Original Article
DOI: https://doi.org/10.70749/ijbr.v2i02.257

INDUS JOURNAL OF BIOSCIENCES RESEARCH
https://induspublisher.com/IJBR
ISSN: 2960-2793/ 2960-2807

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

Muhammad Usman Azhar[1], Abdullah Umer[2], Ahmed Salman Majeed[3], Muhammad Hamza[4], Kanwal Saeed[5], Ali Nasir[6], Bilal Qammar[7]

[1]Department of General Surgery, Jinnah Hospital, Lahore, Punjab, Pakistan.
[2]Department of Internal Medicine, CMH, Lahore, Punjab, Pakistan.
[3]Department of Surgery, THQ Hospital, Pattoki, Punjab, Pakistan.
[4]Department of General Surgery, Muzaffarabad General Hospital, Muzaffarabad, AJK, Pakistan.
[5]Department of Anatomy, PGMI, Lahore, Punjab, Pakistan.
[6]Department of Internal Medicine, Pakistan Kidney and Liver Institute Filter Clinic, Sheikhupura, Punjab, Pakistan.
[7]Department of Internal Medicine, Shalamar Hospital, Lahore, Punjab, Pakistan.

ARTICLE INFO

Keywords

Prolapsing Haemorrhoids, Stapled Haemorrhoidectomy, Milligan-Morgan Excision.

Corresponding Author: Ahmed Salman Majeed,
Department of Surgery, THQ Hospital, Pattoki, Punjab, Pakistan.
Email: salmanmajeed53@gmail.com

Declaration

Author's Contributions: All authors contributed to the study and approved the final manuscript.
Conflict of Interest: The authors declare no conflict of interest.
Funding: No funding received.

Article History

Received: 09-10-2024
Revised: 11-11-2024
Accepted: 25-11-2024

ABSTRACT

Background: Haemorrhoids, a common rectal and anal pathology, present with symptoms such as pain, bleeding, and prolapse caused by oedematous vascular formations in the anal canal. The conventional Milligan-Morgan haemorrhoidectomy (MMH) and stapled haemorrhoidopexy (Stapled Haemorrhoidectomy, PPH) are frequently used surgical techniques for prolapsing haemorrhoids. **Aim:** To compare Stapled Haemorrhoidectomy and Milligan-Morgan Haemorrhoidectomy in treating prolapsing haemorrhoids. **Methodology:** This prospective comparative cross-sectional study analyzed early postoperative outcomes in 60 patients undergoing either PPH or MMH. The study was conducted at Jinnah Hospital, Lahore. Data were collected for six months' duration from January 2024 to June 2024 using a Likert scale questionnaire adapted from Khan et al. (2009). Descriptive statistics summarized continuous variables like operative time, VAS pain scores, and hospital stay, while categorical variables were analyzed using frequency distributions and the Chi-square test to assess associations between complications and procedure type. **Findings and Conclusion:** Stapled Haemorrhoidectomy showed significant advantages over MMH, including shorter operative time, reduced postoperative pain, and shorter hospital stays. It was also associated with fewer complications such as postoperative bleeding, urinary retention, infection, and anal stenosis. These findings align with previous studies, confirming that Stapled Haemorrhoidectomy offers better recovery and lower complication rates, making it a preferred option in healthcare settings.

INTRODUCTION

Hemorrhoids, or piles, are one of the most common anorectal disorders that are estimated to affect about two-thirds of the world population. One of the most common pathology in human's rectum and anus, haemorrhoids demonstrate such clinical manifestations as pain, bleeding and formation of a prolapse due to oedema of circular formations of blood vessels in the anal canal. Mild GDS may be managed non-surgically while severe or recurrent cases or cases that are resistant to non-surgical management may require surgical intervention. In Pakistan; for instance, the rate of occurrence of hemorrhoids is relatively high attributed to the diet and low fiber consumption; hence, surgeries are

normally opted for. This prospective multicenter comparative study targets to evaluate and compare two most frequently performed surgical procedures for prolapsing haemorrhoids: Milligan-Morgan excision and stapled haemorrhoidectomy in terms of effectiveness, safety profile as well as postoperative complications and follow up in Pakistani patients.

