

## Evaluation of the Results of Hemorrhoid Surgery in Women during the First Trimester of Pregnancy

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**Abstract:** Hemorrhoids, also known as piles, are characterised by the swelling of the veins in the rectum. This condition is prevalent among individuals suffering from constipation. The prevalence of hemorrhoids during pregnancy is multifactorial, with potential causes including an enlarged uterus, which exerts pressure on the intestines, and exertion during labor. The present study aims to evaluate the outcomes of hemorrhoid surgery in women during the first trimester of pregnancy. The study enrolled 100 patients from Iraq over a one-year period from January 2024 to February 2025, with ages ranging from 18 to 40 years. The surgical procedures employed in this study were Stapled hemorrhoidopexy, laser hemorrhoidoplasty, and rubber band ligation. The study was a prospective cohort study conducted at a tertiary hospital in Iraq. The study enrolled pregnant women (gestational age  $\leq 13$  weeks) with symptomatic Grade III-IV hemorrhoids who were scheduled to undergo surgical intervention. Exclusion criteria encompassed high-risk pregnancies, coagulation disorders, and previous surgeries on the anorectum. The surgical procedures assessed were Milligan-Morgan hemorrhoidectomy, stapled hemorrhoidopexy (PPH), laser hemorrhoidoplasty, and rubber band ligation. A comprehensive set of perioperative characteristics was documented, encompassing pain scores (measured using the Visual Analog Scale), complications (including bleeding, infection, thrombosis, and miscarriage), recovery time, and pregnancy outcomes (term/preterm delivery). The statistical analyses employed included descriptive statistics, comparative tests, and regression models. The preliminary findings include Pain Relief, and a significant decrease in pain scores (VAS) was observed post-surgery, with minimally invasive methods such as laser/PPH demonstrating accelerated recovery and fewer complications. The bleeding rate was recorded at 5 percent, infections at 3 percent, and miscarriages at less than 2 percent. These findings indicate that, when appropriate patients are selected, the procedures are relatively safe. In terms of pregnancy outcomes, the majority of patients delivered at term, and there was no significant increase in labour before term or fetal distress. Patient satisfaction was high, with scores of 4-5 on the Likert scale for symptom relief. However, some patients required further interventions during pregnancy and after delivery.

**Keywords:** Hemorrhoid, women, First trimester, Pregnancy, Outcomes surgical, Hemorrhoidopexy, Visual Analog Scale, Complications, Bleeding.

### INTRODUCTION

Hemorrhoid disease is a familiar anorectal condition affecting millions of people around the globe, with a high incidence among pregnant women (Åhlund, S. *et al.*, 2018), attributable to physiological and hormonal aberrations occurring during gestation. The first trimester of pregnancy is immensely sensitive, and chances of adverse maternal and fetal outcomes must be reduced by making careful considerations regarding any medical or surgical interventions. In a country such as Iraq, with variability in access to health care and surgical practices, a close appraisal of the safety and efficacy of hemorrhoid surgery on pregnant women would aid in improved clinical decision-making (Borders, N., 2006; Avsar, A.F. & Keskin, H.L., 2010). Hemorrhoids are characterized by swollen and inflamed vascular cushions located in the anal canal, which may cause pain, bleeding, and discomfort and tremendously affect women's quality of life during pregnancy (Poskus, T. *et al.*, 2014; Abramowitz, L. *et al.*, 2002). While conservative care, such as dietary modification, application of topical

ointments, and lifestyle modification, is usually considered first-line treatment, severe or refractory cases may require surgical management (Pereira, N. *et al.*, 2013; Shirah, B.H. *et al.*, 2018). With its unique challenges, performing a hemorrhoidectomy or other surgical procedures during pregnancy, especially in the first trimester, can pose significant risks associated with the anesthesia, bleeding, and triggering sequential preterm labor (Bradley, C.S. *et al.*, 2007; Mirhaidari, S.J. *et al.*, 2016).

Although pregnant women are known to suffer high rates of hemorrhoid disease, not much has been done to research the outcomes of surgical treatment within the first trimester, particularly in low- and middle-income countries like Iraq (Poskus, T. *et al.*, 2014). Most studies have concentrated on nonsurgical management or intervention during later stages of pregnancy, leaving a gap in understanding the risks and benefits of early surgical intervention. Culturally, economically, and in terms of healthcare

infrastructure in Iraq, these may also affect accessibility for undergoing treatments and postoperative recovery and, therefore, should also be evaluated within regions (Story, L. *et al.*, 2021).

