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Efficacy of Band Ligation vs. Hemorrhoidectomy in Grade II Hemorrhoids and Mixed Grade II with Grade III Pile Mass: A Prospective Randomised Study

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Abstract: ***Background: Hemorrhoids are prevalent anorectal conditions. The optimal intervention strategy—surgical or nonsurgical—is guided by the severity of the disease. This study evaluates the effectiveness of rubber band ligation (RBL) compared to open hemorrhoidectomy in patients with Grade II and mixed Grade II–III hemorrhoids. Methods: This prospective randomized controlled trial was conducted over 18 months at ASRAM hospital. A total of 100 patients with either Grade II or mixed Grade II with reducible Grade III hemorrhoids were randomized into two equal groups: RBL (n=50) and hemorrhoidectomy (n=50). Primary endpoints included postoperative pain, complication rates, recurrence, and patient satisfaction. Results: RBL was associated with significantly less postoperative pain and earlier return to daily activities (p<0.001). However, recurrence was higher in the RBL group (20% vs. 6%, p=0.03). Patient satisfaction was initially higher in the RBL group during the early postoperative period but favored the hemorrhoidectomy group at six months. Conclusion: RBL is a suitable option for managing uncomplicated Grade II hemorrhoids due to its minimally invasive nature and faster recovery. In cases of mixed Grade II with Grade III hemorrhoids, hemorrhoidectomy remains the more definitive treatment with lower recurrence rates.***

Keywords: Hemorrhoids, Rubber Band Ligation, Hemorrhoidectomy, Grade II, Grade III, Randomized Controlled Trial

1. Introduction

Hemorrhoids are vascular cushions within the anal canal that can become symptomatic due to prolapse or inflammation. The Goligher classification system is widely used to grade hemorrhoids and guide treatment. Grade II hemorrhoids prolapse during defecation but reduce spontaneously, while Grade III hemorrhoids require manual reduction.

Treatment modalities range from conservative medical therapy and minimally invasive procedures such as RBL to surgical options like open hemorrhoidectomy. While the treatment of isolated Grade II or Grade III hemorrhoids is well-documented, limited data exist on optimal management strategies for patients with overlapping grades. This study aims to compare the clinical outcomes of RBL and open hemorrhoidectomy in such scenarios.

2. Materials and Methods

Study Design: Prospective randomized controlled trial

Study Duration: 18 months

Setting: Tertiary care center in Andhra Pradesh, India

Sample Size: 100 patients

Inclusion Criteria:
- Age 18–65 years
- Diagnosed with Grade II or mixed Grade II with reducible Grade III hemorrhoids
- No prior anorectal surgical intervention

Exclusion Criteria:
- Grade IV hemorrhoids
- Thrombosed or infected hemorrhoids
- Coagulopathy or immunocompromised status
- Concurrent anal conditions (e.g., fissures or fistula-in-ano)

Randomization and Group Allocation:
- Group A (n=50): Rubber Band Ligation
- Group B (n=50): Open Milligan-Morgan Hemorrhoidectomy

Outcomes Measured:
- Postoperative pain (Visual Analog Scale)
- Analgesic requirement
- Time to resume normal activities
- Postoperative complications (bleeding, infection, urinary retention)
- Recurrence at six months
- Patient satisfaction (measured via a Likert scale)

Follow-Up Schedule:
Patients were evaluated weekly for one month, followed by assessments at three and six months post-procedure.