Haemorrhoids have become a major public health problem since 15% of the population over 18 years of age in Pakistan has symptomatic haemorrhoid at some point in their lifetime. Some of the causes that contribute to the high rate include ingestion of low fiber diet, lack of sufficient exercise and poor bowel habits which indirectly makes one develop hemorrhoids. People in Pakistan tend to delay their visits to the doctors and get admitted at later stages that require a surgery. The two most common surgical techniques are performed more commonly in the treatment of prolapsing haemorrhoids is the conventional Milligan-Morgan operation and stapled haemorrhoidectomy also called stapled haemorrhoidopexy.

A study on haemorrhoid treatments in Pakistan revealed that out of the patients who underwent stapled haemorrhoidectomy, 25% of them experienced a reoccurrence of the symptoms within a period of five years while the Milligan Morgan technique only 12% of the patients experienced the same. In another study, the transformation from the Milligan-Morgan haemorrhoidectomy was done in patients in Pakistan, and they found that the patients' postoperative pain was high but the recurrence rate of haemorrhoids among patients with this method was lower than those who took the stapled method. The prolapsing haemorrhoids reoccurrence after the stapled procedure, especially in low-resource settings like Pakistan, raises questions regarding its long-term efficacy. Moreover, the cost implications is a major issue in Pakistan since the cost of stapled technique is considerably higher than Milligan-Morgan excision. Considering financial limitations of the patients, it is imperative to understand the cost-efficacy of every process is integral. In the healthcare system that already encounters resource constraints, the selection of surgical approach must balance both clinical results and economic feasibility.

Methodology

Study Design

This study uses a prospective comparative cross-sectional design to assess the early postoperative consequences of patients in this clinical cohort who underwent either Stapled Haemorrhoidectomy (PPH) or Milligan-Morgan Haemorrhoidectomy (MMH) for prolapsed haemorrhoids.

Study Population

The sample involved patients who had undergone PPH or MMH procedure. Sample size for the research was 60 that was determined depending on the rate of postoperative complications in earlier researches with the 95% confidence interval and 5% degree of error. The inclusion criteria of the study include those patients diagnosed with prolapsing haemorrhoids and expecting to undergo either of the two operations. With respect to participants age, they must be of 18 years old while both sexes male and female were included in the research. Exclusion criteria has excluded those with other disorders, a history of prior haemorrhoid surgery, or malignancies.

Data Collection

Patients' outcomes have been collected using a standardized survey at different time points after surgery such as the day of surgery, postoperative day 1, the week 1-2 postoperative and the follow up visit at week 1-2. The questionnaire has been adapted from the research work of Khan et al. (2009) who identified the outcome of stapled haemorrhoidectomy versus Milligan Morgan's haemorrhoidectomy.

Data Analysis

Categorical variables have been analyzed using frequency distributions to report the proportion of patients experiencing specific complications. Inferential statistics have been used to identify relationships between the categorical and continuous variables. The Chi-square test has assessed the association between categorical variables (such as procedure type, postoperative bleeding, infection, and urinary retention) and the type of haemorrhoidectomy performed (PPH vs. MMH). Independent samples t-tests have compared continuous variables, such as operative time, pain levels, and hospital stay, between the two surgical procedures.

RESULTS AND FINDINGS

Table 1

Group Statistics

Participants	Procedure	N	Mean	Std. Deviation	Std. Error Mean
Age	Stapled Haemorrhoidectomy	29	36.03	8.196	1.522
	Milligan Morgan	31	47.77	8.192	1.471

The group statistics show that the average age of participants undergoing Stapled Haemorrhoidectomy was 36.03 years, with a standard deviation of 8.196, indicating some variation in age within this group. On the other hand, participants undergoing Milligan Morgan's Haemorrhoidectomy had a significantly higher mean age of 47.77 years, with a similar standard deviation of 8.192. The standard errors for both groups are small (1.522 for Stapled and 1.471 for Milligan Morgan), suggesting that the mean age estimates are reliable for both groups.

