomy (HSH) in the management of Grade III and Grade IV regarding the time of the procedure, the post-operative outcomes in the form of post-operative pain, patient satisfaction, wound infection, post operative bleeding, incontinence and recurrence within one year follow-up.

Patients and methods: The current study is a single-blind, prospective, randomized, controlled, single-center trial conducted from January 2022 to December 2022 in the Colorectal surgical unit of Ain Shams University Hospitals, which included 70 patients presented with third-degree and fourth-degree piles 50 (68.75%) males and 20 (31.25%) females including a one-year follow-up postoperative.

Results: There were 70 patients in our study 35 patients in each group. Group(I) underwent stapled hemorrhoidopexy (SH) and Group (II) underwent harmonic scalpel hemorrhoidectomy (HSH) .The mean age of group (I) is 42.94 with standard deviation ± 11.8 . While, in group (II) the mean age is 42.20 with standard deviation ± 7.34 ($p=0.315$). From the included 70 patients 50 (68.7%) were males and 20 (31.25%) were females ($p=0.315$). Regarding the time of the procedures, the mean time of the procedure in SH was 24.42 mins ± 2.367 . While, in HSH was 31.48 mins ± 2.21 . The Postoperative pain was assessed on two stages: during the first two weeks and after first two weeks by the visual analogue score (VAS) from 0 to 10. In which, zero is the least and 10 is the maximum. During first two weeks, In group (I) 18(45%) patients scored their pain mild from 1 to 3, 20(50%) patients scored their pain moderate from 4 to 6 and 2(5%) patients scored severe pain from 7 to 9. While, in group (II) 14(35%) patients scored their pain mild from 1 to 3, 22(55%) patients their pain moderate from 4 to 6 and 4(10%) patients scored their pain severe from 7 to 9 ($p=0.275$). As regards the pos-operative pain after two weeks, in group (I) 18(45%) patients scored their pain mild from 1 to 3, 20(50%) patients scored their pain moderate from 4 to 6 and 2(5%) patients scored severe pain from 7 to 9. However, in group (II) 14(35%) patients scored their pain mild from 1 to 3, 22(55%) patients their pain moderate from 4 to 6 and 4(10%) patients scored their pain severe from 7 to 9 ($p=0.275$). Although, the post-operative pain in SH showed to be less painful during the first two weeks. But there is persistent mild pain in most of patients of SH postoperative during and after two weeks. However, in HSH there was significant improvement in pain after two weeks. Therefore,

patient's satisfaction was significantly toward HSH. Wound infection was detected in 3(5%) patients in group (I) and no patients in group (II) ($p=0.077$). Post operative bleeding occurred in 4(11.4%) patients in group (I) in form of spotting after defecation and it was only during the first month post operative. While, no patients were detected in group (II) ($p=0.039$). The incontinence was assessed there were 3(15%) cases of incontinence to gases only scored by Wexner score 3/20 and by taking detailed history it was more to be in the form of urgency to defecate rather incontinence. Recurrence in one-year follow-up occurred in 7 (20%) patients in group (I). While, in group II 1(2.9%) patient was reported with recurrence ($p=0.024$).

Conclusion: HSH was determined to be safer, easier and associated with lower incidence of recurrence in one-year follow-up as compared to SH technique. In addition to, better patient satisfaction which is one of the most difficult accomplishments in management of hemorrhoids. This work recommends HSH to be more popular, to be implemented as a corner stone procedure along various and classic operations for such cases as it's easy, feasible.

Keywords: Stapled, hemorrhoidopexy, harmonic scalpel, hemorrhoidectomy

Introduction

The estimated worldwide prevalence of hemorrhoidal disease in the adults is to be 11%¹. In Egypt Hemorrhoid disease is a frequent reason for patients to seek medical attention. The incidence of hemorrhoids in the Egyptian patients undergoing colonoscopy was estimated to be 18%². It is currently controversial to classify the hemorrhoidal disease, and there are many arguments in favor of Goligher's classification. This classification is a descriptive description of internal piles behavior and distinguishes different groups based on the prolapsed piles. It provides a mental representation of severity; however, it does not accurately portray the severity of symptoms³. However, there is currently no consensus on the use of Goligher classification for hemorrhoids, so in this study, piles were referred to as graded according to Goligher classification⁴.

