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Stapled Haemorrhoidopexy Versus Open Haemorrhoidectomy: Acomparative Study

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Abstract
BACKGROUND: Haemorrhoidal disease is one of the most common anorectal disorders, affecting more than 15 million people annually in the United states .(1)The prevalence of haemorrhoids is projected at between 4% to 34%. Open haemorrhoidectomy [Milligan-Morgan] is a widely used procedure for haemorrhoids. A recent novel technique called "Stapled Haemorrhoidectomy or Stapled Haemorrhoidopexy" as first described and performed by Italian surgeon Antonio Longo [2] is gaining worldwide recognition for its benefits.]. The aim of this study is to compare the outcomes of the stapled haemorrhoidopexy and open haemorrhoidectomy.
MATERIAL & METHOD: Forty patients with symptomatic haemorrhoidal disease planned for surgical technique were randomised into 2 groups . one group underwent conventional open haemorrhoidectomy and the other group underwent stapled haemorrhoidopexy.
RESULT: In this study mean post operative pain was 6.7 in open haemorrhoidectomy while for stapled haemorrhoidectomy it was 3.5. Post operative hospital stay was 3 days in open haemorrhoidectomy while for stapled it was slightly less ,being 2.75 days. The duration to return to functional state was 3.505 days in open haemorrhoidectomy group while for stapled haemorrhoidectomy it was 3 days.
CONCLUSION: Compared to open technique it has minimal immediate complications, lesser post operativepain , shorter duration of hospital stay and earlier return to work with complications comparable to open technique.

Keywords: *Haemorrhoides, miliganmorgan haemorrhoidectomy, stapled haemorrhoidopexy.*

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I. Introduction

Haemorrhoidal disease is one of the most commonanorectal disorders, affecting more than 15 million peopleannually in the United states .(1)The prevalence of haemorrhoidsis projected at between 4% to 34%.

Haemorrhoids or commonly 'Piles' (Pila = a ball; Latin - Haima blood; Rheias – flowing in Greek) is a frequently observed day to day disease in surgical practice.They are classified as internal or external depending on their site of origin with reference to dentate line. External haemorrhoids originate distal to dentate line, lined by modified squamous epithelium.

Open haemorrhoidectomy [Milligan-Morgan] is a widely used procedure for haemorrhoids. A recent novel technique called "Stapled Haemorrhoidectomy or Stapled Haemorrhoidopexy" as first described and performed by Italian surgeon Antonio Longo [2] is gaining worldwide recognition for its benefits.The important conceptunderlying this technique involved drawing up theenlarged sliding hemorrhoidal tissue, reducing the redundantmucosa, and interfering with the branches ofthe superior hemorrhoidal artery without breachingthe integrity of the perianal skin. Patients, therefore,eliminate the painful skin wound.

The treatment of haemorrhoids dates back toantiquity suggesting that not a single method hasstood the test of time. At present, surgery isindicated in treatment of Grade 3 and 4 haemorrhoids [3].

The aim of this study is to compare the outcomes of the stapledhaemorrhoidopexy and open haemorrhoidectomy interms of intra and postoperative complications and pain,return to activity of daily living (ADL) i.e. return tofunctional activity.

II. Material & Method

The study was conducted in the Department of General Surgery, SMS medical college and hospital Jaipur during the year 2018-2019. It is anobservational- follow up study. There were total 40 subjects in this study, 20 patients in each group. Group 1 includes patients undergoing open haemorrhoidectomy (OH) and Group 2 includes patients undergoing stapled haemorrhoidopexy (SH).

Inclusion criteria include age group between 20 and 75years, symptomatic grade 2 and 3 haemorrhoids,undergoing either open or stapled haemorrhoids surgery.

Exclusion criteria were patients with derangedcoagulation profile, previous ano-rectal surgeries,associated anal pathologies like acute anal fissure, analstenosis, fistula-in-ano, abscess and rectal prolapse,secondary causes of haemorrhoids like portalhypertension, pregnancy and rectal malignancy.

The various parameters compared between the two groups were postop pain (VAS) , analgesics requirement , immediate postop complications like bleeding , urinary retention and anal incontinence, pain on defecation, duration of postop stay at hospital, resumption of daily activities.

Data were recorded on a predesigned proforma and managed on excel spread sheet. Comparative analysis between two groups were done based on, Independent sample 't' test or students 't' test using a SPSS version 20.

III. Operative Procedure

The preparation of patient was done by giving two phosphate enemas before the operation (one at night & other at the morning of surgery). Anaesthesia was of patients choice either general or regional anaesthesia and all operations were done in lithotomy postion.

