ORIGINAL ARTICLE

# Open Versus Closed Haemorrhoidectomy: Evaluation of Morbidity and Complications

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## ABSTRACT

**Objective:** To compare the outcome of open Milligan-Morgan haemorrhoidectomy (MMH) with that of closed Ferguson haemorrhoidectomy (FH) regarding post operative pain, wound healing and complications.

**Study Design:** Quasi Experimental study design.

**Place and Duration of Study:** The study was conducted from 1st of May 2008 to 31st December 2013 at Islamic International Medical college Hospital Islamabad.

**Materials and Methods:** Forty eight patients suffering from haemorrhoids were divided into two equal groups by consecutive sampling method. In 24 patients (group I) haemorrhoidectomy was done by open method (Milligan-Morgan), and remaining 24 patients (group II) were treated by close method (Ferguson). Outcome in the two groups such as post operative pain, wound healing, anal stenosis and anal incontinence were compared.

**Results:** Post operative pain was less in group-II (close) compared to group-I (open). In group-II pain score on VAS was 4.8 at 8 hours post operatively which subsided to 2.1 at 48 hours, mean score was 2.9. In group-I post operative pain on VAS was 7.2 at 8 hours which came down to 3.8 at 48 hours, mean score was 5.28. Wound healing in group-II (close) took 7 to 12 days, while in group-I (open) it occurred in 15 to 25 days. Post operatively analgesia was required for an average 10 days in group-II, and for 19 days in group-I patients. Anal stenosis and anal incontinence were not noted in either group within 6 months.

**Conclusion:** Close haemorrhoidectomy has shown better outcome compared with open haemorrhoidectomy in terms of post operative pain, analgesic requirement and wound healing. Anal stenosis and anal incontinence are not seen in either group within observation period of 6 months.


**Key words:** *Open Haemorrhoidectomy, Close Haemorrhoidectomy, Complications of Haemorrhoidectomy, Anal Incontinence, Anal Stenosis.*

## Introduction

The anal cushions consist of three spaces filled by arteriovenous communications supported by fibrous matrix and smooth muscle, located within the anal canal. These cushions allow the anal lining to expand during defecation but form a complete seal when the canal is closed. Degeneration of smooth muscle and fibroelastic tissue which support the cushions results in their prolapse in the anal canal. Contributing factors to degeneration are constipation and straining at stools although exact cause is not known.[1] Haemorrhoids affect between 4.4 and 36.4% of the general population world wide.[2] In some geographical regions the condition is very common, a study from Australia has estimated that 50% of the Australian population has haemorrhoids by the age of 50 years, they have been found to be the commonest cause of rectal bleeding.[3] Haemorrhoids have been treated by surgeons for centuries. Earliest history of surgical treatment dates back to Egyptian period of 1700 BC, and is mentioned in Hippocratic treatises of 460 BC which describes transfixing them with a thick woolen thread.[4] Surgery is the mainstay of treatment for grade III and IV haemorrhoids or grade II disease in case sclerotherapy or band ligation has failed.[5] Non-surgical modalities of treatment are sclerotherapy, rubber band ligation, photocoagulation and cryotherapy.[6] The two popular techniques of haemorrhoidectomy are the conventional open as described by Milligan and Morgan[7] in 1937 and closed haemorrhoidectomy described by Ferguson.[8] A lot of work has been done comparing the two techniques to find a better post operative outcome. Some studies have shown that closed haemorrhoidectomy gives better results than open method regarding postoperative pain and early recovery but there are other studies which do not agree with this.[9] We are constantly confronted with patients' complains of moderate to severe post operative pain and there is a constant effort to alleviate the discomfort of the patient, and to adopt

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the technique which may be associated with lesser post operative pain. Patient also has a considerable concern about the wound healing time, anxiety increases with time after surgery especially when the pain is persisting, which invariably does till the wound heals. In view of contrasting results and disagreement in the studies on the better technique of haemorrhoidectomy regarding post operative pain and wound healing time we decided to conducted this study in our set up, aimed at selecting a technique of haemorrhoidectomy based on our own observation and experience so as to provide us guidance for our future course of action.

## Materials and Methods

In this quasi experimental study we included 48 patients operated between 1st of May 2008 and 31st Dec 2013 at IIMC hospital Islamabad. The patients were randomly allocated equally to two groups by consecutive sampling method. Inclusion criteria were, if the patient has Grade III or grade IV haemorrhoids or Grade II haemorrhoids with bleeding resistant to rubber band ligation or sclerotherapy. Exclusion criteria were, if the patient has had previous operation for haemorrhoids within the last 1 year, or if the patient had an active anal fistula or fissure. Operation was done under spinal anaesthesia; no loco-regional anaesthetic block was done. The same surgeon performed all the surgeries. In group A (n=24) open haemorrhoidectomy (MMH) was done. Pedicle was ligated with 2/0 vicryl and the wound was left open. The anal canal was plugged for about 8 hours. In group B (n=24) closed technique (FH) was used. Skin incision was made on the muco-cutaneous junction and diathermy dissection was done like in the Milligan-Morgan surgery. Haemorrhoidal pedicle was ligated with 2/0 vicryl and mucosa was closed with 3/0 vicryl interrupted sutures after attaining homeostasis. Anal canal packing was done for about 8 hours. Postoperatively identical treatment was begun in both groups with high fiber diet, analgesics, antibiotics and sitz baths. Post operatively pain was recorded on visual analogue scale (VAS) from 0-10 every 8 hourly for 48 hours. The patients were followed up weekly till the wound healed. Monthly follow-up for 6 months was carried on to record complications of anal stenosis or incontinence if they may arise. Study was compiled after requisite number of patients from each group had been followed up to complete the data. Data collected was entered on SPSS-20 and analyzed.