In case of symptomatic Grade III or Grade IV hemorrhoids, surgical treatment is necessary. Additionally, surgery may be necessary in the failure of medical treatment or in the presence of associated conditions such as anal fissure or fistula. Different techniques are employed to treat hemorrhoidal disease, with conventional techniques such as Ferguson's closed hemorrhoidectomy and Milligane-Morgan's open hemorrhoidectomy. Additionally, a variety of devices and methods are employed to facilitate the procedure and reduce patient discomfort during the postoperative period. Stapled hemorrhoidopexy was first introduced by Longo in 1998 to be used in prolapsed hemorrhoidal disease. The goal of SH is not only to obliterate submucosal vessels, but also to return prolapsed rectal mucosa to its pre-prolapse state and to correct the anatomical relationship between anorectal mucosa and the underlying muscle⁵. Harmonic scalpel was first introduced for the first time in 1992, the goal of HSH is to use ultrasound energy as a source of energy, with minimal thermal damage to the surrounding tissue⁶.

The aim of work

In this study we compare results of stapled hemorrhoidopexy (SH) and harmonic scalpel hemorrhoidectomy (HSH) in the management of Grade III and Grade IV regarding the time of the procedure, the post-operative outcomes in the form of post-operative pain, patient satisfaction, wound infection, post operative bleeding, incontinence and recurrence within one year follow-up. According to our experience, it has been observed that (HSH) is one of the most effective methods of hemorrhoidectomy. However, there is a dearth of comparative studies in the literature between SH and HSH.

Patients and methods

The current study is single-blind, prospective, randomized, controlled, single-center trial conducted from January 2022 to December 2022 in the colorectal surgical unit of Ain Shams University Hospitals, which included 70 patients presented with third-degree and fourth-degree piles 50 (68.75%) males and 20 (31.25%) females including a one-year follow-up postoperative.

Randomization and blinding

Randomization was performed the day before surgery. Patients were randomized using a computer-generated randomization code and assigned either to experimental Group I for SH or experimental Group II for HSH. The two groups were balanced at a ratio of 1: 1. The study was carried out under single-blind conditions.

Inclusion criteria

Patients who are above 18 years old, Patients with third-degree and fourth-degree piles and patients with American Society of Anesthesiologists scores I and II.

Exclusion criteria

Patient who are less than 18 years old, with previous anal surgeries or recurrent hemorrhoids in addition to, patients with hemorrhoids accompanied by other anal conditions such as fissure, fistula, or anal condylomas, Virgin females or patients with Inflammatory Bowel Disease as Crohn's, tuberculosis and patients with history of fecal incontinence.

Pre-operative:

The History of the patients including full personal history, complaint, complete Anorectal examination and assessment of the continence by Wexner score.

The pre-operative investigations included :

- Radiological examination: ECG and echocardiography and stress ECG were performed upon requested by the Anesthesiologist when indicated.
- Laboratory tests: including routine complete blood count, liver profile, kidney profile, coagulation profile, blood sugar, complete virology screen.

Patient counseling and consent

One day before the surgery the patient received a detailed explanation of the types of the surgeries and the expected postoperative complications. The operative details were explained to help in understanding of the outcome, the risks and the benefits of the suggested procedure. An informed consent was taken and signed by the patient and any inquiries, concerns or doubts were discussed with the patient and a first degree relative (upon the patient's request). The day before surgery, all patients were instructed to have a soft diet and mineral laxative. The night before surgery, all patients had rectal enema with ordinary tap water.

Operative Details

All procedures were performed by the same surgical team under spinal or general anesthesia in the lithotomy position. All patients had a single dose of 1 g of a third-generation cephalosporin intravenously at the induction of anesthesia.