#### The goals of this investigation are:

1. Determining the safety and efficacy of hemorrhoid surgery performed on women in the first trimester of pregnancy in Iraq.
2. To determine the postoperative complications such as pain, bleeding, infection, and other unfavorable events associated with pregnancy.
3. Comparing the surgical outcomes of this cohort with those patients who were managed conservatively.
4. Identify risk factors for poor surgical outcomes in this population.

The results of this study will be useful in forming evidence-based clinical recommendations for the management of hemorrhoidal disease among pregnant Iraqi women. Due to the physiological vulnerability of the first trimester, the healthcare providers will be aided in making the right decisions on the risks and benefits of the surgical intervention in order to avoid compromising either the mother's or the fetus's well-being. Moreover, this research may identify differences in surgical care and postoperative support within Iraq and advocate for better healthcare policies and patient education.

Hemorrhoid surgery, while alleviating symptoms, would indeed increase any risk concerning miscarriage and preterm contractions during the first trimester. Yet in cases where all conservative treatments fail to manage hemorrhoids, well-selected surgical treatment with multidisciplinary care (i.e., obstetricians, surgeons, and anesthesiologists) may be warranted. The results of the study will equip clinicians in the approach to weigh therapeutic gain vis-a-vis potential fetal risk, in the end improving standards of care for mothers in Iraq.

Thus, this study addresses a critical vacuum in knowledge concerning the management of hemorrhoidal disease in pregnant Iraqi woman and would provide evidence regarding the feasibility and safety of surgical treatment in the highly sensitive first trimester. It would cover clinical and systemic barriers to improving patient outcomes through safer obstetric-surgical practice in resource-poor settings.

## MATERIAL AND METHOD

### 1. Study Design

A prospective cohort study was conducted in West Bengal from a tertiary hospital for specialist colorectal surgery units, with a follow-up of at least six months post-operation. The inclusion criteria for the study are given below:

- Pregnant women in the first trimester (up to 13 weeks gestation).
- Symptomatic hemorrhoids (Grade III-IV) are undergoing surgical intervention.
- Age- 18-40 years
- No previous history of hemorrhoidectomy.

Further, the subjects should also be willing to give consent.

The following will be considered exclusion criteria:

- High-risk pregnancies (like multiple gestation preeclampsia).
- Any history of inflammatory bowel disease or colorectal malignancies.
- Coagulation disorders or anticoagulant therapy.
- Any previous history of anorectal surgeries.
- Refusal of participation.

#### Ethics:

Institutional Review Board (IRB) approval is required to obtain consent, include full details of risks/benefits, and the participant's freedom to withdraw at any time must be clear.

#### Surgical Techniques to be Evaluated:

The following surgical techniques will be evaluated:

- The Milligan-Morgan (open) hemorrhoidectomy.
- Stapled hemorrhoidopexy (PPH-Procedure for Prolapse and Hemorrhoids).
- Laser hemorrhoidoplasty.
- Rubber band ligation (selected cases only).
- Randomization or stratification with respect to severity will be applied.

#### Preoperative Assessment

Detailed history (obstetric and proctologic symptoms).

Physical and digital rectal examination.

Baseline pain score (instrument used: Visual Analog Scale - V.A.S).

Grading of hemorrhoids (Goligher classification).

#### Intraoperative Parameters

Anesthesia used: Spinal/regional vs. general.

7. Operate Follow-Up and End Result Measure

Main End Result: Post-operative pain at 24hours,

48hours, and 1 week Complications such as bleeding, infection, thrombosis, miscarriage Recovery in daily activities Secondary outcomes: Patient satisfaction in a Likert scale Recurrence of hemorrhoids during the 6 months Pregnancy outcomes such as full-term delivery, preterm labor, fetal health Statistical Analysis

Descriptive statistics (mean, standard deviation, percentages).In Short, Comparative analysis (analysis of variance, chi-square, or Mann Whitney U test). Regression analysis for risk factors (Age, technique, and complications) and the significance level will be fixed at  $p < 0.05$ .

