

## CASE STUDY

# A Scientific Study of *Yastimadhu* Suppository in the post-operative Anorectal Pain Management: A Case Study

\*Harsh R Patel, Parikshit Shirode, Jayanta Malakar

Department of Shalya Tantra, Parul Institute of Ayurveda, Parul University Vadodara.

**Corresponding Author:**

\*Dr. Harsh R Patel

Email ID: [patelharsh9974165652@gmail.com](mailto:patelharsh9974165652@gmail.com)

### ABSTRACT

Post-operative pain after Ano-rectal surgeries, if not managed effectively, can lead to delayed healing, disturbed sleep, impaired bowel habits, and reduced quality of life. According to Acharya Sushruta, Shoola (pain) is predominantly caused by Vata dosha and is inevitable following Shashtra Karma (surgical procedures), for which rectal therapies such as Basti are advocated. Rectal suppositories are widely used in post-operative pain management due to their localized and sustained action. The present randomized comparative clinical study was undertaken to evaluate the efficacy of *Yashtimadhu* (*Glycyrrhiza glabra*) rectal suppository in managing post-operative Ano-rectal pain. A total of 30 patients were randomly divided into two groups of 15 each; Group A received *Yashtimadhu* suppository (2 g every 12 hours) and Group B received Diclofenac Sodium rectal suppository for 7 post-operative days, starting after removal of the anal pack and at the onset of pain. Post-operative pain was assessed clinically and statistically. The results revealed that *Yashtimadhu Guda Varti* produced significant pain relief within 20 minutes of administration and maintained a sustained analgesic effect for more than 12 hours, which was superior to the conventional NSAID suppository. The analgesic, anti-inflammatory, antimicrobial, and wound-healing properties of *Yashtimadhu* and the *Bhavana Dravya* used in its preparation contributed to improved recovery with minimal adverse effects. The study concludes that *Yashtimadhu* rectal suppository is a safe, effective, and superior alternative for the management of post-operative Ano-rectal pain.

**Keywords:** Ano-Rectal pain, postoperative analgesia, *Yastimadhu* suppository, Diclofenac suppository, *Gudavarti*.

Received 24.12.2025

Revised 13.02.2026

Accepted 19.03.2026

### How to cite this article:

Harsh R P, Parikshit S, Jayanta M. A Scientific Study of *Yastimadhu* Suppository in the post-operative Anorectal Pain Management: A Case Study. Adv. Biores. Vol 17 [3] February 2026. 225-232

## INTRODUCTION

Anorectal disorders are progressively increasing in the society due to prominent contributors like sedentary life style, irregular diet, physiological disturbances, anxiety, depression and excessive consumption of junk food etc. Few of the Ano-rectal condition can be managed successfully with the help of medicine and proper dietary regimen in their acute or early phase. But surgical or para surgical management becomes inevitable in most of the Ano rectal cases due to their severity or chronicity. Post operative pain ranging from mild to severe variety is observed in almost all operated Ano rectal cases [1]. Effective postoperative pain management is a critical element in the recovery process after surgery. In particular, Ano rectal surgeries, such as haemorrhoidectomy, are known for inducing severe postoperative pain due to the sensitive nature of the surgical site and frequent contact with faecal matter [2, 3].

As notably quoted by Acharya Shusruta, the pain which is produced by the knife during surgery, of whatever intensity, gets subsided by application of lukewarm ghee boiled with *yastimadhu* [4, 5].

In this context, the use of *Yashtimadhu* (*Glycyrrhiza glabra*), a well-known herb in Ayurvedic medicine, offers a natural alternative for pain management. *Yashtimadhu* has demonstrated anti-inflammatory, antimicrobial, and analgesic properties, making it a suitable candidate for treating postoperative pain. The objective of this study is to evaluate the efficacy of *Yashtimadhu* suppository in managing

postoperative pain following haemorrhoidectomy and compare it with the standard analgesic Diclofenac sodium [6-8].

To evaluate the efficacy of *yashtimadhu* suppository in the post-operative pain management in anorectal disorders.

