

# Risk factors associated with postoperative complications of Milligan Morgan Hemorrhoidectomy in a tertiary care hospital

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**ABSTRACT**

**Introduction:** Milligan Morgan hemorrhoidectomy, considered the gold standard surgical treatment, involves major postoperative complications such as pain, urinary retention, wound infection, anastomotic leakage, ileus, and bleeding.

**Materials & Methods:** A descriptive cross-sectional study was conducted in April 2019, based on review of retrospective data of patients that came to General Surgery department, Rehman Medical Institute, Peshawar, with hemorrhoids and underwent hemorrhoidectomy from March 2018 to March 2019. Stratified random sampling was used based on grades of hemorrhoids to retrieve data of all patients undergoing Milligan Morgan hemorrhoidectomy; patients with other colorectal or additional disease were excluded. Data were analyzed on SPSS 20 for descriptive statistics.

**Results:** A total of 103 patients were included in this study, 77 (74.7%) males were included and 26 (25.2%) females were included. The major risk factors present were loose stools 24 (23%), constipation 20 (19.4%) and portal hypertension 07(6.7%). Main postoperative complications were pain 62(60.1%), wound infection 60(58%) and bleeding 53(51%).

**Conclusion:** Postoperative complications of Milligan Morgan hemorrhoidectomy remain sizable factors to be considered preoperatively and relevant risk factors promoting complications should be addressed prior to surgery.

**Keywords:** Milligan Morgan Hemorrhoidectomy, Hemorrhoids, loose stools, constipation, Post-operative pain, Post-operative wound infection.

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**INTRODUCTION**

Hemorrhoids are defined as the symptomatic increase and distal displacement of the normal anal cushions.<sup>1</sup> Hemorrhoids may represent the fourth common outpatient gastrointestinal condition. It has estimated prevalence of 4.4% worldwide; 50% of people older than 40 years age may have hemorrhoids. Males and females are equally affected by the disease.<sup>2</sup> Hemorrhoids are divided into external and internal; there are four grades of internal hemorrhoids as given by Goligher, and are given in Table 1.<sup>3</sup>

**Table 1: Grades of Hemorrhoids (Goligher)<sup>3</sup>**

Grade	Description
I	Normal appearance externally, bleeding but not prolapsing
II	Anal cushions prolapse on straining but recovers simultaneously
III	Anal cushions prolapse on straining but requires manual reduction
IV	Permanent prolapse and irreducible

Hemorrhoidectomy means the elimination of internal and external hemorrhoids, with the fixation of adjacent tissues, abolishing the symptoms and the physical findings presented by the patients before the surgery.<sup>4</sup> The Milligan Morgan open hemorrhoidectomy is the most widely practiced surgical technique used for the management of hemorrhoids and is considered the current "gold standard". In this technique hemorrhoidal tissue is excised and wound is left open to heal by secondary intention.<sup>5</sup> In Grade 3 and 4, hemorrhoidectomy is considered as the best option of treatment.<sup>6</sup>

Risk factors leading to increased incidence of hemorrhoids and postoperative complications of hemorrhoidectomy include prolonged straining, inadequate fiber intake, portal hypertension, prolonged lavatory sitting, constipation, diarrhea, ascites, and pelvic space-occupying lesions. Pregnancy predisposes women to hemorrhoids, however these usually resolve after delivery.<sup>1</sup>

Straining and constipation were seen in the majority of patients along with chronic cough in an Indian study;<sup>7</sup> major postoperative

complications were pain, urinary retention, wound infection, anastomotic leakage, ileus, and bleeding. Patient risk factors useful for predicting postoperative complications include older age, comorbidity (neurologic, cardiorespiratory, diabetic), and low preoperative albumin.<sup>8-10</sup>

Operative variables found to predict morbidity included emergent operation, longer operative time (>120 minutes), and peritoneal contamination.<sup>10</sup> Among the many postoperative complications, pain is the chief one; this aspect has been analyzed in several studies, as hemorrhoidectomy is a procedure in which severe pain (opioid requirements in analgesic management) occurs in 20–40% of patients.<sup>8</sup> The major reason for postoperative pain is the incision applied during surgery, the sutures that were applied to close the mucosa, surgical infection and cauterization;<sup>6</sup> second to postoperative pain, urinary retention is considered the most common symptom leading to increased morbidity in patients of hemorrhoidectomy, with an incidence of 1-52%.<sup>9</sup> In comparative studies, such as that done in Liaquat University Hospital, Pakistan, it was shown that the postoperative pain in Milligan Morgan alone was higher than that done alongside lateral sphincterotomy.<sup>11</sup> Currently, closed hemorrhoidectomy is done and believed to be less painful and rapid wound healing, but a disagreement is still ongoing about these techniques.<sup>12</sup>