## Results

A total of 48 patients were included in the study who were operated upon over the course of five and a half years at IIMC hospital, Islamabad. Group I was operated upon by open method (MMH), and group II by close method (FH). Mean age of the patients was 45.5 years.

**Table I: Comparison of open and closed haemorrhoidectomy (n= 48)**

| Variables | | Group-I (open) (n=24) | Group-II (close) (n=24) |
|---|---|---|---|
| Postoperative pain on VAS (group average). | 8 hrs | 7.2 | 4.8 |
| | 16 hrs | 6.8 | 4.1 |
| | 24 hrs | 5.0 | 2.3 |
| | 32 hrs | 4.8 | 2.2 |
| | 40 hrs | 4.1 | 2.1 |
| | 48 hrs | 3.8 | 2.1 |
| | Mean | 5.28 | 2.9 |
| Wound healing (days) | | 15-25 | 7-12 |
| Post operative analgesia (days) | | 19 | 10 |
| Anal stenosis | | 0 | 0 |
| Anal incontinence | | 0 | 0 |

Post operative pain was recorded on the visual analogue scale ranging from 0-10, every 8 hourly for 48 hours in both the groups and compared as shown in Table I. Considering group average severity of pain (VAS) in group-II was less severe to begin with at 8 hours (4.8) compared to group-I (7.2). In both groups pain subsided gradually, but subsided more rapidly in group-II which was done by close method in which the pain came down to 2.3 at 24 hours, while in group-I the average pain score was 5.0 on VAS at 24 hours. At 48 hours mean pain score in group-I (MMH) was 5.28, while in group-II (FH) it was significantly low at 2.9. Post hospitalization oral analgesic (Diclofenac) was required for an average of 19 days in group-I, and for an average of 10 days in group-II patients. (Table I) Wound healing was significantly quicker in group-II, where surgery was done by close method, as expected, because the raw area had already been covered in this method. It took 7 to 12 days (average 9.5 days) for complete wound healing in this group compared to 15 to 25 days (average 20 days) for complete wound healing in group-I (open).

(Table I) The patients were followed up monthly up to six months to note any significant complications if they might occur. No anal stenosis was noted in any post operative case of group I or group II till the end of this period. No case of anal incontinence was reported post operatively in either group till the end of 6 month observation period.

## Discussion

Anal canal is a richly innervated tissue, exposed area after open haemorrhoidectomy has been considered as the main cause of pain. Post operative pain which may be intense and prolonged is a serious issue. Several techniques have been experimented and compared over the course of time to address this particular problem as well as to reduce the wound healing time. There are various techniques of haemorrhoidectomy, the most commonly practiced are Milligan and Morgan[7] and Ferguson.[8] Other techniques like the use of laser[10] and circular staples[11] have been added in the recent past. Stapled haemorrhoidectomy gained popularity due to less post operative pain but is associated with a number of reported complications reducing its popularity.[12] However there is a recent study by R S Bhandari which shows better outcome of stapled haemorrhoidectomy compared to open haemorrhoidectomy in terms of post operative pain.[13] Ferguson closed haemorrhoidectomy has reportedly been associated with less post-operative pain and faster healing as in the study by M Kamran.[14] Similarly, A Sabeto and M Hashim in their comparison of open and close haemorrhoidectomy reported lesser postoperative pain and bleeding by closed technique.[15] A study by Aziz A, Ali I, et al from Karachi has found milder post operative pain after closed haemorrhoidectomy compared to open technique. This study also recorded earlier wound healing in surgery done by close method.[16] Study from Nepal by N Pokhare and R K Chhetri has shown that pain on VAS is lesser by approximately 40% in those operated by closed method compared to the open method.[17] He has further found out that hospital stay was prolonged in the open surgery group due to prolonged pain and slower wound healing. Although a vast number of studies as mentioned above show better outcome after close method of haemorrhoidectomy regarding post operative pain, there are some studies with divergent results. A study by Mohan S V and Dhananjaya Kumar differs from our study by suggesting that closed method although associated with early recovery is associated with more pain and longer operating time compared to the open method.[18] Another study by Khalil Ur Rahman has concluded that close haemorrhoidectomy provides a better outcome in terms of lesser post operative bleeding and complete wound healing but is associated with more pain compared to the open method.[19]

Rafiq K and Scott P D in their study conducted in Mayo hospital Lahore have found out that after 3 weeks 70% treated by closed haemorrhoidectomy had completely healed wounds while only 15% after open haemorrhoidectomy had complete wound healing,[20] thus showing the advantage of closed method. Study by Sheikh A R, and Dalwani A G has shown results similar to ours regarding both post operative pain and time taken in wound healing. According to their study it took 4 weeks for wound healing in closed group compared to about 8 weeks in the open group. Post operative pain score was also considerably lower in closed surgery group.[21] Earlier wound healing and lesser post operative pain was described in the study by Malik G A and Wahab A conducted in BVH Bahawalpur, which has shown wound healing time of less than half, while intensity of post operative pain on VAS was approximately 25.6% less in the patients treated by Ferguson method compared to Milligan Morgan technique.[22] Results from our study are consistent with the above mentioned studies showing advantage of close method compared to open method in terms of post operative pain and wound healing. Although a vast number of studies as mentioned above show better outcome after close method of haemorrhoidectomy regarding post operative pain, there are some studies with divergent results. A study by Mohan S V and Dhananjaya Kumar differs from our study by suggesting that closed method although associated with early recovery is associated with more pain and longer operating time compared to the open method.[18] Another study by Khalil Ur Rahman has concluded that close haemorrhoidectomy provides a better outcome in terms of lesser post operative bleeding and complete wound healing but is associated with more pain compared to the open

method.[19] Contrasting results on post operative pain after close and open techniques are found as evident