Group (I) underwent Stapler Hemorrhoidectomy

The external device (transparent anoscope) of PPH stapler (PROXIMATE PPH Hemorrhoidal Circular Stapler Set; Ethicon US, LLC, United states, New Jersey) was applied and fixed to the cutaneous margin with silk 0 (Fig. 1,2). Double purse-string suture were inserted with submucosal bites of the lower rectum circumferentially using a 3/0 propylene (26-mm half-circle needle) at a level just a few millimeters distal to the apex of anal cushions the second purse string was taken distal to the first one after applying a little pulling force on the first purse string suture (Fig. 3). The anvil (head) was inserted beyond the purse-string sutures, and then the purse-string was tied over the stem of the anvil firmly (the proximal one was tied first)(Fig. 4). The stapler then was tied and kept closed for 60 s for hemostasis then fired (Fig.5). Untying the stapler then gently withdrawn. In women, the posterior vaginal wall was routinely checked before firing the stapler to secure non entrapment (Fig.6). Hemostasis along the staple line was done then ensured, and if required, a 3-0 vicryl suture was used in case of bleeding. (Fig.7).



Figure (1) fourth degree piles in a patient in lithotomy position.



Figure (2) The external device (transparent anoscope) of PPH stapler was applied and fixed to the cutaneous margin with silk 0.



Figure (3) Double purse-string suture inserted with submucosal bites of the lower rectum circumferentially using a 2/0 propylene

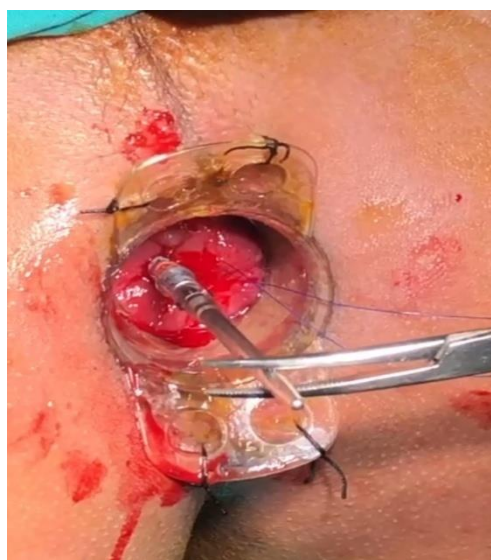


Figure (4) The anvil (head) was inserted beyond the purse string.



Figure (5) The stapler then was tied and kept closed for 60 s for hemostasis then fired.



Figure (6) In women, the posterior vaginal wall was routinely checked before firing the stapler to secure non entrapment.



Figure (7) Hemostasis was done along the stapler line .

Group (II) underwent Harmonic Scalpel Hemorrhoidectomy

A mosquito forceps or non-toothed forceps was used to grab each hemorrhoidal complex (Fig. 8,9). At the beginning the external component of the hemorrhoid is dissected from the surrounding tissue and underlying external sphincter by taking a small bite between the harmonic blades (Ethicon Endo-Surgery Inc., Cincinnati, OH, USA) then proceeding more proximal underneath the hemorrhoid bundle which was delicately separated from the internal anal sphincter using sequential coagulation with the harmonic scalpel blade on the power mode 3 (Fig. 10,11). The same steps were carried out regarding the other hemorrhoids, leaving a skin bridge between them (Fig. 12). Hemostasis was done by cautery device and gel foam sponge. The wound was left open, and an external pack of gauze was applied.



Figure (8) The fourth degree piles in lithotomy.

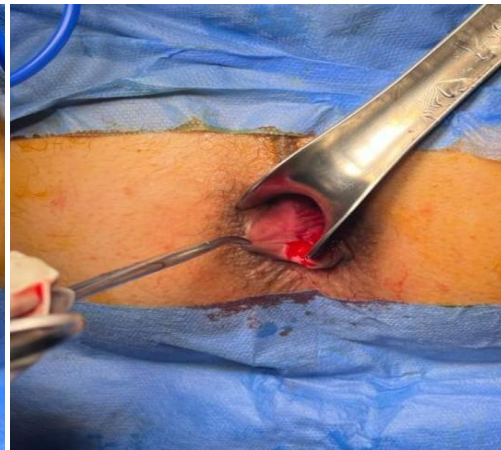


Figure (9) The mosquito grabbing a hemorrhoidal complex.