Hemorrhoids has a prevalence of 4.4% worldwide and the results are still not final. It is estimated that nearly 50% of all US citizen get hemorrhoids around age 50 years. The burden of disease (hemorrhoids) in Pakistan has not been studied, so there are no recorded data on prevalence or risk factors in Peshawar, Khyber Pakhtunkhwa. Many patients take over-the-counter medications, making it difficult to know the extent of the disease. The risk factors, complications and treatment options vary from person to person. As Pakistan is a developing country, so not many people opt for costly procedures like Stapled Hemorrhoidectomy.

This study intends to provide an insight about the association of preoperative risk factors for hemorrhoids with postoperative complications of Milligan Morgan Hemorrhoidectomy, as well as treatment of these complications in a tertiary care hospital of Peshawar, Khyber Pakhtunkhwa, Pakistan.

## MATERIALS & METHODS

A descriptive cross sectional study was conducted in April 2019 at the Department of Surgery, Rehman Medical Institute (RMI) based on reviewed medical and surgical records of patients who had undergone Milligan Morgan hemorrhoidectomy from March 01, 2018 till March 31, 2019. Out of the total cases, a sample of 103 patients was selected through stratified random sampling based on the grading of hemorrhoids. A self-made Performa was used to identify the risk factors, symptoms, and postoperative complications. The frequencies of preoperative risk factors, postoperative complications, and their correlation with gender were studied. Patients that had any additional anorectal disease (anorectal cancer, fistula, abscess etc.) and those that underwent other surgical procedures i.e. Stapled Hemorrhoidectomy were not included in the study. Approval was obtained from the RMI Research Ethics Committee (REC)

and the hospital Director Medical Services (DMS). Data were analyzed through SPSS 20 for descriptive statistics.

## RESULTS

A total of 103 patients were included in this study comprised of 77 males and 26 females that had undergone Milligan Morgan Hemorrhoidectomy. The presence of risk factors in patients with Hemorrhoids was analyzed.

Table 1 shows that 66 (64.07%) patients had risk factors leading to hemorrhoids, and 98 (95.14%) patients had post-operative complications.

Loose stools and constipation together were the most common risk factors (44, 42.7%), followed by smaller contributions of portal hypertension (07, 06.8%), and prolonged straining at stool (06, 05.8%); other risk factors were minor contributors.

Regarding postoperative complications, there were a total of 204 complications, as some patients had multiple complications. The three major complications were pain (62, 60.2%), wound infection (60, 58.3%), and bleeding (53, 51.5%); urinary retention occurred in 26 (25.2%) and hemorrhoids recurred in 03 (02.9%) of patients.

**Table 1: Risk factors and postoperative complications in patients undergoing Milligan Morgan hemorrhoidectomy (n=103). Some patients had multiple complications.**

Variables	f	%
<b>Preoperative Risk Factors (n=66)</b>		
Loose stools / diarrhea	24	23.3
Constipation	20	19.4
Portal Hypertension	07	06.8
Prolonged Straining	06	05.8
Inadequate fiber intake	03	02.9
Diabetes	03	02.9
Ascites	02	01.9
Prolonged lavatory sitting	01	01.0
<b>Postoperative Complications (n=98)</b>		
Pain	62	60.2
Wound Infection	60	58.3
Bleeding	53	51.5
Urinary Retention	26	25.2
Hemorrhoid recurrence	03	02.9

Table 2 shows the distribution of preoperative risk factors by the postoperative complications; a total of 116 risk factors were noted in 98 patients with postoperative complications.

Loose stools and constipation together accounted for 84 (72.4%) of the total risk factors; they made up for 25/38 (65.8%) of risk factors for pain, 13/17 (76.5%) of risk factors for urinary retention, 22/29 (75.9%) of risk factors for wound infection, and 23/31 (74.2%) of risk factors for bleeding; for hemorrhoid recurrence, constipation was the sole risk factor (100%).

