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ORIGINAL ARTICLE

Stapled Haemorrhoidectomy Compared with Milligan-Morgan Excision for the Treatment of Prolapsing Haemorrhoids: A Prospective Study

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ABSTRACT

Background: The Milligan-Morgan excision (MMH) and stapled haemorrhoidectomy (PPH) are widely used surgical techniques for prolapsing haemorrhoids. To compare the efficacy, safety, and postoperative outcomes of stapled haemorrhoidectomy versus Milligan-Morgan excision in Pakistani patients.

Methodology: A prospective comparative cross-sectional study was conducted at the Department of Surgery, Sahiwal Teaching Hospital, Sahiwal, during the period 1/06/2023 to 30/11/2023 involving 60 patients undergoing either PPH (n=29) or MMH (n=31). Data on operative time, postoperative pain (VAS), hospital stay, and complications were collected and analyzed using descriptive statistics, independent t-tests, and Chi-square tests.

Results: A total of 60 patients were enrolled, with 29 undergoing stapled hemorrhoidectomy (PPH) and 31 undergoing Milligan-Morgan hemorrhoidectomy (MMH). The mean operative time was significantly shorter in the PPH group (26.07 ± 5.01 minutes) compared to the MMH group (41.03 ± 7.04 minutes) ($p < 0.001$). Postoperative pain assessed via the Visual Analog Scale (VAS) was markedly lower in the PPH group, with a mean score of 3.17 ± 1.42 versus 7.55 ± 1.21 in the MMH group ($p < 0.001$). Correspondingly, hospital stay was significantly reduced following PPH (1.52 ± 0.57 days) compared to MMH (3.32 ± 0.70 days) ($p < 0.001$). Infection rates were also higher in the MMH group, with 18 patients affected versus none in the PPH group ($p < 0.001$). Anal stenosis was observed in 26 MMH patients compared to only 2 in the PPH group ($p < 0.001$).

Conclusion: Stapled haemorrhoidectomy offers advantages over Milligan-Morgan excision in terms of operative duration, patient comfort, recovery speed, and lower complication rates, supporting its preference in clinical practice despite higher costs.

Keywords: Stapled haemorrhoidectomy; Milligan-Morgan haemorrhoidectomy; prolapsing haemorrhoids; urinary retention; anal stenosis.

INTRODUCTION

Hemorrhoids, commonly known as piles, represent one of the most prevalent anorectal disorders worldwide, affecting an estimated two-thirds of the global population[1]. Clinically, hemorrhoids manifest through symptoms such as pain, bleeding, and prolapse, primarily due to oedema of the vascular cushions within the anal canal[2]. While mild cases may be managed conservatively, severe, recurrent, or refractory hemorrhoids often necessitate surgical intervention[3]. In Pakistan, the incidence of hemorrhoids is notably high, largely attributed to dietary habits characterized by low fiber intake, sedentary lifestyles, and poor bowel habits[5]. These factors contribute to delayed healthcare-seeking behavior, resulting in advanced disease stages that commonly require surgical treatment[6].

Among surgical options, the Milligan-Morgan excisional hemorrhoidectomy, introduced in 1937, remains the gold standard globally due to its effective long-term outcomes[7]. However, this technique is associated with considerable postoperative pain, prolonged hospital stays, and delayed return to normal activities, which pose challenges in resource-limited settings like Pakistan[9]. In contrast, stapled hemorrhoidectomy, or stapled hemorrhoidopexy, developed by Longo in 1998, offers a less invasive alternative by repositioning prolapsed tissue rather than excising it, resulting in reduced postoperative pain and quicker recovery[11]. Despite its advantages, stapled hemorrhoidectomy is less commonly performed in Pakistan due to higher equipment costs and limited surgeon training[12].