Figure (10) The hemorrhoid is dissected from the surrounding tissue and underlying external sphincter by taking a little bites between the device blades.



Figure (11) proceeding more proximal underneath the hemorrhoid bundle which was delicately separated from the internal anal.



Figure (12): The same step was carried out with the other hemorrhoid leaving a skin bridge.

Post-operative work-up and follow-up for one-year duration. Post-operative complications in the form of: wound infection, post-operative pain, early incontinence and recurrence were documented. Patients received oral antibiotics for one week postoperatively. Intake of liquid food was resumed in the evening after the operation they were advised to have a soft diet for 2 days and bulk laxatives for at least 2 weeks. Dressing of the wound was done on the second day postoperatively for all patients. All patients were trained on how to clean themselves and how to do the wound dressing. All Patients were followed up after one week, 2 weeks from discharge then every two weeks until complete healing. Then every two months to complete a one-year follow-up. Recurrence is defined in this study as patients reporting reoccurring of the symptoms that were consistent with hemorrhoid symptoms or it was reported that they were having surgery due to recurrent hemorrhoids. Patients were observed for recurrence during the follow-up period. None of our patients were lost during the follow-up period.

Statistical Analysis

The data were collected, coded, revised and entered to the Statistical Package for Social Science (IBM SPSS) version 26. The data were presented as number and percentages for the qualitative data, mean, standard deviations and ranges for the quantitative data with parametric distribution. Chi-square test was used in the

comparison between two groups with qualitative data and Fisher exact test was used instead of the Chi-square test when the expected count in any cell found less than 5. The comparison between two independent groups with quantitative data and parametric distribution were done by using independent t-test. While the comparison between more than two groups with quantitative data and parametric distribution was done by using One Way ANOVA. The confidence interval was set to 95% and the margin of error accepted was set to 5%. So, the p-value considered significant as the following: $P > 0.05$: Nonsignificant (NS). $P < 0.05$: Significant (S). $P < 0.01$: Highly significant (HS).

Results

There were 70 patients in our study 35 patients in each group. Group (I) underwent stapled hemorrhoidopexy (SH) and Group (II) underwent harmonic scalpel hemorrhoidectomy (HSH). The mean age of group (I) is 42.94 with standard deviation ± 11.8 . While, in group (II) the mean age is 42.20 with standard deviation ± 7.34 ($p = 0.315$). From the included 70 patients 50 (68.7%) were males and 20 (31.25%) were females ($p = 0.315$). Regarding the time of the procedures, the mean time in SH was 24.42 mins ± 2.367 while in HSH was 31.48 mins ± 2.21 ($p = 0.186$). Table (1)

Table (1) shows the patients' characteristics and the mean operative time between the two groups.

Characteristics	Group I (n=35)	Group II (n=35)	P value
Sex: Male (n)(%)	30(85.7%)	20(57.14%)	0.016
Female (n)(%)	5(14.2%)	15(42.8%)	
Mean age in years \pm SD	42.94 \pm 11.8	42.20 \pm 7.34	0.315
Co-morbidities:			0.54
Diabetes (n)(%)	7(20%)	9(25.7%)	
Hypertension (n)(%)	6(17%)	9(25.7%)	
Diabetes and hypertension (n)(%)	4(11.4%)	5(14.2%)	
No co-morbidities (n)(%)	18(51.4%)	12(34.2%)	
Mean operative time in mins \pm SD	24.428 \pm 2.37	31.485 \pm 2.2145	0.186

The Postoperative pain was assessed on two stages: during the first two weeks and after first two weeks by the visual analogue score (VAS) from 0 to 10. In which, zero is the least and 10 is the maximum. During first two weeks In group (I) 18(45%) patients scored their pain mild from 1 to 3, 20(50%) patients scored their pain moderate from 4 to 6 and 2(5%) patients scored severe pain from 7 to 9. While, in group (II) 14(35%) patients scored their pain mild from 1 to 3, 22(55%) patients their pain moderate from 4 to 6 and 4(10%) patients scored their pain severe from 7 to 9 ($p = 0.275$). Table (2)

Table (2) shows the post-operative pain between the two groups.