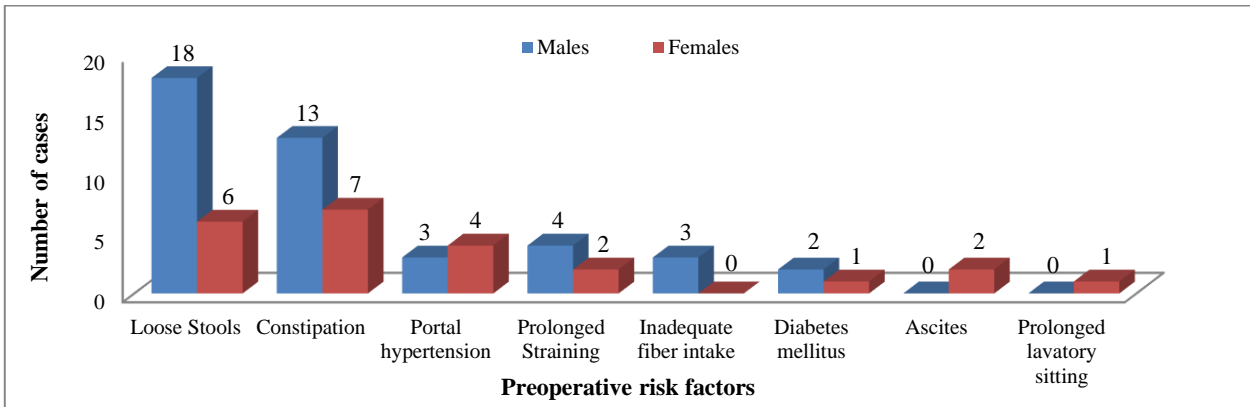
The next frequent risk factor was prolonged straining (14, 12.1%); it accounted for 04 (10.5%) of risk factors for pain, 03 (17.6%) of risk factors for urinary retention, 03 (10.3%) of risk factors for wound infection, and 04 (12.9%) of risk factors for bleeding. Other risk factors were found to be in smaller frequencies.

**Table 2: Distribution of preoperative risk factors by postoperative complications in patients undergoing Milligan Morgan Hemorrhoidectomy (n=98).**

Preoperative Risk Factors	Postoperative Complications f (%)					Total
	Pain	Urinary Retention	Wound Infection	Bleeding	Hemorrhoid Recurrence	
Prolonged Straining	04 (10.5)	03 (17.6)	03 (10.3)	04 (12.9)	-	14 (12.1)
Inadequate Fiber Intake	03 (07.9)	-	01 (03.4)	01 (03.2)	-	05 (04.3)
Portal Hypertension	03 (07.9)	-	-	01 (03.2)	-	04 (03.4)
Prolonged Lavatory Sitting	01 (02.6)	01 (05.9)	01 (03.4)	-	-	03 (02.6)
Constipation	11 (28.9)	07 (41.2)	10 (34.5)	11 (35.5)	01 (100)	40 (34.5)
Loose Stools	14 (36.8)	06 (35.3)	12 (41.4)	12 (38.7)	-	44 (37.9)
Diabetes	02 (05.2)	-	01 (03.4)	01 (03.2)	-	04 (03.4)
Ascites	-	-	01 (03.4)	01 (03.2)	-	02 (01.7)
Total	38 (32.8)	17 (14.6)	29 (25.0)	31 (26.7)	01 (0.9)	116

In Figure 1, the distribution of preoperative risk factors is shown by gender. Among 66 patients presenting with risk factors for hemorrhoids, the most common risk factor was loose stools in males (18, 27.27%), with constipation being the second common risk factor in them (13, 19.69%). For females,