Previous studies in Pakistan have reported higher recurrence rates following stapled hemorrhoidectomy compared to Milligan-Morgan excision, raising concerns about its long-term efficacy in low-resource contexts[15]. Additionally, the economic burden of the stapled technique remains a significant consideration given the financial constraints faced by many patients[19]. Therefore, a comprehensive evaluation comparing these two procedures in terms of clinical outcomes, complications, recurrence rates, and cost-effectiveness is essential to guide surgical decision-making within the Pakistani healthcare system.

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This prospective comparative study aims to fill the existing knowledge gap by assessing and comparing the effectiveness, safety profile, postoperative complications, and recurrence rates of stapled hemorrhoidectomy versus Milligan-Morgan hemorrhoidectomy in Pakistani patients with prolapsing hemorrhoids. The findings are intended to provide evidence-based recommendations that optimize patient outcomes and resource utilization in this setting.

METHODOLOGY

A prospective comparative cross-sectional study was conducted at the Department of Surgery, Sahiwal Teaching Hospital, Sahiwal, during the period 1/06/2023 to 30/11/2023 assessing early postoperative outcomes of patients undergoing either Stapled Haemorrhoidectomy (PPH) or Milligan-Morgan Haemorrhoidectomy (MMH). Sixty patients aged ≥18 years with prolapsing haemorrhoids scheduled for surgery were enrolled. Patients with prior haemorrhoid surgery, malignancies, or other anorectal disorders were excluded. Outcomes were recorded via standardized questionnaires adapted from Khan et al. (2009) at multiple postoperative time points (day of surgery, day 1, weeks 1–2). Variables included operative time (minutes), pain (VAS 0–10), hospital stay (days), and postoperative complications (bleeding, infection, urinary retention, anal stenosis, wound discharge, recurrence). Pain and tenderness were scored on Likert scales (1–5).

Statistical Analysis: Descriptive statistics summarized continuous variables (mean, SD) and categorical variables (frequency, percentage). Independent samples t-tests compared continuous outcomes between groups. Chi-square tests evaluated associations between procedure type and categorical complications. A p-value <0.05 indicated statistical significance. Ethical approval was obtained from the Institutional Review Board, and informed consent was secured from all participants.

RESULTS

A total of 60 patients with prolapsing haemorrhoids were enrolled in this prospective comparative study, with 29 undergoing Stapled Haemorrhoidectomy (PPH) and 31 undergoing Milligan-Morgan

Haemorrhoidectomy (MMH). The mean age differed significantly between groups, with the PPH group younger (36.03 ± 8.20 years) compared to the MMH group (47.77 ± 8.19 years).

Table 1: Operative Time, Postoperative Pain, and Hospital Stay

Variable	Stapled Haemorrhoidectomy (n=29)	Milligan Morgan (n=31)	p-value
Age (years, mean ± SD)	36.03 ± 8.20	47.77 ± 8.19	-
Operative Time (min)	26.07 ± 5.01	41.03 ± 7.04	<0.001
VAS Pain (0–10)	3.17 ± 1.42	7.55 ± 1.21	<0.001
Hospital Stay (days)	1.52 ± 0.57	3.32 ± 0.70	<0.001

The PPH group showed markedly fewer postoperative complications across all parameters compared to the MMH group. Most PPH patients had no postoperative bleeding (89.7% vs. 3.2%), and urinary retention was rare (3.4% vs. 90.3%). No infections or recurrences occurred in the PPH group, while the MMH group showed high rates of both (58.1% infections and 51.6% recurrence). Anal stenosis was significantly lower in PPH patients (6.9% vs. 83.9%), and wound discharge was also uncommon (3.4% vs. 90.3%). Overall, PPH demonstrated a substantially superior postoperative profile with significantly fewer complications.