3. Results

Parameter	RBL Group (n=50)	Hemorrhoidectomy Group (n=50)	p-value
Mean Age (years)	42.3 ± 11.1	43.2 ± 10.4	>0.05
Male:Female Ratio	3.1:1	3.3:1	>0.05
Post-op Pain (VAS Day 1)	2.1 ± 0.8	6.8 ± 1.2	<0.001
Return to Work (days)	2.7 ± 0.6	10.1 ± 2.5	<0.001
Recurrence at 6 Months	10 (20%)	3 (6%)	0.03
Satisfaction at 1 Week	84% High	65% High	<0.05
Satisfaction at 6 Months	70% High	86% High	<0.05

4. Discussion

This study underscores the significant advantages of Rubber Band Ligation (RBL) as a minimally invasive and outpatient-based intervention for the management of Grade II hemorrhoids. Its simplicity, cost-effectiveness, and favorable safety profile make it a highly attractive first-line treatment option in appropriately selected patients. Notably, RBL was associated with significantly reduced postoperative pain, as evidenced by lower Visual Analog Scale (VAS) scores, and allowed for a quicker return to normal daily activities when compared to conventional surgical methods. These attributes contribute to improved patient compliance and overall early postoperative satisfaction, especially among individuals seeking rapid relief with minimal disruption to their professional and personal routines.

However, the efficacy of RBL appears to be limited in more complex presentations, particularly in cases involving mixed Grade II hemorrhoids with reducible Grade III components. In these patients, RBL demonstrated a higher recurrence rate at six months post-treatment, indicating a potential limitation in long-term symptom control. This suggests that while RBL is suitable for less advanced disease, its role becomes less definitive in cases where hemorrhoidal tissue prolapse is more pronounced and requires manual reduction.

In contrast, open hemorrhoidectomy—specifically the Milligan-Morgan technique employed in this study—was associated with higher levels of postoperative pain and a longer duration of recovery. Despite these drawbacks, hemorrhoidectomy demonstrated clear benefits in terms of durable symptom resolution, with significantly lower recurrence rates and greater long-term patient satisfaction. These findings reinforce the idea that hemorrhoidectomy remains the gold standard for more advanced or recurrent hemorrhoidal disease, especially when the anatomical disruption surpasses what can be effectively managed through non-surgical techniques.

The results of this study are consistent with previously published literature. Gupta et al. (2016) reported similar outcomes in a comparative study, emphasizing the role of RBL in early-stage disease and recommending surgical excision for more advanced grades. Likewise, Pucher et al. (2018), through a comprehensive meta-analysis, highlighted the superior long-term control provided by hemorrhoidectomy at the cost of increased postoperative discomfort. Both studies, along with the present findings, advocate for a patient-centric, individualized approach to hemorrhoid management—one that considers the grade of disease, patient preference, pain tolerance, and the need for a quick return to normal function.

In summary, this study supports a stratified treatment protocol wherein RBL serves as a first-line intervention for uncomplicated Grade II hemorrhoids, while open hemorrhoidectomy is reserved for mixed or more severe cases to ensure long-term efficacy and patient satisfaction.

5. Conclusion

The findings of this prospective randomized study highlight that Rubber Band Ligation (RBL) is a safe, efficient, and minimally invasive treatment option for patients with Grade II hemorrhoids. It provides significant benefits such as reduced postoperative discomfort, lower analgesic requirements, early resumption of daily activities, and high levels of patient satisfaction in the short term. These advantages make RBL particularly suitable for patients seeking a less invasive procedure with faster recovery, minimal disruption to work and lifestyle, and outpatient feasibility.

However, its efficacy is relatively limited in more advanced presentations—specifically in mixed Grade II with reducible Grade III hemorrhoids. In such cases, the recurrence rate following RBL was notably higher, suggesting that this approach may not be sufficient to provide long-term symptom control in more severe disease states.

In contrast, open hemorrhoidectomy, although associated with increased postoperative pain and a prolonged recovery period, demonstrated superior long-term outcomes. Patients undergoing hemorrhoidectomy had significantly lower recurrence rates and reported higher satisfaction during long-term follow-up. This indicates that, despite being more invasive, hemorrhoidectomy offers a more definitive solution for patients with mixed or advanced hemorrhoids.

Therefore, treatment decisions should be individualized, taking into account the clinical grade of hemorrhoids, the presence of mixed components, patient preferences, and the need to balance short-term recovery with long-term effectiveness. A tailored approach ensures optimal outcomes and improved quality of life, aligning medical decision-making with both clinical evidence and patient-centered care.

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