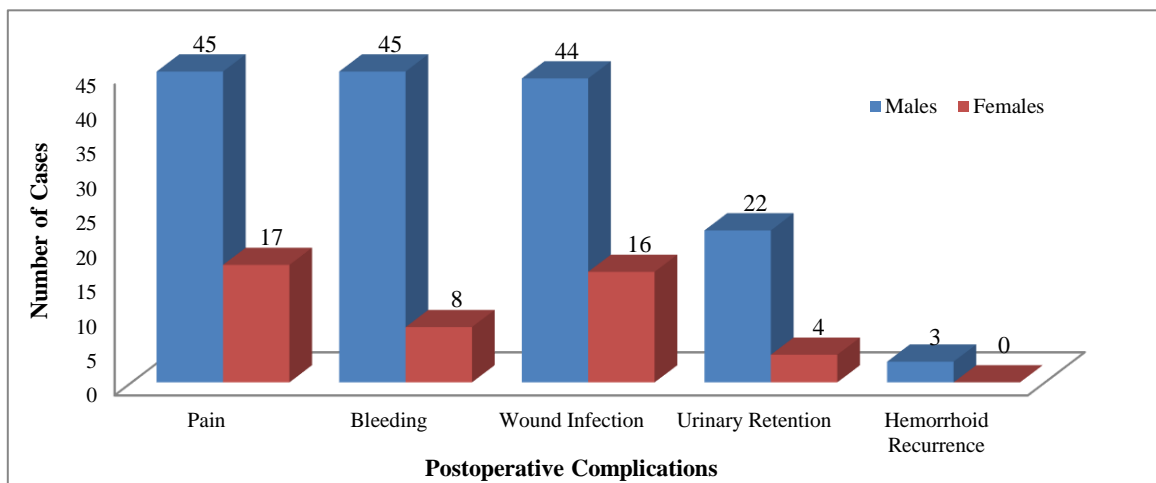
constipation was the most frequent risk factor (07, 10.60%), followed by loose stools (06, 09.09%). Other risk factors such as diabetes, pelvic space lesion, and prolonged straining were at low frequencies. None of the patients with hemorrhoids had chronic cough as a risk factor.



**Figure 1: Distribution of preoperative risk factors for hemorrhoids by gender (n=66).**

In Figure 2, the post-operative complications in males and females are shown. Pain, Bleeding, and Wound Infection, were the three topmost postoperative complications occurring in males, as well as females, though males had much greater frequencies of these complications. Urinary retention was the

fourth most frequent complication in males and females. There were no cases of hemorrhoid recurrence in females, as compared to 03 cases in males. There were no patients that came with fecal incontinence as post-operative complication.



**Figure 2: Distribution of postoperative complications of patients by gender (n=103). Some patients had multiple complications; hence the total number of complications is 204 in 77 males and 26 females.**

## DISCUSSION

Post-operative complications following hemorrhoidectomy are numerous, occurring at variable intervals after surgery. Pain and Bleeding are troublesome early complications, and the new producers of hemorrhoidectomy were primarily designed to minimize these complications. In a study out of 100 patients 73 had pain and 51 had bleeding episodes.<sup>2</sup> Compared to that in our study, a total of 103 patients were selected and analyzed, in which 62 (60.2%) had pain, wound infection was common in our study compared to other researches 60 (58.3%) and bleeding was present in 53 (51.5%). In another study, 2840 cases that had undergone Milligan Morgan hemorrhoidectomy were studied, 20 patients had developed bleeding (0.8% out of 2840) as post-operative complication.<sup>4</sup> In our study, risk factors were compared with the post-operative complications, out of 103 patients, 66 (64.1%) had risk factors pre-operatively. Out of these 66 patients, 45 (68.2%) people developed complications of Milligan Morgan Hemorrhoidectomy.

Another study done to evaluate different techniques showed that Milligan Morgan most common complications in female were pain (23 patients) and bleeding (56 patients);<sup>6</sup> in the study we conducted, 26 females were selected out of which, post-operative pain was present in about (38%), bleeding in (18%) and wound infection (35%). While in the 77 males we had pain, wound infection and bleeding were present in 28%. In another

study,<sup>7</sup> infection came out to be the number one complication amounting to 25% while in our study pain came out to be the most common complication amounting to 62 (60.2%) out of 103 patients that we analyzed.

Risk factors in hemorrhoidectomy should be recognized prior to surgery in order to reduce complications and to initialize individualized treatment as soon as possible.<sup>7</sup> In a study done in India, straining and constipation was seen in majority of the patients while many of them also had chronic cough.<sup>7</sup> In our study the most common risk factor that the patients presented with were loose stools 24 (23%) out of 103 patients, constipation was present in 20 (19%) patients and prolonged straining was present in 6 (5%) patients. Compared to the study done in India, in our study none of the patients that presented with hemorrhoids had chronic cough.

## CONCLUSION

Patients presenting with hemorrhoids and selected for hemorrhoidectomy often have multiple risk factors that are likely to affect the postoperative complications of surgery. Such factors are more common in males and include loose stools and constipation, with which are associated the postoperative complications of pain, bleeding and wound infection.

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