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Original Research Paper

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A COMPARATIVE STUDY REGARDING THE INTRAOPERATIVE EFFICACY OF CONVENTIONAL OPEN (MILLIGAN-MORGAN) AND HARMONIC SCALPEL HAEMORRHOIDECTOMIES

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ABSTRACT Background: Human beings have suffered from haemorrhoids since they have started to walk. The surgical treatment for haemorrhoids is called „Haemorrhoidectomy . Many techniques have been developed to minimize the morbidity and hasten the recovery. This study compares two such techniques: conventional open haemorrhoidectomy (Milligan- Morgan) and the harmonic scalpel haemorrhoidectomy, in terms of intraoperative efficacy. **Methods:** This was a randomized, prospective, single blind (patients), non-crossover type interventional study was carried out on patients more than 18 years of age presenting with haemorrhoids requiring surgical treatment. They were randomly divided into two groups and the surgeries were carried out accordingly. Intraoperative and immediate post-operative monitoring wasdone. **Results:** Operative time, intraoperative and immediate post-operative blood loss was less in the harmonic group compared to the conventionalgroup. **Conclusions:** Harmonic scalpel haemorrhoidectomy is better surgical technique than conventional open haemorrhoidectomy as it has better intraoperative efficacy having significant positive impact on the morbidity and recovery of the patient.

KEYWORDS :- Haemorrhoidectomy, Conventional open haemorrhoidectomy, Harmonic scalpel haemorrhoidectomy, Operative time, Intraoperative blood loss, Postoperative bleeding, Bleeding per rectum

INTRODUCTION

The term „Haemorrhoid used by Hippocrates in 460 BC, means „Blood Flow in Greek. Another word for haemorrhoid is "Piles" which means „anal swelling in Latin. Hemorrhoids, also called piles, are vascular structures in the anal canal.1,2 However, the term "Haemorrhoid" is generally used to refer to the disease when these vascular structures become inflamed.2 The symptoms vary according to the type present.3,4Human beings have suffered from haemorrhoids since they have started to walk. The surgical treatment for haemorrhoids is called „Haemorrhoidectomy . The earliest treatment records date back to 2500 BC. Hippocrates in his medical treatise described a method consisting of a ligature operation and cauterization. Originally, this operation consisted of ligature application to the entire haemorrhoidpedical, including skin and mucosa covered portions, and cutting of some of the part distal to the ligature.5Several modifications were done before the method of conventional open haemorrhoidectomy was devised by Miligan-Morgan. However, it is associated with significant post-operative complications. The quest for an improved technique of excision of haemorrhoids has led to the local use of long acting anesthetic agents as well as modifications to the conventional technique.6-9This study compares the conventional open haemorrhoidectomy (Milligan-Morgan) and the harmonic scalpel haemorrhoidectomy in terms of intraoperative efficacy.OBJECTIVESThe objectives of the study were to compare the efficacy of harmonic scalpel haemorrhoidectomy and conventional open (Milligan-Morgan) haemorrhoidectomy with time required for surgery; intraoperative blood loss; any other significant intraoperative complications; immediate postoperative blood loss; any other significant immediate postoperativecomplications.

METHODS

This was a randomized, single – blind (patients), non-crossover type interventional study conducted in Rajendra institute of medical sciences, Ranchi, Jharkhand. It was carried out on the patients (more than 18 years of age), who presented In the Department of Surgery with 2nd 3rd and 4th degree haemorrhoids from 01 January 2018 to 31December 2019. The patients having Inflammatory Bowel Disease (Crohn s, ulcerative colitis), acutely thrombosedhaemorrhoids, anal stricture, pathological hemorrhoids and those who did not consent or were unable to give consent, were excluded from thestudy.A written informed consent was obtained. A total of 60 patients of either gender were included in the study. These were than divided randomly in two groups (Groups I & II) of thirty patientseach.A complete detailed history, physical evaluation (including per rectal and proctoscopic examination) and detailed relevant laboratory examination was done. Patients having any parasitic infestation of the gastro- intestinal track were first treated for it before starting the treatment of hemorrhoid. Pre-anesthetic evaluation was done.