The operative procedure for open haemorrhoidectomy group consist of holding the pile mass with an artery forceps and diathermy dissection and excision. The vascular pedicle was carefully ligated. A dressing sponge was placed in anal canal on completion of the procedure.

In stapled haemorrhoidopexygroup, equipment consist of a 33 mm stapling gun, with a non-detachable\detachable anvil, a purse string speculum, a transparent anal dilator with an operator and a purse string suture threader or crochet hook. The anal dilator was inserted into the anal canal and secured in place with heavy sutures to the perianal skin. The purse string speculum was then inserted into the anal dilator. By rotating the speculum, a purse string of 2-0 prolene was placed in the rectum 4-5 cm above the dentate line in the rectal ampulla removing circumferential ring of mucosal tissue. The stapler with the anvil fully extended was then inserted and positioned proximal to the purse string , which was then tied over the shaft of anvil. The purse string suture tails were retrieved through the ports in the stapler gun using the crochet hook. With moderate traction on the purse string , the prolapsed mucosa drawn into the casing of the stapler and the stapler tightened and fired. Compression on the gun was maintained for about 20-30 seconds for hemostasis before the stapler was opened & removed. Inspection of staple line was done and any bleeding points were stopped using electrocautery. A dressing sponge was placed in anal canal at the end of the procedure.

Fig1. Preop grade 3 haemorrhoides

Fig2. Anal dilator in place

Fig3. Stapler in its position ready to be fired

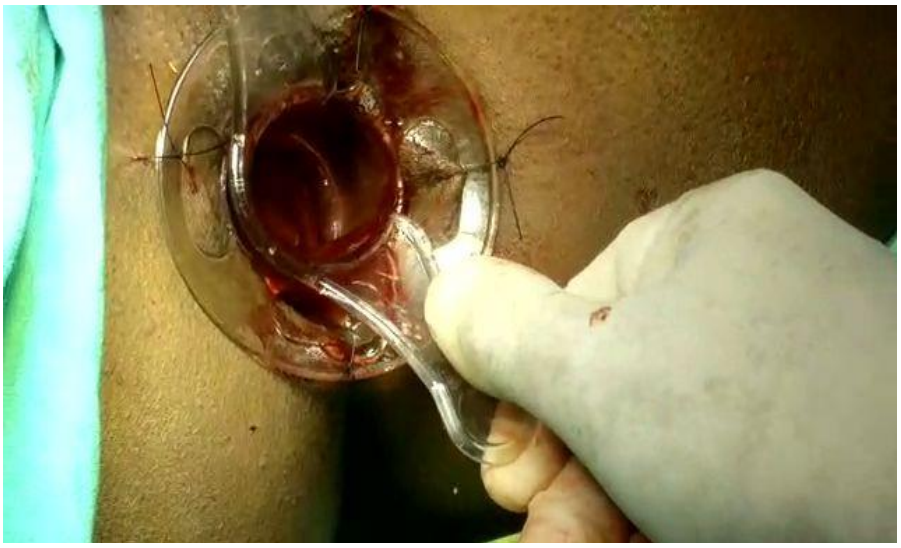

Fig4. Checking staple line for active bleeding at the end of procedure

Fig5. Stapler after removal of donut shaped anal mucosa

IV. Results

TABLE 1. Distribution among gender groups

	open haemorrhoidectomy		stapler haemorrhoidectomy	
	Frequency	%	frequency	%
Male	15	75	18	90
Female	5	25	2	10
Total	20	100	20	100

TABLE 2. Distribution among grades of haemorrhoids

	open haemorrhoidectomy		stapler haemorrhoidectomy	
	Frequency	%	Frequency	%
Grade 2	01	5	04	20
Grade 3	07	35	13	65
Grade 4	12	60	03	15

TABLE 3.Age wise distribution

	open haemorrhoidectomy		stapler haemorrhoidectomy	
	Frequency	%	Frequency	%
21-30	4	20	8	40
31-40	6	30	4	20

41-50	8	40	6	30
51-60	2	10	1	5
>60	0	0	1	5
Total	20	100	20	100

TABLE4. Comparison of pain in both groups at 24 hours

Pain score	open haemorrhoidectomy		stapler haemorrhoidectomy	
	Frequency	%	frequency	%
0	0	0	2	10
2	1	5	8	40
4	2	10	3	15
6	10	50	4	20
8	3	15	2	10
10	4	20	1	5
Total	20	100	20	100

