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HAEMORRHOIDECTOMY;

OUTCOME USING HARMONIC SCALPEL VERSUS CONVENTIONAL CLOSED HAEMORRHOIDECTOMY

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ABSTRACT… Haemorrhoids are one of the most common anorectal disorders. Internal haemorrhoids are symptomatic anal cushions and characteristically lie in the 3, 7 and 11 o'clock position whereas external haemorrhoids relate to venous channels of the inferior haemorrhoidal plexus. **Objectives:** To compare the outcome of haemorrhoidectomy using harmonic scalpel versus conventional closed haemorrhoidectomy. **Study Design:** Randomized control trial. **Setting:** Department of Surgical unit II, Jinnah Hospital, Lahore. **Period:** Six months from 25th December 2014 to 24th June 2015. **Methodology:** A total of 140 patients were included in this study. Patients were divided in two groups A & B. In Group A, (70 patients) conventional haemorrhoidectomy was performed by the Ferguson Technique (closed technique) whereas in Group B, (70 patients) suture less closed haemorrhoidectomy was performed by using the harmonic scalpel. **Results:** The mean age of the patients in group A was 43.3±8.2 years and in group B was 42.3±7.3 years. The mean time for surgery in group A was 23.8±4.2 minutes and in group B was 8.5±3.6 minutes. The mean pain score in group A was 5.3±1.8 VAS and in group B was 3.9±1.9 VAS. In group A, less than 1 day postoperative hospital stay was in 62 (88.6%) patients and in group B, it was in 66 (94.3%) patients. **Conclusions:** It is concluded from this study that haemorrhoidectomy by harmonic scalpel results in decrease in operation time and less postoperative pain although there is not much significant difference in less than 1 day hospital stay as compared to the conventional closed haemorrhidectomy technique.

Key words: Haemorrhoidectomy, operating time, pain score, hospital stay, harmonic scalpel haemorrhoidectomy.

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INTRODUCTION

Haemorrhoids are one of the most common anorectal disorder generally divided into three main types 1. External Haemorrhoids 2. Internal Haemorrhoids 3. Interno-external Haemorrhoids.[1,2,3]

Internal haemorrhoids are symptomatic anal cushions and characteristically lie in the 3, 7 and 11 o'clock position whereas external haemorrhoids relate to venous channels of the inferior haemorrhoidal plexus deep in the skin surrounding the anal verge and are not true haemorrhoids, they are usually only recognized as a result of complication, which is most typically a painful solitary acute thrombosis Interno-external haemorrhoids. External haemorrhoids associated with internal haemorrhoids result from the progression of the later to involve both haemorrhoidal plexus and are best thought of being external extensions of internal haemorrhoids.[4,5,6,7,8]

In the age group of 50 years and above, at least 29% have asymptomatic hemorrhoids, incidence of asymptomatic hemorrhoids is significantly greater in males as compared to females.[9,10]

Hemorrhoidectomy is the definite treatment of choice for the management of 3rd and 4th degree hemorrhoids. Conventional closed haemorrhoidectomy is the most commonly employed surgical technique, although haemorrhoidectomy is considered as minor surgical procedure but post-operative pain and delayed recovery are the main concerns. The

advent of new devices such as harmonic scalpel and ligasure has provided us with effective alternatives and use of these devices result in decreased perioperative blood loss and less post-operative pain and early recovery.[11,12,13,14]

OBJECTIVE

To compare the outcome of haemorrhoidectomy using harmonic scalpel versus conventional closed haemorrhoidectomy.

OPERATIONAL DEFINITION

Outcome of this study was measured in terms of:

a) Mean operative time required for surgery in minutes from time of incision till the dressing of the patient.
b) Mean post-operative pain score assessed by Visual Analogue Score of 1-10 which was assessed 24 hours postoperatively.
c) Patients requiring less than 1 day post-operative hospital stay. Patients were discharged when they were oral free, or pain free (VAS 0-3) and passed urine and stool.