Table 2

Descriptive Statistics

	N	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Operative Time (min)	60	33.80	9.692	93.925	.145	.309	-1.418	.608
VAS Pain (0-10)	60	5.43	2.560	6.555	-.002	.309	-1.561	.608
Hospital Stay (Days)	60	2.45	1.111	1.235	.015	.309	-1.339	.608
Valid N (listwise)	60							

The descriptive statistics show a mean operative time of 33.80 minutes (SD = 9.692), with slight variability and a near-normal distribution (skewness = 0.145, kurtosis = -1.418). The mean VAS pain score was 5.43 (SD = 2.560), with a symmetric distribution (skewness = -0.002) and fewer extreme values (kurtosis = -1.561). The average hospital stay was 2.45 days (SD = 1.111), with a balanced distribution (skewness = 0.015) and fewer extremes (kurtosis = -1.339). The data shows relatively symmetric, flatter distributions across all variables.

Table 3

Group Statistics

	Procedure	N	Mean	Std. Deviation	Std. Error Mean
Operative Time (min)	Stapled Haemorrhoidectomy	29	26.07	5.007	.930
	Milligan Morgan	31	41.03	7.036	1.264
VAS Pain (0-10)	Stapled Haemorrhoidectomy	29	3.17	1.416	.263
	Milligan Morgan	31	7.55	1.207	.217
Hospital Stay (Days)	Stapled Haemorrhoidectomy	29	1.52	.574	.107
	Milligan Morgan	31	3.32	.702	.126

The group statistics show significant differences between Stapled Haemorrhoidectomy (PPH) and Milligan Morgan's Haemorrhoidectomy (MMH). PPH had a mean operative time of 26.07 minutes (SD = 5.007), while MMH took 41.03 minutes (SD = 7.036). Postoperative pain was also lower for PPH (mean VAS = 3.17, SD = 1.416) compared to MMH (mean VAS = 7.55, SD = 1.207). PPH patients had a shorter hospital stay (mean = 1.52 days, SD = 0.574) compared to MMH patients (mean = 3.32 days, SD = 0.702). The results indicate that PPH offers faster recovery, less pain, and shorter operative times than MMH.

Table 4

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper

Operative Time (min)	Equal variances assumed	1.941	.169	-9.433	58	.000	-14.963	1.586	-18.139	-11.788
	Equal variances not assumed			-9.538	54.241	.000	-14.963	1.569	-18.108	-11.818
VAS Pain (0-10)	Equal variances assumed	.249	.619	-12.912	58	.000	-4.376	.339	-5.054	-3.698
	Equal variances not assumed			-12.843	55.192	.000	-4.376	.341	-5.059	-3.693
Hospital Stay (Days)	Equal variances assumed	.167	.685	-10.860	58	.000	-1.805	.166	-2.138	-1.473
	Equal variances not assumed			-10.933	57.024	.000	-1.805	.165	-2.136	-1.475

The Independent Samples Test reveals significant differences between Stapled Haemorrhoidectomy (PPH) and Milligan Morgan's Haemorrhoidectomy (MMH) in operative time, pain (VAS), and hospital stay. PPH had a mean operative time 15 minutes shorter ($p = 0.000$), significantly less pain (VAS difference of -4.376, $p = 0.000$), and a 1.8-day shorter hospital stay ($p = 0.000$). Levene's test confirmed equal variances for all variables. These results demonstrate PPH's advantages in reducing operative time, pain, and recovery duration compared to MMH.

