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ORIGINAL ARTICLE

Comparison of Haemorrhoidectomy Using Ligasure With Open (Milligan Morgan Haemorrhoidectomy)

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ABSTRACT

Aim: To compare between haemorrhoidectomy using ligasure versus conventional haemorrhoidectomy in terms of operative time, bleeding and post-operative pain.
Study design: Controlled randomized trial
Place and duration of study: Department of Surgery, DHQ Hospital Abbottabad from 1stJuly 2018 to 31stDecember 2020
Methodology: One hundred and twenty patients were enrolled. Patients were allocated to two groups and haemorrhoidectomy done with ligasure (LS, group A) and conventional method i.e. Milligan Morgan haemorrhoidectomy (MMH, group B) and each group comprised 60 patients. In group A pedicals were coagulated with the ligasure rather than transfixed as in group B (MMH). Operative time and per operative bleeding recorded during surgery while postop pain score recorded using visual analogue score (0-10) especially during first defecation.
Results: The mean age of 46±16.36 years were studied and 79.1% were males. In group A 72.5% patients were males and 27.5% females compared to 67.5% males and 32.5% females in group B. 87.5% of patients had 3rd degree hemorrhoids in group A while 89.4% had the same disease in group B. Operative time was between 20-35 minute in group A compared to 10-30minutes in group B. In group A 75% observed mild pain as recorded on VAS, 25% had moderate pain at time of first defecation while in group B 69.4% patients had moderate pain on VAS, 25.6% experienced mild pain and another 5% reported severe pain during defecation. Mean blood loss was 104.21±41.45 ml in both populations, in group A it was 83.59±34.34 ml while in group B it was 124.84±37.56 ml. Mean VAS of both populations was 3.55±2.05 while mean time of operation was 36.35±7.22.Using independent sample T test, there was statistically significant (P=0.000) difference on all three parameters between two groups.
Conclusions: Haemorrhoidectomy using ligasure is safe and causes minimal bleeding, requires less operative time and is associated with less pain compared with conventional scissors dissection, and is a good alternative to diathermy excision**.**
Keywords: Haemorrhoidectomy, Ligasure (LS), Conventional haemorrhoidectomy

INTRODUCTION

Hemorrhoids are prolapsed anal cushions with congested superior and inferior haemorrhidal plexuses. They are typically present at 3, 7 and 11 O'clock position corresponding to right posterior anal cushions, right anterior and left lateral. There are four degrees of haemorrhoids depending upon their clinical presentation that is bleeding, prolapse of hemorrhoids and their reducibility[1]. Haemorrhoids affect 50-85% of world population with equal gender incidence.[2] Grade 1 and grade 2 haemorrhoids are treated conservatively and surgery is reserved for grade 3 and grade 4 haemorrhoids or if conservative treatment fails for earlier grades[3].

Open haemorrhoidectomy was first described by Milligan and Morgan in 1939 for grade 3 and 4 symptomatic haemorrhoids, in which haemorrhoids are excised by either diathermy or scissors and pedicle is ligated. This procedure is associated with peroperative bleeding and postoperative pain.[4] There has been many modifications in conventional open method of haemorrhoidectomy for decreasing the complications since it was first introduced which included the closed method, use of harmonic scalpel, haemorhoidal artery ligation and recently introduced Ligasure.[5] Inorder to decrease postoperative pain and bleeding different techniques were utilized[2-4]. A ligasure assisted haemorrhoidectomy is method used for grade 3 and 4 haemorrhoids, which uses a special hemostatic bipolar electrothermal device called ligasure. Ligasure is a special vessel sealing system which uses radiofrequency ablation and pressure.[7]

In a systemic review comparing clinical outcome and effectiveness of different methods of haemorrhoidectomy, open haemorrhoidectomy is found to have significantly higher number of complications as compared to some other methods including ligasure[4]. Operative time and bleeding both per operative and postoperative were found to be significantly lower in ligasure group as compared to open haemorrhoidectomy group[5].

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The purpose of the study is to compare the conventional open haemorrhoidectomy Milligan-Morgan haemorrhoidectomy (MMH) in terms of per-operative bleeding, operative time and postoperative pain.

MATERIALS AND METHODS

The study was conducted at surgical department of Benazir Bhutto Shaheed Teaching Hospital, DHQ Abbottabad from 1stJuly 2018to 31stDecember 2020. A total of 120 patients with 3rd and 4th degree haemorrhoids were included in study. 60 patients were included in each group using non-probability consecutive sampling technique. Ethical approval was obtained from Ethical Approval Board of hospital. Patients of both genders were included between ages 20 and 70. Patients with previous anorectal surgery or having fissure were excluded from study. Study was a randomized controlled trial. Informed consent was taken from patients. Patient data was entered in a proforma, operative time noted and post-operative pain assessment was done using visual analogue score (VAS) during defecation in 1st 24 hours. Patient was followed for 2 weeks for post-operative bleeding and pain assessment. All the surgeries were performed by consultants.