MATERIAL AND METHODS

This study was carried out in the surgical unit-II Jinnah Hospital, Lahore from 25th December 2014 to 24th December 2015.It was randomized control trial study. Study was approved from hospital ethical committee. The sample size was calculated using WHO calculator for two groups for as 140 (70 each) cases using 95% level of significance and 80% power. It was non-probability consecutive sampling. Cases were randomized according to computer generated software. Patients with haemorrhoids requiring manual reduction 3rd degree and permanently prolapsed 4th degree assessed on proctoscopic examination, male and females, age group 30-60 years were included in this study. Patients with anal fissures or complicated haemorrhoids e.g. edematous assessed on per rectal examination and proctoscopy, with any chronic illnesses like diabetes mellitus or hypertension assessed by recent medical checkup or the previous record available ,with chronic liver disease assessed by recent medical checkup, relevant investigations or the previous record available or Immunocompromised patients assessed by investigations like complete blood count (Absolute Neutrophil Count <1500 per microlitre, Viral Markers (Anti-HCV HBSAg HIV status by ELISA method) were excluded.

Patients fulfilling the inclusion criteria were admitted through outdoor. The aim and purpose of the study and its possible outcomes were explained in details to all the patients and an informed consent was taken from all the patients before including them in this study. Surgery was performed under spinal anesthesia. All surgeries were performed by consultant surgeons. Patients were divided in two groups A & B randomly using lottery method. In Group A, conventional haemorrhoidectomy was performed by the Ferguson Technique (closed technique) whereas in Group B, suture less closed haemorrhoidectomy was performed by using harmonic scalpel. The operative time for each patient was calculated in minutes by the investigator with the help of standard stop watch. The investigator was present personally in the theater from the beginning till the end of the procedure. Both groups of patients were given intravenous antibiotics for first 24 hours and intravenous analgesics for first 24 hours post operatively (Injection Nalbin 5mg 8 hourly and injection ketorolac 30mg 8 hourly). All the patients were allowed to take orally after 6 hours of surgery. The response to pain 24 hours postoperatively was assessed using visual analogue score of 1-10 in all the patients of both the groups. Similarly number of patients requiring less than 1 day hospital stay was calculated. Data was analyzed using the statistical package for social sciences version 17 (SSPS 20 Chicago, Il, USA). Categorical variables like gender and less than 1 day hospital stay used were expressed as frequencies and percentages. Continuous variables like age in years, operative time in minutes and mean post-operative pain score using a visual analogue score (VAS) of 1-10 were expressed as mean and standard deviation. T-test was used to compare the mean operative time, mean postoperative pain score. Chi Square test was used to compare percentage of patients requiring less than one day post-operative

hospital stay in both groups. P value of less than 0.05 was considered statistically significant.

RESULTS

Demographic data of both groups is shown in Table I and II.

Results of both the groups were compared in terms of time required for surgery, VAS for postoperative pain in first 24 hours and hospital stay of less than 24 hours.

The mean time for surgery in group A was 23.8±4.2 minutes and in group B was 8.5±3.6 minutes. In group A, in 21 (30.0%) the time for surgery ranged 11-20 minutes and in 49 (70.0%) patients time for surgery ranged 21-30 minutes. In group B, in 62 (88.6%) the time of surgery was 1-10 minutes and in 8 (11.4%) patients it was 11-20 minutes (Table-III).

The mean pain score in group A was 5.3±1.8 VAS and in group B was 3.9±1.9 VAS. (Table-IV).

In the distribution of patients by less than 1 day postoperative hospital stay, in group A, there were 62 (88.6%) patients had less than 1 day postoperative hospital stay and 8 (11.4%) patients had more than 1 day postoperative hospital stay. In group B, there were 66 (94.3%) patients had less than 1 day postoperative hospital stay and 4 (5.7%) patients had more than 1 day postoperative hospital stay (Table-V).

Age (Years)	Group A (n=70)		Group B (n=70)	
	No.	Percentage	No.	Percentage
30-40	30	42.9	30	42.9
41-50	25	35.7	27	38.6
51-60	15	21.4	13	18.6
Mean±SD	43.3±8.2		42.3±7.3	

Table-I. Distribution of patients by age

Sex	Group A (n=70)		Group B (n=70)	
	No.	Percentage	No.	Percentage
Male	36	51.4	40	57.1
Female	34	48.6	30	42.9
Total	70	100.0	70	100.0

Table-II. Distribution of patients by sex

Time for surgery (Minutes)	Group A (n=70)		Group B (n=70)	
	No.	Percentage	No.	Percentage
1-10	0	0	62	88.6
11-20	21	30.0	8	11.4
21-30	49	70.0	0	0
Mean±SD	23.8±4.2		8.5±3.6	