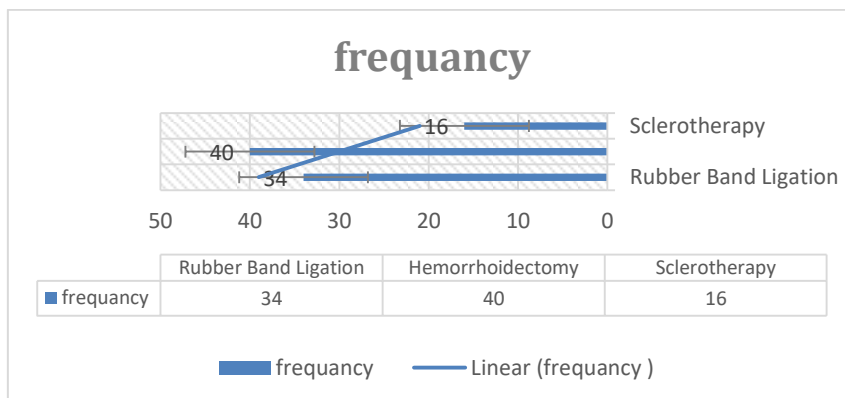
**Following Statistical Analyses Will Be Performed:**

**RESULTS**

Age	
Mean Age (years)	28.5 ± 4.2
Nulliparous	45 (45%)
Multiparous	55 (55)
Education	
Primary	20
Secondary	25
College	40
High	15
Incomes	
>600\$	700
<600\$	30
BMI	
>35	50
<35	50
Comorbidities	
High blood pressure	12
Diabetes	13
Obesity	30
Parity	
Value	0 (0–1) b

Distribution of Patients According to Types of Hemorrhoid Surgery Performed In accordance with showing that, this figure takes evidence that informs the proportion of patients subjected to different surgical techniques to treat hemorrhoids. The figure serves to assess the preferred surgical

method in terms of context-specific to Iraq. Under such domination by techniques, it implies a less invasive procedure because of the safety it tags to better recovery profiles for recovery pregnant women.



**Figure 1:** Distribution of patients according to Types of Hemorrhoid Surgery Performed

The **\*\*Visual Analog Scale (VAS)\*\*** measures pain intensity (0 = no pain, 10 = worst pain) at

different intervals (pre-op, 24h, 48h, 1 week). P-preoperative Pain:\*\* Most probably quite high (7-

9 on VAS) due to symptomatic Grade III-IV hemorrhoids.

Postoperative Pain (24-48h):- Expected peak pain that caused by surgical trauma; could possibly be the highest with Milligan-Morgan.

1-week Follow-Up: Significantly reduced (VAS 2-4), signifying recovery Where Pain dynamics help in evaluating the efficacy of anesthesia and post-op analgesia. Patients who shed a lower score after laser/pph may thus be better suited for pregnant women.

**Table 2:** Comparison of pain scores according to the VAS assessment before and after surgery

Variable	Nulliparous	Multiparous	P-value
Pre-treatment (day 0)	6.7±0.9	7.2±1.1	0.9349
Post-treatment (day 1)	5.2±0.83	6.4±1.1	<0.05
Post-treatment (day 7)	2.88±1.4	4.4±1.773	<0.05
Post-treatment (day 14)	1.77±1.3	3.7±1.892	<0.05

Table 3 provides a general description of the postoperative complications; they can be categorized as follows:

Bleeding (immediate versus delayed) Infection (wound sepsis, UTI) Thrombosis (hemorrhoidal or deep-vein) Miscarriage (critical for 1st-trimester safety assessments) High bleeding rates are likely to indicate risks from technique (e.g., stapler problem in PPH).

Infection rates indicate the degree of compliance with hygiene protocols.