The patients were randomly assigned in two groups:

Group „A – Conventional open haemorrhoidectomy (Milligan-Morgan)

Group „B – Harmonic scalpel haemorrhoidectomy

Patients were kept nil per oral overnight, with enema given at night and early morning. Preparation of the parts was done previous evening. Perianal region was cleaned with soap. Patients were shifted to the Operation Theatre as per their pre-decided schedule. Under all aseptic conditions, the procedure was done in lithotomy position under spinal/saddle anesthesia. And the procedures were carried out as per the assigned Groups. The operative time, intraoperative blood loss and any immediate problems or complications were recorded and managed accordingly.Cotton packs were kept inserted and a „T bandage was applied. All the patients were

transferred to the surgical ward with the advice for Sitz bath and perineal exercise in the post-operativeperiod.

STATISTICAL METHODSThe analysis was done by SPSS V.16 using Chi square test/ Fischer s exact test. P value of less than 0.05 was considered to be "Significant".

RESULTSBoth the groups were identical in terms of age distribution with the mean age of 46.33 years (Group A) and 46 years (Group B). Male: Female ratio was 11: 1 with distribution as per Table 1, which was statistically not significant($p>0.05$).The mean operative time was much longer (almost double) in Group A as compared to Group B, which was statistically significant ($p<0.001$) (Table 2).All the patients in both the Groups had intraoperative bleeding. However, majority of the patients in Group B had blood loss of less than 30 ml. Thus, clearly, the total amount of blood loss in Group B was much less than Group A. This difference was also statistically significant ($p=0.005$) (Table 3).Early postoperative complication of bleeding per rectum was significantly less in Group B (in 6.7%) than in Group A (in 40%). This difference was statistically significant ($p=0.002$) (Table 4).

Table 1: Gender distribution in groups A and B.

	Female		Male	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Group A	2	6.70	28	93.30
Group B	3	10.00	27	90.00
Total	5	8.30	55	91.70

P value 0.6:- Statistically not significant

Table 2: Distribution of operative time in groups A and B.

Operative time (in minutes)		
	Minimum	30
Group A	Maximum	46
	Mean	39.77
	Minimum	14
Group B	Maximum	24
	Mean	18.03

P value <0.001 :- Statisticallysignificant

Table 3: Distribution of intraoperative blood loss in Groups A and B.

Blood loss <30 ml			Blood loss >30 ml	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Group A	19	63.30	11	36.70
Group B	28	93.30	2	6.70
Total	47	78.30	13	21.70

P value 0.005 :- Statisticallysignificant

Table 4: Distribution of early postoperative bleeding per rectum in groups A

Bleeding absent			Bleeding present	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Group A	18	60.00%	12	40.00%
Group B	28	93.30%	2	6.70%
Total	46	76.70%	14	23.30%

P value 0.002 :- Statisticallysignificant

DISCUSSION

In this study, both the groups were comparable in terms of demographic variables. The age distribution was comparable to studies done by Kumar et al, Umerfayyaz et al, Mala et al, Lim et al and Kasthurietal.10-14

Operative time

In this study, the operative time needed for conventional (39.77 min) was more than harmonic (18.03 min). This was comparable to the studies done by Fayyaz et al (22.90±4.90 minutes vs 18.13±3.95 minutes), by Mala et al (28.44±3.69 minutes vs 17.68±2.84 minutes) and by Lim et al (17.5±2.2 minutes vs 13.4±0.7 minutes).11-13 However, in the study by Kumar et al, no significant difference was found in the operative times.[10]

Intra-operative blood loss

In this study, it was found that the intraoperative blood loss was significantly less in the harmonic group than in the conventional group. Also, of the patients having bleeding in the harmonic group, majority (93.3%) was minor (<30 ml). This was comparable to the study done by Kumar et al, where the bleeding was 6.1 ml and 19.4 ml in the harmonic and conventional groups respectively.10 This was also comparable to the study by Lim et al and by Mala et al (mean blood loss was 8.96±2.15 ml, 31.72±3.28 ml in the Harmonic and conventional groups respectively).[12,13]

Early postoperative bleeding per rectum

In this study, the incidence of early post-operative bleeding per Rectum was more in Conventional Group than in the Harmonic Group. This is comparable to studies by Kumar et al, Lim et al, Kasthuriet al and Thiyagarajan etal.10,13-15

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CONCLUSION

From this study, it can be effectively concluded that harmonic scalpel haemorrhoidectomy is better than conventional open haemorrhoidectomy as it involves less intraoperative time with less blood loss (both intraoperative and immediate postoperative), thereby having a significant positive impact on the morbidity and recovery of the patient.

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