Post-Operative pain VRS (first 2 weeks) * Groups Crosstab

			Groups		
			Harmonic	Stapled	Total
post operative pain VRS (first 2 weeks)	Mild Pain	Count	10	20	30
		% within post operative pain VRS (first 2 weeks)	33.3%	66.7%	100.0%

	Moderate Pain	% within Groups	28.6%	57.1%	42.9%
		Count	20	15	35
		% within post operative pain VRS (first 2 weeks)	57.1%	42.9%	100.0%
	Sever pain	% within Groups	57.1%	42.9%	50.0%
		Count	5	0	5
		% within post operative pain VRS (first 2 weeks)	100.0%	0.0%	100.0%
		% within Groups	14.3%	0.0%	7.1%
Total	Count	35	35	70	
	% within post operative pain VRS (first 2 weeks)	50.0%	50.0%	100.0%	
	% within Groups	100.0%	100.0%	100.0%	

The pos-operative pain after two weeks, in group (I) 18(45%) patients scored their pain mild from 1 to 3, 20(50%) patients scored their pain moderate from 4 to 6 and 2(5%) patients scored severe pain from 7 to 9. However, in group (II) 14(35%) patients scored their pain mild from 1 to 3, 22(55%) patients their pain moderate from 4 to 6 and 4(10%) patients scored their pain severe from 7 to 9 ($p=0.275$). Although, the post-operative pain in SH showed to be less painful during the first two weeks. But there is persistent mild pain in most of patients of SH postoperative. However, in HSH there was significant improvement in pain after two weeks. Therefore, patient's satisfaction was significantly toward HSH. Table (3)

Table (3) shows the post-operative pain between the two groups.

Post-Operative Pain VRS (After 2 weeks) * Groups Crosstab

			Groups			
			Harmonic	Stapled	Total	
post operative pain VRS(After 2 weeks)	No Pain	Count	14	15	29	
		% within post operative pain VRS(After 2 weeks)	48.3%	51.7%	100.0%	
		% within Groups	40.0%	42.9%	41.4%	
	Mild Pain	Count	17	11	28	
		% within post operative pain VRS(After 2 weeks)	60.7%	39.3%	100.0%	
		% within Groups	48.6%	31.4%	40.0%	
	Moderate Pain	Count	4	9	13	
		% within post operative pain VRS(After 2 weeks)	30.8%	69.2%	100.0%	
		% within Groups	11.4%	25.7%	18.6%	
	Total		Count	35	35	70

% within post operative pain VRS(After 2 weeks)		50.0%	50.0%	100.0%
% within Groups		100.0%	100.0%	100.0%

Wound infection was detected in 3(5%) patients in group (I) and no patients in group (II) ($p=0.077$). Post operative bleeding occurred in 4 patients in group (I) in form of spotting after defecation and it was only during the first month post operative while, no patients in group (II) ($p=0.039$). There were no cases of incontinence in group II. However, there were 3(15%) cases of incontinence to gases only scored by Wexner score 3/20 in group I ($p=0.026$) and by taking detailed history it was more to be inform of urge rather incontinence. Recurrence in one-year follow-up occurred in 7 (20%) patients in group (I). While, in group II 1(2.9%) patient was reported with recurrence ($p=0.024$). This will be shown in Table (4,5,6)

Table (4) shows the post-operative bleeding between the two groups.