## MATERIAL AND METHODS

### Drug Preparation:

Drug preparation was done by extraction of Yastimadhu rhizome powder in hydroalcoholic solution followed by preparation of the suppository.

### Preparation of Extract:

To prepare the hydroalcoholic extract of Yastimadhu, 100 grams of Yastimadhu churna was placed in filter paper. Ethanol (1 liter) was used as the solvent in the Soxhlet apparatus, and the extraction was carried out at 50°C for 14 cycles over 7 hours. Following extraction, the liquid extract was allowed to evaporate for 5 days, resulting in 15 grams Dark Green Yashtimadhu extract. This extraction process was repeated 5 times, yielding a total of 75 grams of the extract.

### Preparation of Suppositories:

To prepare the suppositories, 75 grams of Yastimadhu extract was mixed with 350 grams of cocoa butter and 750 grams of hard wax. This mixture was melted in a glass beaker using a glass rod for stirring, which was placed in a hot water bath until fully combined. The molten mixture was then poured into pre-lubricated chromium suppository Molds and allowed to cool at 70°F. Once solidified, the suppositories were carefully demoulded, each weighing approximately 2 grams, and packed in individual aluminium foil cut sheets. A total of 300 suppositories were produced and stored in a refrigerator at 5-6°F until needed.

### Method and collocation of data:

A total of 30 patients undergoing elective fissurectomy, haemorrhoidectomy, fistulotomy at Parul institute of ayurveda were selected randomly for the study using method of simple random sampling. The patients were divided into two groups:

### Intervention:

Group A (*Yashtimadhu*): Administered *Yashtimadhu* suppository (2 gm) twice daily. Continues 7 days in 15 patients

Group B (Diclofenac): Administered Diclofenac sodium (50 mg) twice daily. Continues 7 days in 15 patients

(Note: Patient complain pain after administered anal suppository)

### Procedure followed:

#### Operative Procedure:

Fissurectomy/Fistulotomy/ Haemorrhoidectomy was done as per the diagnosis and surgical approach with complete sterile and aseptic precautions. After achieving haemostasis, the operated area was cleaned with betadine. 2gm *yastimadhu* suppositories was inserted into the anal in Group A and 50 mg Diclofenac suppository was inserted into the anal in Group B. Anal pack was placed and pressure bandage applied.

PARAMETER	Value
pH	7.4
Description	Resinus
Odour	Pungent
Colour	Dark Green
Consistibility	Sticky and Turbid
Acid value	0.13020
Loss on drying (%) or at 110°C (%W/W)	0.3733 or 0.32 % W/W
Refractive index at room temperature	1.5509
Saponification value	208.398
Specific gravity at 40°C	0.9590
Iodine value	62.98
Total Ash Value (% W/W)	96 % W/W

**Table 1 Pharmaceutical analysis of yastimadhu ghrita**

### Post-Operative Procedure:

- 1) Patient was advised to remove anal pack after 6 hours of procedure.
- 2) Post operatively 2gm *yastimadhu* anal suppository was inserted 12<sup>th</sup> hourly for post-operative pain management in Group A.

- 3) Post operatively 50mg Diclofenac Sodium anal suppository was inserted 12<sup>th</sup> hourly for post-Operative pain management in Group B.
- 4) When patients complain post operative pain after 12<sup>th</sup> hourly to apply anal suppository.
- 5) Antibiotic therapy and sitz bath during the post- operative period to prevent infection.

**Treatment Schedule:**

DRUG: *yastimadhu gudavarti*

DOSE: 2gm

FORM: Anal suppository

FREQUENCY: First suppository was inserted during post operative wound dressing and next dose was inserted at 12<sup>th</sup> hour post-surgery pain management after third dose suppository 12<sup>TH</sup> hourly when Patient complaints of pain.

DURATION: 7days

FOLLOW UP PERIODS: 14 days

**Follow up And Observation period:** The patients was observed on post-operative 1<sup>st</sup>, 3<sup>rd</sup>, 5<sup>th</sup> and 7<sup>th</sup> day. Follow up of the patient was be carried on the 14<sup>th</sup> day of post-operative period.