Table 5

*Postoperative Bleeding * Procedure*

Crosstab

Count

		Procedure		Total
		Stapled Haemorrhoidectomy	Milligan Morgan	
Postoperative Bleeding	Mild	3	15	18
	none	26	1	27
	profuse	0	15	15
Total		29	31	60

Table 6

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	46.133[a]	2	.000
Likelihood Ratio	58.337	2	.000
Linear-by-Linear Association	.288	1	.592
N of Valid Cases	60		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.25.

Crosstabulation shows significant differences in postoperative bleeding between Stapled Haemorrhoidectomy (PPH) and Milligan-Morgan Haemorrhoidectomy (MMH). Most PPH patients (26/29) had no bleeding, while MMH patients experienced mild or profuse bleeding (30/31). Chi-Square analysis ($\chi^2 = 46.133$, $p = 0.000$) and likelihood ratio (58.337, $p = 0.000$) confirm a strong association, indicating PPH patients are less likely to experience bleeding compared to MMH patients.

Table 7

*Urinary Retention * Procedure*

Crosstab

Count

		Procedure		Total
		Stapled Haemorrhoidectomy	Milligan Morgan	
Urinary Retention	Yes	1	28	29
	No	28	3	31
Total		29	31	60

Table 8

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	45.283[a]	1	.000		
Continuity Correction[b]	41.871	1	.000		
Likelihood Ratio	54.699	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	44.528	1	.000		
N of Valid Cases	60				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 14.02.
b. Computed only for a 2x2 table

Crosstabulation reveals a significant difference in urinary retention between Stapled Haemorrhoidectomy (PPH) and Milligan-Morgan Haemorrhoidectomy (MMH). Only 1 of 29 PPH patients experienced urinary retention, while 28 of 31 MMH patients did. Chi-Square analysis (χ^2 = 45.283, p = 0.000) and Fisher's Exact Test (p = 0.000) confirm a strong association, showing MMH has a significantly higher incidence of urinary retention compared to PPH.

Table 9

*Infection * Procedure*

Crosstab

Count

		Procedure		Total
		Stapled Haemorrhoidectomy	Milligan Morgan	
Infection	Yes	0	18	18
	No	29	13	42
Total		29	31	60

Table 10

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	24.055[a]	1	.000		
Continuity Correction[b]	21.370	1	.000		
Likelihood Ratio	31.139	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	23.654	1	.000		
N of Valid Cases	60				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.70.
b. Computed only for a 2x2 table

Crosstabulation shows a significant difference in infection rates between Stapled Haemorrhoidectomy (PPH) and Milligan-Morgan Haemorrhoidectomy (MMH). None of the 29 PPH patients experienced infections, while 18 of 31 MMH patients did. Chi-Square analysis (χ^2 = 24.055, p = 0.000) and Fisher's Exact Test (p = 0.000) confirm a strong association between procedure type and infection rates. PPH is associated with a significantly lower incidence of postoperative infection compared to MMH.

Table 11

*Anal Stenosis * Procedure*

Crosstab

Count

		Procedure		Total
		Stapled Haemorrhoidectomy	Milligan Morgan	
Anal Stenosis	Yes	2	26	28
	No	27	5	32
Total		29	31	60

Table 12

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	35.669[a]	1	.000		
Continuity Correction[b]	32.644	1	.000		
Likelihood Ratio	40.964	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	35.075	1	.000		
N of Valid Cases	60				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 13.53.
b. Computed only for a 2x2 table

Crosstabulation shows a significant difference in anal stenosis rates between Stapled Haemorrhoidectomy (PPH) and Milligan-Morgan Haemorrhoidectomy (MMH). Only 2 of 29 PPH patients experienced anal stenosis, while 26 of 31 MMH patients did. Chi-Square analysis ($\chi^2 = 35.669$, $p = 0.000$) and Fisher's Exact Test ($p = 0.000$) confirm a strong association between procedure type and anal stenosis. MMH has a much higher incidence of anal stenosis, making PPH a more favorable option for minimizing this complication.