Post-operative Bleeding * Groups

Crosstab

			Groups		Total
			Harmonic	Stapled	
post operative bleeding	No	Count	35	31	66
		% within post operative bleeding	53.0%	47.0%	100.0%
		% within Groups	100.0%	88.6%	94.3%
	Yes	Count	0	4	4
		% within post operative bleeding	0.0%	100.0%	100.0%
		% within Groups	0.0%	11.4%	5.7%
	Total	Count	35	35	70
		% within post operative bleeding	50.0%	50.0%	100.0%
		% within Groups	100.0%	100.0%	100.0%

Table (5) shows the incontinence between the two groups

Incontinence * Groups

			Groups		Total
			Harmonic	Stapled	
Incontinence Wexner score	Perfect	Count	35	32	67
		% within Incontinence Wexner score	52.2%	47.8%	100.0%
		% within Groups	100.0%	91.4%	95.7%
	Sometimes	Count	0	3	3

Total	% within I Incontinence	0.0%	100.0%	100.0%
	Wexner score			
	% within Groups	0.0%	8.6%	4.3%
	Count	35	35	70
	% within Incontinence	50.0%	50.0%	100.0%
	Wexner score			
	% within Groups	100.0%	100.0%	100.0%

Table (6) shows the recurrence between the two groups in one-year follow-up

Recurrence * Groups

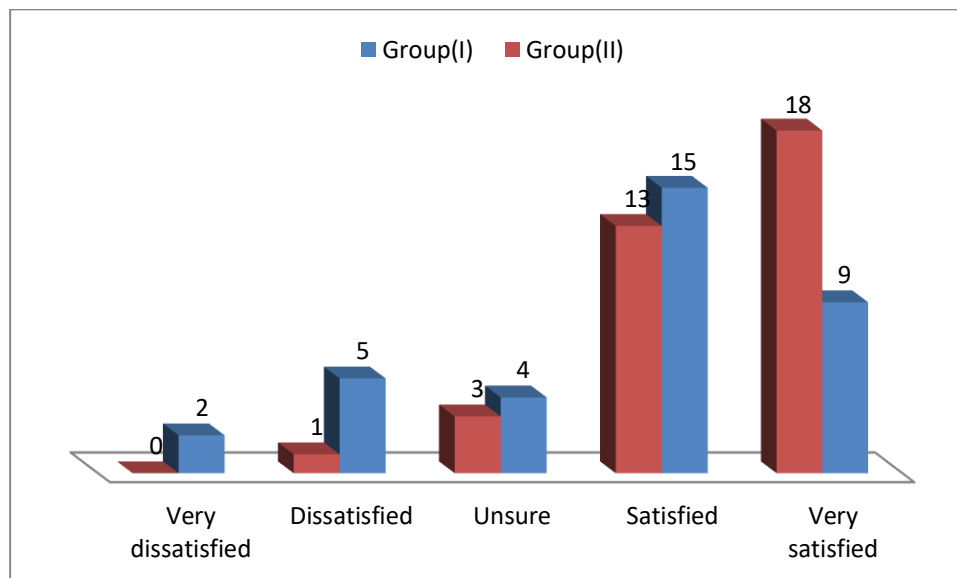
Recurrence * Groups Crosstabulation

			Groups		Total
			SH	HSH	
Recurrence	no	Count	28	34	62
		% within Recurrence	45.2%	54.8%	100.0%
		% within Groups	80.0%	97.1%	88.6%
	yes	Count	7	1	8
		% within Recurrence	87.5%	12.5%	100.0%
		% within Groups	20.0%	2.9%	11.4%
Total	Count		35	35	70
	% within Recurrence		50.0%	50.0%	100.0%
	% within Groups		100.0%	100.0%	100.0%

Postoperative patient satisfaction was assessed after 2 weeks by the Likert scale (5-points scales). In which, 1-Very dissatisfied, 2-Dissatisfied, 3-Unsure, 4-Satisfied and 5-Very satisfied. In group (I) there was about 2(5.7%) patients were very dissatisfied. While, in group (II) there were zero patients very dissatisfied ($p=0.15$). In group(I) about 5(14.3%) patients were dissatisfied. However, in group (II) there was about 1(2.9%) patient were dissatisfied ($p=0.198$). In group (I) 4(11.4%) patient were unsure. While, in group (II) there was about 3(8.6%) patients were unsure ($p=0.69$). In group (I) 15(42.9%) patients were satisfied. While, in group (II) there were about 13(37.1%) patients satisfied ($p=0.8$). Finally, in group (I) 9(25.7%) patients were very satisfied. While, in group (II) there were about 18(51.4%) patients were very satisfied ($p=0.049$). Table (7)

Table (7) shows Likert scale in evaluation of the patient satisfaction post-operative.