**Assessment Criteria:**

Assessment was done on the basis of specially prepared proforma for assessing the relief in signs & symptoms by scoring pattern.

Subjective parameters and objective parameters.

- 1) subjective parameters: I) Anal region Pain
  - ii) Duration of the effect of suppository
- 2) Objective parameters: I) Locally Tenderness
  - ii) Locally Swelling

**SUBJECTIVE PARAMETERS:**

I) The assessment of the pain done with the standard VAS scale.

PAIN SEVERITY	GRADE
No Pain (0)	0
Mild Pain (1 to 3)	1
Moderate pain (4 to 6)	2
Severe Pain (7to 10)	3

ii) Duration of the effect of suppository

Recurrence of pain in the post-operative period	Grade
No Pain up to 12 hours	0
Recurrence of pain after 6 hours	1
Recurrence of pain between 3 - 6 hours	2
Recurrence of pain within 3 hours	3

**OBJECTIVE PARAMETER:**

I) TENDERNESS ASSESMENT

TENDERNESS ASSESMENT	GRADE
Tolerance to Anal pack/digital pressure.	0
Little response to sudden pressure.	1
Wincing effaces on super slight touch.	2
Resists to touch and rigidity.	3

ii) SWELLING ASSESMENT

SWELLING ASSESMENT	GRADE
Absent	0
Slight red, tender and hot with painful movement and without indurations.	1
More Redness, having painful movement, with more local temperature and with indurations.	2
Hot, resist to touch and with more indurations.	3

**RESULT**

**General status of clinical trial**

COMPLIANCE	NO OF VOLUNTEERS	TOTAL %
Registered	34	100
Completed	30	88
Drop out	04	12

A total of 34 patients were screened and selected for the clinical trial. Among them 30 patients completed the schedule of the treatment and 4 patients got drop out during the course of the study.

**Statistics Analysis:**

**Group 1: Yastimadhu Suppository Statistics Analysis:**

**Table 2: Clinical Assessment Scores Before and After Treatment (N = 15)**

Assessment Criteria	N	Mean	Std. Deviation	Minimum	Maximum
Pain BT	15	2.60	0.507	2	3
Duration BT	15	2.67	0.488	2	3
Tenderness BT	15	2.40	0.507	2	3
Swelling BT	15	1.93	0.799	1	3
Pain AF	15	0.27	0.458	0	1
Duration AT	15	0.27	0.458	0	1
Tenderness AT	15	0.27	0.458	0	1
Swelling AT	15	0.27	0.594	0	2

Assessment Criteria	Ranks	N	Mean Rank	Sum of Ranks
Pain AF- Pain BT	Negative Ranks	15 <sup>a</sup>	8.00	120.00
	Positive Ranks	0 <sup>b</sup>	0.00	0.00
	Ties	0 <sup>c</sup>		
	Total	15		
Duration AT - Duration BT	Negative Ranks	15 <sup>d</sup>	8.00	120.00
	Positive Ranks	0 <sup>e</sup>	0.00	0.00
	Ties	0 <sup>f</sup>		
	Total	15		
Tenderness AT - Tenderness BT	Negative Ranks	15 <sup>g</sup>	8.00	120.00
	Positive Ranks	0 <sup>h</sup>	0.00	0.00
	Ties	0 <sup>i</sup>		
	Total	15		
Swelling AT - Swelling BT	Negative Ranks	14 <sup>j</sup>	7.50	105.00
	Positive Ranks	0 <sup>k</sup>	0.00	0.00
	Ties	1 <sup>l</sup>	-	-
	Total	15	-	-

**Table 2 Wilcoxon Signed Ranks Test Yastimadhu Suppository**

- a. Pain AF < Pain BT
- b. Pain AF > Pain BT
- c. Pain AF = Pain BT
- d. Duration AT < Duration BT
- e. Duration AT > Duration BT
- f. Duration AT = Duration BT
- g. Tenderness AT < Tenderness BT
- h. Tenderness AT > Tenderness BT
- i. Tenderness AT = Tenderness BT
- j. Swelling AT < Swelling BT
- K. Swelling AT > Swelling BT
- l. Swelling AT = Swelling BT