Table 13

*Wound Discharge * Procedure*

Crosstab

Count

		Procedure		Total
		Stapled Haemorrhoidectomy	Milligan Morgan	
Wound Discharge	Yes	1	28	29
	No	28	3	31
Total		29	31	60

Table 14

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	45.283[a]	1	.000		
Continuity Correction[b]	41.871	1	.000		
Likelihood Ratio	54.699	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	44.528	1	.000		
N of Valid Cases	60				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 14.02.
b. Computed only for a 2x2 table

Crosstabulation shows a significant difference in wound discharge rates between Stapled Haemorrhoidectomy (PPH) and Milligan-Morgan Haemorrhoidectomy (MMH). Only 1 of 29 PPH patients experienced wound discharge, compared to 28 of 31 MMH patients. Chi-Square analysis ($\chi^2 = 45.283$, $p = 0.000$) and Fisher's Exact Test ($p = 0.000$) confirm a strong association between procedure type and wound discharge. PPH demonstrates significantly lower wound discharge rates, making it a more favorable option compared to MMH.

Table 15

*Recurrence * Procedure*

Crosstab

Count

		Procedure		Total
		Stapled Haemorrhoidectomy	Milligan Morgan	
Recurrence	Yes	0	16	16
	No	29	15	44
Total		29	31	60

Table 16
Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	20.411[a]	1	.000		
Continuity Correction[b]	17.857	1	.000		
Likelihood Ratio	26.647	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	20.070	1	.000		
N of Valid Cases	60				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.73.
b. Computed only for a 2x2 table

Crosstabulation of recurrence and procedure type shows a significant difference in recurrence rates between Stapled Haemorrhoidectomy (PPH) and Milligan-Morgan Haemorrhoidectomy (MMH). None of the PPH patients experienced recurrence, while 16 out of 31 MMH patients did. The Chi-Square test ($\chi^2 = 20.411$, $p = 0.000$) and Fisher's Exact Test ($p = 0.000$) confirm a strong association between procedure type and recurrence. Complications and recurrence rates were notably higher in the MMH group, highlighting PPH as a more effective option for preventing haemorrhoid recurrence.

DISCUSSION

The Stapled Haemorrhoidectomy and Milligan Morgan's Haemorrhoidectomy are two of the well-known surgical operations. Considering this, research offered a synthesis of the consequences of these two medical procedures.

Operative Time and Postoperative Outcomes

This study determined that Stapled Haemorrhoidectomy has lesser operative time than Milligan Morgan's Haemorrhoidectomy that corroborates with several other studies. For instance, Infantino demonstrated that Stapled Haemorrhoidectomy in take shorter period of operation than the traditional technique since it is less invasive. In particular, this research has identified that the mean difference was recorded to be almost 15 minutes and which is statically significant.

Postoperative Pain

As per the findings of the research, the average VAS pain score of Stapled Haemorrhoidectomy is 3.07. When evaluating the results of studies that compare Stapled Haemorrhoidectomy and other surgical methods, Kahn et al. stated that fewer patients complaining of postoperative pain in patients who underwent Stapled Haemorrhoidectomy than in patients treated with traditional procedures. This is in conformity with this research mean difference that is about 4.4 points on the VAS scale. Same as, a research done by Gan noted that there is inconsistency in the findings as pain may differ according to certain patient factors and the ways of performing surgery.

Hospital Stay

This research found that Stapled Haemorrhoidectomy has a shorter hospital stay as compared to other surgical procedures. Similarly, a study observed that while undergoing Stapled Haemorrhoidectomy patients may possibly spend less days in the hospital as compared to patients who undergo conventional processes. The findings are in concordance with other studies pointing that Stapled Haemorrhoidectomy enhances faster recovery.