	Very Dissatisfied (n)(%)	Dissatisfied (n)(%)	Unsure (n)(%)	Satisfied (n)(%)	Very Satisfied (n)(%)
Group(I) (n=35)	2(5.7%)	5(14.3%)	4(11.4%)	15(42.9%)	9(25.7%)
Group(II) (n=35)	0(0%)	1(2.9%)	3(8.6%)	13(37.1%)	18(51.4%)
<i>p</i> -value	0.15	0.198	0.69	0.8	0.049
Total (n)(%)	2(2.9%)	6(8.6%)	7(10%)	28(40%)	27(38.6%)



Discussion

Patient satisfaction is a major factor in the surgeon's decision-making process and is the primary reason why piles surgeries are not a preferred procedure for the majority of surgeons. However, it has been observed that the success of any procedure is not the only factor that influences the patient satisfaction after surgery. Patient satisfaction can be affected by many factors such as patient perception. Recent studies have indicated that adequate postoperative pain management can lead to increased patient satisfaction⁷. However, there is still a need for further literature discussion on patient satisfaction with various types of piles surgeries. This study attempted to compare the effectiveness of hemorrhoidopexy using staple versus hemorrhoidectomy using harmonic.

The mean age of group (I) is 46.65 with a standard deviation of 6.6. While, in group (II) the mean age is 45.85 with standard deviation 6.07 ($p=0.576$). From the included 80 patients 55(68.7%) were males and 25 (31.25%) were females ($p=0.469$).

The comparison between the two methods revealed no significant difference in the meantime in SH was 24.42 mins \pm 2.367 while in HSH was 31.48 mins \pm 2.21 ($p=0.186$). Although, SH was found to be faster this may be due to the fact that it can be performed by an experienced coloproctology surgeon. However, it does not negate the fact that SH requires a skilled hand due to the technical nature of the procedure. On the other hand, HSH was found to be slower, which may be attributed to the fact that it works on each pile

individually, thus varying in time depending on the number of piles. As regards the pain, it was assessed at two stages by asking patients about the pain in the initial two weeks and at three months post-surgery. Although SH has a well-known reputation for being one of the least painful methods in pile surgeries⁸, Chung et al⁶ compared 88 patients to the two techniques, with the SH group reporting significantly lower VAS postoperative pain, reduced hospitalization, quicker return to normal activities, and increased patient satisfaction. Contrary to other studies, such as those conducted by Bilgin et al⁹, mean scores of total pains did not achieve statistical significance. In our study, there was a significant difference in pain at the initial two weeks. However, the most notable was the dramatic improvement in pain after two weeks in the HSH group, with persistent mild pain in percent during the three months post-operative in SH group.

Regarding postoperative complications were significantly increased in the SH group, with bleeding being one of the most significant short-term complications. Previous comparative studies between the two techniques were inconclusive, with Chung et al⁶ reporting less incidence in post operative bleeding in SH, which is contrast to the majority of studies in the literature. Bilgin et al⁹ reported less postoperative bleeding in the HSH group, while other studies, such as Armstrong et al¹⁰ none of his patients had short-term postoperative bleeding. In the literature, the postoperative bleeding rate for SH from 4 to 26^{11,12,13}, while in HSH it ranges from 0 to 4^{9,10,14}. In our study, post operative bleeding was present in four patients in the SH group and was present in form of spotting with defecation, in two patients it persisted for three months.

In this study, there were no reported cases of wound infection in the group while three cases of wound infection reported in SH group two as infected perianal hematoma during first month and one presented with intersphincteric collection after two months of surgery. In the literature, infection was generally agreed to be a rare complication in HSH^{9,15}, while in HS, various types of wound infection were discussed. The first case of death due to wound infection was reported by Bohnner et al¹⁶, and since then, numerous studies^{17,18,19,20,21,22} have reported other septic complications due to SH. It is not possible to draw a definitive conclusion on the prevalence of wound infections in SH, however, it is generally accepted that these complications can be life-threatening.