Table-III. Distribution of patients by time for surgery
P=0.001

Postoperative pain (VAS 1-10)	Group A (n=70)		Group B (n=70)	
	No.	Percentage	No.	Percentage
1-3	13	18.6	30	42.9
4-6	38	54.3	33	47.1
7-10	19	27.1	7	10.0
Mean±SD	5.3±1.8		3.9±1.9	

Table-IV. Distribution of patients by postoperative pain
P=0.001

Hospital stay	Group A (n=70)		Group B (n=70)	
	No.	Percentage	No.	Percentage
Yes	62	88.6	66	94.3
No	8	11.4	4	5.7
Total	70	100.0	70	100.0

Table-V. Distribution of patients by less than 1 day postoperative hospital stay P=0.2

DISCUSSION

Conventional hemorrhoidectomy, including open and closed methods, is accepted as the gold standard for surgical treatment of hemorrhoids worldwide. Conventional hemorrhoidectomy for Grade III and Grade IV hemorrhoids is a tedious procedure associated with significant morbidity and a prolonged convalescence Nevertheless, pain after conventional excision haemorrhoidectomy continues to be a major problem.[15] Various techniques have been developed with the aim of reducing postoperative pain. The ultrasonically activated scalpel operates at high-frequency ultrasonic energy and at temperature less than 100°C, which divides the tissue in such a way that is associated with less unwanted tissue desiccation, char formation and zone of thermal injury in relation with electrocautery instruments.[16] After ultrasonic cutting and coagulation, the HS technique gives a signal that allows surgeon to finish the process more quickly. Furthermore, HS causes minimal intraoperative bleeding, which allows the surgeon better exposure, so surgery lasts less time than with other techniques, and causes minimal mucosal damage, leading to faster wound healing, less postoperative morbidity, and minimal pain.[17]

This study demonstrates a significant reduction in postoperative pain after harmonic scalpel hemorrhoidectomy as in first 24 hours the mean pain score in group A was 5.3±1.8 VAS and in group B was 3.9±1.9 VAS; p=.001. Ivanov[18] reported that the new method of Harmonic Scalpel hemorrhoidectomy, due to less thermal damage, statistically significantly reduced postoperative pain with better hemostasis. Ramadan[19] also concluded that harmonic scalpel hemorrhoidectomy is virtually a bloodless operation with minimal tissue damage. It is associated with significant less postoperative pain and a fast return to normal activity.

In our study the mean age of the patients in group A was 43.3±8.2 years and in group B was 42.3±7.3 years. As compared with the study of Mastakov et al[20], the mean age of the patients in ligasure group was 48 years and in conventional haemorrhoidectomy group was 43 years, which is comparable with our study.

In our study, the mean operating time in group A was 23.8±4.2 minutes and in group B was 8.5±3.6 minutes which shows a significant less operative time with harmonic Scalpel. A Turkish study by Hakan[21] also shows that in comparison with Ferguson's hemorrhoidectomy, harmonic scalpel hemorrhoidectomy has shorter operating time (25.5 ±7.7 minutes vs. 16.8 ±4.1 minutes; p =0.001).

In present study there was no significant different in 1 day hospital stay in use of both techniques as in group A, less than 1 day postoperative hospital stay was in 88.6% patients and in group B was 94.3% patients. Its in contrast to Hakan[21] which shows the postoperative hospital stay (1.0 ±0.1 days vs. 1.2 ± 0.4 days; p=0.001) was lower in the harmonic scalpel group compared with Ferguson's hemorrhoidectomy.

On the above discussion it is concluded that use of harmonic scalpel in haemorrhoidectomy results in decrease in operation time, less postoperative pain and less than 1 day hospital stay as compared to the conventional closed haemorrhidectomy technique.

CONCLUSION

It is concluded from this randomized control trial that outcome of haemorrhoidectomy using harmonic scalpel is better than conventional closed haemorrhidectomy in terms of decrease in

mean operative time and less mean postoperative pain score although there is not much significant difference in less than 1 day post-operative hospital stay.

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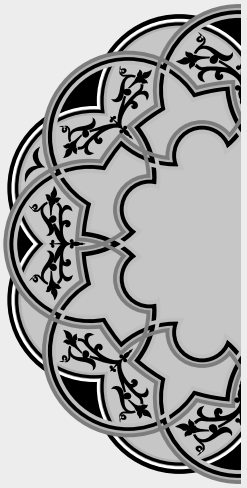

"If you don't stand for something you will fall for anything"

Gordon A. Eadie

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3	Dr. Reem Saad	Critical revision literature search	