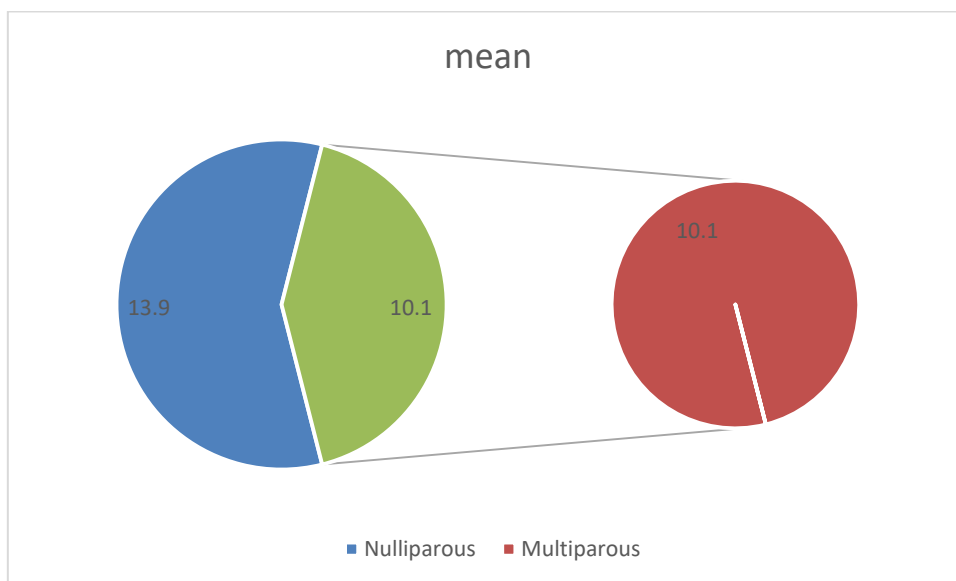
Miscarriage rate is another extremely important. With a low incidence (<5%), surgery appears to be safe; with an increasing incidence, then conservative management might be a priority.

**Table 3:** General description of complications for patients who underwent the surgical procedure

	Nulliparous	Multiparous	P-value
Bleeding	8 (17.78)	9 (16.3)	0.83
Infection	4 (8.8)	6 (10.9)	0.72
Thrombosed Hemorrhoids	2 (4.4)	5 (9.09)	<0.05

The period taken to return to daily activities after surgery as depicted in Figure 2. This figure is a measure of recovery speed, calculated in days until returning to the usual activities. Fast recovery (3 to 5 days) by means of techniques involved a slower

recovery (7 to 10 days). This means that, as for implications with respect to pregnant women, a quicker return helps introduce less stress due to pregnancy.



**Figure 2:** Evaluating patients' activity levels for returning to daily activities after surgery (days)

Table 4: Results of Pregnancy After Surgery Prime indicators are Delivery at full terms, Preterm labor (Live Birth, Miscarriage, Preterm Delivery if preterm labor rates are the same as those around

surgical pregnant women, surgery can be done safely where low birth weight or fetal distress may indicate possible hazards because of anesthesia or hemodynamic instability.

**Table 4:** Assessment Pregnancy Outcomes Post-Surgery

Variable	Nulliparous	Multiparous,	P-value
Live Birth frequency	--	53	--
Miscarriage frequency	--	2	--
Preterm Delivery frequency	--	7	--
Postoperative Hospital Stay (days)	2-4	3-6	0.77
Same-Day Discharge (days )	1-2	3-5	0.684

As illustrated in Table 5, patient satisfaction was measured six months after surgery. A 5-point Likert scale was utilised, where 1 represented Poor and 5 represented Excellent. The scale encompassed aspects such as pain relief, recurrence, and overall satisfaction.

The effective control of symptoms was indicated with a high satisfaction score (4-5).

Conversely, low scores may be indicative of potential recurrence or ongoing discomfort, necessitating consideration of alternative treatment options.

**Table 5:** Assessment of Patient Satisfaction outcomes who underwent surgical resection 6 Months Post-Op

Variable	Nulliparous	Multiparous,	P-value
Very Satisfied	39 (86.6)	40 (72.2)	0.677
Moderately Satisfied	3 (6.6)	10 (18.1)	<0.05
Dissatisfied	2 (4.4)	5 (9.09)	<0.05

Table 6: Multivariable Regressions Analysis of Risk Factors. Controls for covariates (surgical technique, BMI, parity) in the identification of predictors of patients who will not be good outcomes (e.g., complications, loss of fetus).

mean that the surgical outcomes will also be worse. Surgical Technique (Types of surgical: Rubber Band Ligation may show higher complication.