There were no cases of incontinence in HSH that may return as during the procedure the metal plate of harmonic allow well dissection and identification of the internal sphincter avoiding its injury, which is a great advantage in this technique. In a recent metanalysis²³ compared nine pile surgeries HSH was least to have incontinence rate. However, in SH group, there were 3 cases of incontinence to gases (Wexner score of 1–3/20) which is a significant difference between the two techniques. Regarding rate of incontinence in SH a great variability exists within the literature. This variability in our opinion return to the complexity of the technique. Bilgin et al⁹ reported 2% of SH had gas incontinence while Michalik et al²⁴ conducted a study to assess long-term outcomes after SH. In this study, 21% patients and 11% patients presented flatus incontinence and fecal incontinence, which is considered a very high rate and may have sort of bias.

In literature there is consensus that when comparing recurrence rates between the two procedures, the balance is in favor of HSH. In a meta-analysis conducted by Aibuedefe et al⁸, HSH was found to be one of the most lenient procedures in terms of recurrence rate when compared to other twelve techniques. Additionally, Talha et al²⁵ claimed no recurrence rate in HSH group. On the other hand, a number of papers discussed recurrence rates of SH, with some papers determining high recurrence reaching 60 % as Zacharakis et al²⁶ and others determining more reasonable results as Jayaraman et al²⁷ determined 23 recurrences in 269 patients in the SH group also group Bilgin et al⁹ showed at the end of a 2-year follow-up there was recurrence seven patients in the SH group (13.7%) with only one case recurrence HSH group (2.1%). In our study, it was found that there were 2 patients with recurrence among the HSH patients and 7 patients among 35 patients (8.6%) for the SH group. Last but not least, patient satisfaction was considered to be one of the most significant differences between the two techniques in our study. As this point has not been extensively discussed previously, it is important to note that patient satisfaction between surgeons is dependent on the surgeon's preference. In our study, patient satisfaction was observed to be higher in the HSH. According to Chen et al²⁸, the percentage of patients who were poorly satisfied or dissatisfied was 121 of 321 patients in the SH group. In Chung et al²⁹, comparing the outcome of patients undergoing hemorrhoidectomy with harmonic scalpel and bipolar scissors and Milligan Morgan technique, he concluded that HSH had the highest satisfaction score of the three groups.

Conclusion

It is important to note that there is no one-size-fits-all approach to the management of Grade 3 and Grade 4 piles. Each technique has its own advantages and disadvantages, and each patient is presented with a unique situation. In which they must choose between SH-less post-operative pain with a greater likelihood of recurrence and increased complications or HSH-less recurrence and increased safety with higher post-operative pain within the initial first two weeks. Our opinion, HSH was determined to be safer, easier and associated with lower incidence of recurrence in one-year follow-up as compared to SH technique. In addition to, better patient satisfaction which is one of the most difficult accomplishments in management of hemorrhoids. This work recommends HSH to be more popular, to be implemented as a corner stone procedure along various and classic operations for such cases as it's easy, feasible.

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Data Availability: This is a prospective study including 70 patients presented with third-degree and fourth degree divided into two groups each group consisting of 35 patients. Group I subjected to Stapled hemorrhoidopexy, and Group II subjected to harmonic scalpel hemorrhoidectomy. The study was done January 2022 to December 2022 including a one-year follow-up postoperative. The datasets used and/or analyzed during the current study available from the corresponding author on reasonable request.

Declaration: I declare that this manuscript is original, has not been published before, and is not currently being considered for publication elsewhere

Competing interests : I confirm that neither I nor my colleague nor any business with which I am associated has any personal or business interest or potential for personal gain from any of the organizations.

Ethical approval and consent to participate: To protect patients' privacy and information, all methods were carried out in accordance with relevant guidelines and regulations and all experimental protocols were approved by Ain Shams University ethical committee with an informed consent had been taken from all the patients.

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