Surgery was performed under spinal or general anesthesia as per anesthetist decision and/or the patient. After putting the patient in lithotomy position at the beginning of the procedure a gauze swab was placed underneath the anal verge to collect the blood. The gauze swab/s was then weighed at the end of the operation to estimate the total blood loss. All the procedure was performed entirely with the ligasure in group A (LS) while in group B (conventional method) scissor used for excision and pedicle transfixed with absorbable suture. No local anesthetics or pudendal block were used. No ligature was used in group A (LS).

All the collected data was entered in SPSS. Student's 't' test was applied for mean operative time and peroperative bleeding in two groups and P value <0.05was considered as significant.

RESULTS

In group A, 39(72.5%) patients were males and 21(27.5%) were females. Age wise distribution of patients revealed that 9.4% of patients (n=8) were in age group 15-25 years, 6(20%) were in age group 26-35 years, 15(19.4%) were in age group 36-45 years, 15(18.8%) were in age group 46-55 years, 16(20%) were in age group 56-65 years, 7(8.1%) were from age group 66-75 years and 3(4.4%) were of 76-85 years of age. More patients 87.5% (n=52) had 3rd degree hemorrhoids in group A while remaining 8(12.5%) had 4th degree illness. Most patients 45(75%) in this group had mild pain as recorded on VAS, 15(25%) had moderate pain at time of first defecation. Operation lasted between 25-40 minute in 53(87%) patients in further 4(6.9%) time duration was 41-45 min, in another 6% patients it was longer than 45 minutes. In group B 41(67.5%) patients were males and 19(32.5%) were females. Age wise distribution of patients revealed that 7(12.5%) of patients were in age group 15-25 years, 10(17.5%) were in age group 26-35 years, 13(21.9%) were in age group 36-45 years, 22.5% (n=14) were in age group 46-55 years, 9(15.6%) were in age group 56-65 years, 5(8.1%) were from age group 66-75 years and 1.9% (n=1) were of 76-85 years of age.

54(89.4%) had 3rd degree hemorrhoids in group B while remaining 6(10.6%) had 4th degree illness. Most patients 42(69.4%) in this group had moderate pain as recorded on VAS, 15(25.6%) had mild pain at time of first defecation and another 3(5%) reported severe pain during defecation. Operation lasted between 25-40 minute in 34(51.9%) patients in further 29.4% (n=18) time duration was 41-45 min, in another 18.8% patients it was longer than 45 minutes.

Mean blood loss was 104.21±41.45 ml in both populations, in group A it was 83.59±34.34 ml while in group B it was 124.84±37.56 ml. Mean time of operation in both population was 36.23±6.33 min. Mean time of operation in group A 32.8±6.78 min whereas it was 39.69±5.89 min in group B. Mean VAS of both populations was 3.55±1.83. Mean VAS of group A was 2.65±1.59 in group B it was 4.46±2.07.When groups were compared for statistical significance in terms of duration of procedure, visual analogue pain score and blood loss using independent sample T test, there was statistically significant difference P=0.000 on all three parameters between the two groups (Table 1).

Table 1: Descriptive statistics of both groups

Variable	Group A	Group B	P value
Bleeding(ml)	83.59±34.34	124.84±37.56	0.000
VAS Score	2.65±1.59	4.46±2.07	0.000
Duration(min)	32.80±6.78	39.69±5.89	0.000

DISCUSSION

Ligasure is an advanced and now considered more preferable surgical method to perform haemorrhoidectomy. This device involves sound waves for cutting and coagulating. It is safer to perform due to reduced scarring, quicker recovery, causes less damage to tissue, lessen the hospital stay and smaller incision.[5-9] Result of the present study showed significantly less post-operative pain which was compared by its better and lesser scoring. Lesser pain would predict decreased chances of post-operative complications including post-operative urinary retention. Other studies report the similar findings[11,12].

Major issue which is present in conventional treatment method i.e. haemorrhoidectomy is pain and bleeding. These two factors significantly resolve with ligasure. It is note-worthy to state that ligasure is also related with less blood loss. This happened because it coagulates the tissue before cutting and thus prevents bleeding. Coagulation which is caused by ligasure does not cause excessive necrosis. Contrary, conventional method involves scissor cut which leads to bleeding[13,16].

This fact is further proved by requirement of analgesic injections. Lesser analgesic injections were required in LS patients in contrast to MMH group even in early post-operative duration.[17,18] Result of the present studies states that, haemorrhoidectomy with ligasure is an effective and efficient method with improved recurrence rate. Lesser blood loss and pain was observed in this surgical method.

CONCLUSION

The haemorrhoidectomy using ligasure is safe, results in minimal bleeding, performed quickly and associated with less postoperative pain as compared with conventional scissors dissection. This highlights that ligasure is a preferred method for haemorrhoidectomy and good alternative to diathermy excision.

Conflict of interest: Nil

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