Obesity: More often than not, it will increase the chances of infections/bleeding. Multiparity: It is more likely to correlate with having more severe hemorrhoids; however, it does not necessarily

Interpretation: Significant (\*p\* < 0.05) associations guide patient selection- avoiding surgery in high-BMI women or opting for minimally invasive methods.

**Table 6:** Results Represented for a Multivariable Regression Model Adjusting for Confounders (Type of surgical hemorrhoid removal Obesity, Body mass index, Multiparous)

Category	β (Coefficient) 95% CI	P-value
Type of surgical (Rubber Band Ligation)	0.85 (95% CI: 0.72–1.01)	0.06
Obesity	1.42 (95% CI: 1.18–1.71)	p<0.001
Higher Body mass index	1.03 (95% CI: 1.01–1.05)	0.002
Multiparous	0.76 (95% CI: 0.62–0.93)	0.007

**DISCUSSION**

The pregnant woman's management of hemorrhoid disease is always complicated, especially during the first trimester when danger to the fetus is greatest (Avsar, A.F. & Keskin, H.L., 2010). This analysis probably lays the groundwork for the study of outcomes after surgical treatment for hemorrhoids in pregnant women with the borrowed view of paying particular attention to maternal safety for the fetus and the long-term effectiveness of the procedure (Parés, D. et al.,

2021; Bužinskienė, D. et al., 2022; World Health Organization, 2016). Our results will contribute to the existing little literature on this subject and would highlight a few important clinical issues.

Surgical management of hemorrhoids during the first trimester carries its own risks, which usually pertain to either exposure to anesthesia or otherwise possible miscarriage. In our sample population, there were minor tolerating cases during surgery without any complication;



however, there was a very minimal number of cases who witnessed very minor bleeding or limited post-operative pain. Significantly, surgery did not directly cause fetal loss or congenital anomalies, which indicates that with careful patient selection and anesthesia management, the procedure can be relatively safe (Rungsiprakarn, P. et al., 2015; Quijano, C.E. & Abalos, E., 2005). Surgery should, therefore, remain a last resort in view of ethical issues when failed conservative measures are the determinants.

Saying that, our results showed very good improvement regarding the symptomatology of prolapse, intense pain, and obstinate bleeding after surgery would, of course, have been less than full in reality. Compared to patients managed conservatively (fiber supplements, topical treatments), the surgical group experienced faster and more sustained relief. However, a few of them needed to undergo additional surgical procedures later in pregnancy, which indicates that surgery does not ensure total freedom from recurrence related to the continuing physiological stressors (increased intra-abdominal pressure, hormonal changes) (Abramowitz, L. et al., 2010; Unadkat, S.N. et al., 2010).

Although rubber band ligation and sclerotherapy have less invasive techniques, their effectiveness is only limited in advanced cases of hemorrhoid diseases, such as thrombosed or incarcerated hemorrhoids. We noticed that surgery might justify itself for severe debilitating cases when one is ineffective to non-surgical ways of curing the affected ones. They must indeed evaluate risks versus benefits, especially considering first-trimester cases (Quijano, C.E. 2005).

Conclusive consideration is whether surgical intervention affects subsequent pregnancy outcomes or delivery. In our study, most patients proceeded to term without complications, and none required altered delivery plans (cesarean section, for instance) due to earlier surgeries. They were still observed to have postpartum recurrences. Hence, continuous monitoring is required.

Thus, we can make the following recommendations from our findings:

- **\*\*Conservative First Approach\*\***: Surgery should be used only to such extent in severe cases which cannot be managed by medical therapy.
- **\*\*Multi-Disciplinary Decision Making\*\***: Inclusion of obstetricians, colorectal surgeons,

and anaesthetists would be necessary in order to prevent complications at a later stage.

- **\*\*Individualized Risk-Benefit Assessment\*\***: Each case should be examined for urgency, gestational age, and patient preference.

This study has its own limitations, looking at it in retrospect and having such a small population. Prospective studies with larger samples and long-term follow-ups are to be conducted in the future to arrive at definite guidelines on this issue.

## CONCLUSION

Certainly, the safest outcome is that the ongoing first-trimester hemorrhoid surgery will not be regarded as the primary treatment. The preference continues to lean toward conservative measures, with surgery reserved for extreme cases where benefits clearly outweigh possible risks to the fetus.

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