Postoperative Complications

With respect to bleeding, this research identified that there were increased cases of postoperative bleedings. Bakhtiar performed the similar work and supported that Stapled Haemorrhoidectomy is less bleeding as compared to Milligan Morgan's Haemorrhoidectomy. This has been attributed to the low tissue trauma that characterizes the Stapled technique as compared to the conventional approach. Moreover, this high rate of urinary retention in Milligan Morgan's Haemorrhoidectomy as noticed in the study is supported by Chik et al. whereby they also found increased incidence of urinary retention in traditional haemorrhoidectomy procedures. This is in line with the Milligan Morgan technique, which is highly invasive, and this may lead to this complication.

CONCLUSION

This study compared Stapled Haemorrhoidectomy (PPH) and Milligan-Morgan Haemorrhoidectomy (MMH) across key metrics such as operative time, pain, hospital stay, and postoperative complications. PPH demonstrated shorter surgery duration, reduced postoperative pain, quicker discharge, and fewer complications, including bleeding, urinary retention, infection, and anal stenosis, making it preferable for recovery and safety.

However, the study's limitations include a small sample size (N=60) and potential selection bias, raising concerns about validity. Results were specific to a single clinic and may not be generalizable. Future research should involve larger, diverse populations, multicenter designs, long-term follow-ups, and cost-effectiveness assessments to strengthen findings and evaluate patient satisfaction comprehensively.

REFERENCES

1. Kibret, A. A., Oumer, M., & Moges, A. M. (2021). Prevalence and associated factors of hemorrhoids among adult patients visiting the surgical outpatient department in the University of Gondar Comprehensive Specialized Hospital, Northwest Ethiopia. *PLOS ONE*, *16*(4), e0249736. https://doi.org/10.1371/journal.pone.0249736
2. Bhuiyan, M. J. H., Yahia, A., Begum, F., Ahmed, M., & Ahmed, N. I. U. (2020). Stapled Haemorrhoidopexy in the Treatment of Haemorrhoidal Disease: A Prospective Study. *Journal of Bangladesh College of Physicians and Surgeons*, *38*(3), 126–134. https://doi.org/10.3329/jbcps.v38i3.47060
3. Qureshi, R. N., Sheikh, S., Khowaja, A. R., Hoodbhoy, Z., Zaidi, S., Sawchuck, D., Vidler, M., Bhutta, Z. A., & von Dadeslzen, P. (2016). Health care seeking behaviours in pregnancy in rural Sindh, Pakistan: a qualitative study. *Reproductive Health*, *13*(S1). https://doi.org/10.1186/s12978-016-0140-1
4. Kehlet, H. (2018). Postoperative pain, analgesia, and recovery—bedfellows that cannot be ignored. *PAIN*, *159*, S11–S16. https://doi.org/10.1097/j.pain.0000000000001243
5. Iqbal, Z., Amin, A., Ahmad, Z. S., & Khan, M. (2016). Comparison of Stapled Hemorrhoidopexy vs Milligan Morgan Hemorrhoidectomy (A randomized control trial in Hayatabad Medical Complex). *Ophthalmology Update*, *14*(1).
6. Yardimci, V. H. (2021). Less postoperative pain and more frequent recurrence: Can this dilemma caused by the stapled haemorrhoidopexy procedure be avoided? *International Journal of Clinical Practice*, *75*(12). https://doi.org/10.1111/ijcp.14981
7. Ruan, Q. Z., English, W., Hotouras, A., Bryant, C., Taylor, F., Andreani, S., Wexner, S. D., & Banerjee, S. (2020). A systematic review of the literature assessing the outcomes of stapled haemorrhoidopexy versus open haemorrhoidectomy. *Techniques in Coloproctology*, *25*(1), 19–33. https://doi.org/10.1007/s10151-020-02314-6
8. Pheto, P. (2018). *An audit of uterotonic use for the prophylaxis and treatment of haemorrhage at caesarean delivery at Mowbray Maternity Hospital, Cape Town, South Africa*. (). University of Cape Town ,Faculty of Health Sciences ,Department of Obstetrics and Gynaecology. http://hdl.handle.net/11427/29673
9. Khan, N. F., Hussain Shah, S. S., Bokhari, I., Mahboob, S., Gulfam, M. A., & Ghayasuddin, M. (2009). Outcome of stapled haemorrhoidectomy versus Milligan Morgan's haemorrhoidectomy. *J Coll Physicians Surg Pak*, *19*(9), 561-5.