TABLE 5.Post operative hospital stay

	open haemorrhoidectomy		stapler haemorrhoidectomy	
	Frequency	%	frequency	%
2 days	8	40	11	55
3 days	7	35	7	35
4 days	3	15	2	10
5 days	2	10	1	5
Total	20	100	20	100

TABLE 6.Resumption of daily activity in days

	open haemorrhoidectomy		stapler haemorrhoidectomy	
	Frequency	%	Frequency	%
1 day	0	0	0	0
2 days	4	20	6	30
3 days	5	25	9	45
4 days	7	35	4	20
5 days	4	20	1	05
Total	20	100	20	100

TABLE 7. Post operative complications

	open haemorrhoidectomy		stapler haemorrhoidectomy	
	Frequency	%	frequency	%
Post op bleeding	2	10	1	5
Post op urinary retention	2	10	3	15
Anal incontinence	0	0	0	0
Anal stricture	0	0	0	0
Total	20	100	20	100

V. Discussion

In this study mean post operative pain was 6.7 in open haemorrhoidectomy while for stapled haemorrhoidectomy it was 3.5.

In study by shrikanth et al (9) post operative pain measured according to Visual Analog score was 1.9, scores lesser for stapler haemorrhoidectomy compared to open haemorrhoidectomy. This is comparable to a study by Palimento D et al., [4] who found that pain according to visual analog score was lower (Visual) analog score =4 (2 to 6) in SH versus 5 (2 to 6) in OH. A systematic review by Ttandea JJ and Chan MK [5] and a meta analysis by Nisar PJ et al., [6] ,a study by P Thejeswi et al., [7] and a study by RS Bhandari et al., [8], also unequivocally proved lesser post operative pain in the stapled group. The reduction in pain is attributed to the procedure being carried out above the dentate line which has no nerve endings carrying pain.

In a study by Wani MD et al the mean VAS score at 6, 12 and 24hours in the stapled hemorrhoidopexy was 1.78±0.77,1.82±0.61 and 1.42±0.62, respectively, and in the openhemorrohidectomy group, the mean VAS score at 6, 12and 24 hours was 2.89±0.86, 2.13±0.82 and 1.89±0.80,respectively (Table 4). The difference was statisticallysignificant(10).Resumption of daily activities was also earlier in stapled haemorrhoidectomy group.

Post operative hospital stay was 3 days in open haemorrhoidectomy while for stapled it was slightly less ,being 2.75 days.Post operative hospital stay was found to be statistically significant with a 0.6 score, less for stapled group with $p< 0.001$ and 95% confidence interval is .337 to .863in a study by shrikanth et al(9). A study by Bikchandani J et al., [11]., showed mean hospital stay of 1.24 days compared to 2.76 days in open haemorrhoidectomywith a $p< 0.001$. In a study by Khan NF et al., [12] the mean length of hospital stay was significantly less for stapled haemorrhoidectomy group 3.37 ± 2.2 Vs 2.03 ± 0.81, $p= 0.003$.

Postoperative complications:

a. In open haemorrhoidectomy-

Study	bleeding	Urinary retention	Anal incontinence	Anal stricture
Present	10%	10%	0%	0%
Shrikanth et al	2%	4%	0%	0%
Palimento et al	13.6%	-	-	-
Agarwal N et al	19%	32%	-	-
Dr HO Yh et al (14)	-	-	0%	0%

b. In stapled haemorrhoidectomy

Study	bleeding	Urinary retension	Anal incontinence	Anal stricture
Present	5%	15%	0%	0%
Shrikanth et al	2%	8%	0%	0%
Palimento et al	21.6%	-	-	-
Agarwal N et al(13)	13%	30%	-	-
Dr HO Yh et al (14)	-	-	0%	0%

The duration to return to functionalstate was 3.505 days in open haemorrhoidectomy group while for stapled haemorrhoidectomy it was 3 days. While in study by Agarwal N et al (13) this duration was significantly higher in open group compared tothe stapled group, it took an average of 5.9 days for thepatient in open group to start the routine activitiescompared to stapled group that took a mean of 4.8 days.In study by shrikanth Kulkarni et al(9) routine daily activity were found to be carried out by patient 1.15 days earlier in stapled arm compared to open haemorrhoidectomy. The p value was less than 0.001 for this variable with a 95% confidence interval 0.754 to 1.547. This can be attributed to less post-operative pain and early discharge of the patient from the hospital.

VI. Conclusion

Stapled haemorrhoidopexy is an effectiveprocedure for haemorrhoids .Compared to open technique it has minimalimmediate complications, lesser post operativepain , shorter duration of hospital stay andearlier return to work with complications comparable to open technique but the costof stapled haemorrhoidopexy limits its use in all patients.

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