Table 2: Complications and their comparison between two groups

Complication	Stapled Haemorrhoidectomy (n=29)	Milligan Morgan (n=31)	χ^2 (p-value)
Postoperative Bleeding (None)	26 (89.7%)	1 (3.2%)	46.133 (<0.001)
Urinary Retention (Yes)	1 (3.4%)	28 (90.3%)	45.283 (<0.001)
Infection (Yes)	0 (0%)	18 (58.1%)	24.055 (<0.001)
Anal Stenosis (Yes)	2 (6.9%)	26 (83.9%)	35.669 (<0.001)
Wound Discharge (Yes)	1 (3.4%)	28 (90.3%)	45.283 (<0.001)
Recurrence (Yes)	0 (0%)	16 (51.6%)	20.411 (<0.001)

Levene's test confirmed homogeneity of variances for operative time, VAS pain, and hospital stay. Independent samples t-tests demonstrated highly significant differences favoring the PPH group for all three continuous variables ($p < 0.001$). Chi-square tests revealed strong associations between surgical procedure and all categorical postoperative complications, with p-values < 0.001, indicating significantly better outcomes in the PPH group.

These results demonstrate that Stapled Haemorrhoidectomy offers significant advantages over Milligan-Morgan Haemorrhoidectomy in operative efficiency, postoperative pain reduction, shorter hospitalization, and lower complication and recurrence rates among Pakistani patients with prolapsing haemorrhoids.

DISCUSSION

This study provides a comparative analysis of Stapled Haemorrhoidectomy (PPH) and Milligan-Morgan Haemorrhoidectomy (MMH) in the treatment of prolapsing haemorrhoids, focusing on operative time, postoperative pain, hospital stay, and complication rates. The findings demonstrate that PPH is associated with significantly shorter operative times compared to MMH, which aligns with previous research indicating the less invasive nature of the stapled technique reduces surgical duration[11]. Specifically, the mean operative time difference of approximately 15 minutes is statistically significant and clinically relevant, supporting the efficiency of PPH.

Postoperative pain is a critical factor influencing patient recovery and satisfaction. This study found that patients undergoing PPH reported significantly lower pain scores on the Visual Analog Scale (VAS) compared to those treated with MMH. These results corroborate Khan et al.'s findings that PPH results in reduced postoperative pain due to minimal tissue excision and less trauma[12]. However, Gan highlighted variability in pain outcomes, noting that individual patient factors and surgical technique nuances may influence pain levels[13]. Despite this, the overall evidence favors PPH for better postoperative comfort.

Hospital stay duration was also significantly shorter for patients receiving PPH, indicating faster recovery and earlier discharge. This observation is consistent with other studies that report PPH facilitates quicker return to normal activities due to reduced pain and complications[12,14]. The shorter hospitalization has important implications in resource-limited settings such as Pakistan, where hospital bed availability and costs are critical concerns.

Regarding postoperative complications, this research identified a markedly lower incidence of bleeding, urinary retention, infection, anal stenosis, and wound discharge in the PPH group compared to MMH. The reduced bleeding is attributed to the lower tissue trauma inherent in the stapled approach, which aligns with Bakhtiar et al.'s conclusions[15]. The high rate of urinary retention in the MMH group is consistent with findings by Chik et al., who associated more invasive traditional techniques with increased urinary complications[16]. Infection rates were significantly lower after PPH, supporting Krishnan et al.'s assertion that less tissue manipulation reduces infection risk[17]. Similarly, the significantly higher occurrence of anal stenosis in MMH patients is well documented in the literature and is linked to extensive excision and scarring[18].

It is important to consider that surgical outcomes may be influenced by patient demographics, comorbidities, and surgeon expertise, as noted by Birkmeyer et al.[19]. The relatively small sample size and single-center design of this study may limit the generalizability of the findings. Future multicenter studies with larger cohorts and longer follow-up periods are recommended to assess long-term efficacy, recurrence rates, and patient satisfaction comprehensively. Additionally, economic evaluations comparing the cost-effectiveness of PPH and MMH in resource-constrained healthcare systems like Pakistan would provide valuable insights for clinical decision-making.

CONCLUSION

Stapled Haemorrhoidectomy demonstrates superior outcomes compared to Milligan-Morgan Haemorrhoidectomy in operative efficiency, patient comfort, recovery time, and postoperative complications. These advantages support the adoption of PPH as a preferred surgical option for prolapsing haemorrhoids in Pakistan.

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