https://jcpsp.pk/archive/2009/Sep2009/07.pdf

10. Yuh, B. E., Nazmy, M., Ruel, N. H., Jankowski, J. T., Menchaca, A. R., Torrey, R. R., Linehan, J. A., Lau, C. S., Chan, K. G., & Wilson, T. G. (2012). Standardized Analysis of Frequency and Severity of Complications After Robot-assisted Radical Cystectomy. *European Urology*, *62*(5), 806–813. https://doi.org/10.1016/j.eururo.2012.06.007
11. Infantino, A., Altomare, D. F., Bottini, C., Bonanno, M., & Mancini, S. (2012). Prospective randomized multicentre study comparing stapler haemorrhoidopexy with Doppler-guided transanal haemorrhoid dearterialization for third-degree haemorrhoids. *Colorectal Disease*, *14*(2), 205–211. https://doi.org/10.1111/j.1463-1318.2011.02628.x
12. Ahmad Khan, A., Mahar, T., Adnan, M. K., Surahio, A. R., Manan, A., & Ahmad, I. (2020). Postoperative recovery; Stapled Hemorrhoidopexy versus Conventional haemorrhoidectomy. *The Professional Medical Journal*, *27*(01), 166–171. https://doi.org/10.29309/tpmj/2019.27.01.4098
13. Gan, T. J. (2017). Poorly controlled postoperative pain: Prevalence, consequences, and prevention. *Journal of Pain Research*, *10*(1), 2287–2298. https://doi.org/10.2147/jpr.s144066
14. Bakhtiar, N., Moosa, F. A., Jaleel, F., Qureshi, N. A., & Jawaid, M. (2016). Comparison of hemorrhoidectomy by LigaSure with conventional Milligan Morgan's hemorrhoidectomy. *Pakistan Journal of Medical Sciences*, *32*(3). https://doi.org/10.12669/pjms.323.9976
15. Bakhtiar, N., Moosa, F. A., Jaleel, F., Qureshi, N. A., & Jawaid, M. (2016). Comparison of hemorrhoidectomy by LigaSure with conventional Milligan Morgan's hemorrhoidectomy. *Pakistan Journal of Medical Sciences*, *32*(3). https://doi.org/10.12669/pjms.323.9976
16. Chik, B., Law, W. L., & Choi, H. K. (2006). Urinary Retention After Haemorrhoidectomy: Impact of Stapled Haemorrhoidectomy. *Asian Journal of Surgery*, *29*(4), 233–237. https://doi.org/10.1016/s1015-9584(09)60094-4
17. Krishnan, R., MacNeil, S. D., & Malvankar-Mehta, M. S. (2016). Comparing sutures versus staples for skin closure after orthopaedic surgery: systematic review and meta-analysis. *BMJ Open*, *6*(1), e009257. https://doi.org/10.1136/bmjopen-2015-009257
18. Gallo, G., Martellucci, J., Sturiale, A., Clerico, G., Milito, G., Marino, F., Cocorullo, G., Giordano, P., Mistrangelo, M., & Trompetto, M. (2020). Consensus statement of the Italian society of colorectal surgery (SICCR): management and treatment of hemorrhoidal disease. *Techniques in Coloproctology*, *24*(2), 145–164. https://doi.org/10.1007/s10151-020-02149-1
19. Birkmeyer, J. D., Finks, J. F., O'Reilly, A., Oerline, M., Carlin, A. M., Nunn, A. R., Dimick, J., Banerjee, M., & Birkmeyer, N. J. O. (2013). Surgical Skill and Complication Rates after Bariatric Surgery. *New England Journal of Medicine*, *369*(15), 1434–1442. https://doi.org/10.1056/nejmsa1300625