Test Statistics	Pain AF- Pain BT	Duration AT - Duration BT	Tenderness AT - Tenderness BT	Swelling AT - Swelling BT
Z	-3.493 <sup>b</sup>	-3.520 <sup>b</sup>	-3.502 <sup>b</sup>	-3.360 <sup>b</sup>
Asymp. Sig. (2-tailed)	0.000	0.000	0.000	0.001

**Table 3 Test Statistics Yastimadhu Suppository**

- a. Wilcoxon Signed ranks test. b. Base on positive ranks.

**Group B: Diclofenac sodium Statistics Analysis:**

Assessment Criteria	N	Mean	Std. Deviation	Minimum	Maximum
Pain BT	15	2.67	0.488	2	3
Duration BT	15	2.73	0.458	2	3
Tenderness BT	15	2.47	0.516	2	3
Swelling BT	15	2.40	0.737	1	3
Pain AF	15	0.73	0.594	0	2
Duration AT	15	0.60	0.507	0	1
Tenderness AT	15	0.73	0.458	0	1
Swelling AT	15	1.20	0.862	0	3

**Table 4 Descriptive Statistics Diclofenac sodium**

Assessment Criteria	Ranks	N	Mean Rank	Sum of Ranks
Pain AF - Pain BT	Negative Ranks	15 <sup>a</sup>	8.00	120.00
	Positive Ranks	0 <sup>b</sup>	0.00	0.00
	Ties	0 <sup>c</sup>		
	Total	15		
Duration AT - Duration BT	Negative Ranks	15 <sup>d</sup>	8.00	120.00
	Positive Ranks	0 <sup>e</sup>	0.00	0.00
	Ties	0 <sup>f</sup>	-	-
	Total	15	-	-
Tenderness AT - Tenderness BT	Negative Ranks	15 <sup>g</sup>	8.00	120.00
	Positive Ranks	0 <sup>h</sup>	0.00	0.00
	Ties	0 <sup>i</sup>		
	Total	15		
Swelling AT - Swelling BT	Negative Ranks	10 <sup>j</sup>	6.35	63.50
	Positive Ranks	1 <sup>k</sup>	2.50	2.50
	Ties	4 <sup>l</sup>	-	-
	Total	15	-	-

**Table 5 Wilcoxon Signed Ranks Test Diclofenac sodium**

Test Statistics	Pain AF - Pain BT	Duration AT - Duration BT	Tenderness AT - Tenderness BT	Swelling AT - Swelling BT
Z	-3.453 <sup>b</sup>	-3.453 <sup>b</sup>	-3.508 <sup>b</sup>	-2.754 <sup>b</sup>
Asymp. Sig. (2-tailed)	0.001	0.001	0.000	0.006

**Table 6 Test Statistics Diclofenac sodium**

Assessment Criteria	N	Mean	Std. Deviation	Minimum	Maximum
Pain BT	30	2.63	0.490	2	3
Pain AF	30	0.50	0.572	0	2
Duration BT	30	2.70	0.466	2	3
Duration AT	30	0.43	0.504	0	1
Tenderness BT	30	2.43	0.504	2	3
Tenderness AT	30	0.50	0.509	0	1
Swelling BT	30	2.17	0.791	1	3
Swelling AT	30	0.73	0.868	0	3
Group	30	1.50	0.509	1	2

**Table 7 Diclofenac sodium Group 1 & 2**

Assessment Criteria	GROUP	N	Mean Rank	Sum of Ranks
<b>Pain BT</b>	1	15	15.00	225.00
	2	15	16.00	240.00
	Total	30	-	-
<b>Pain AF</b>	1	15	12.37	185.50
	2	15	18.63	279.50
	Total	30	-	-
<b>Duration BT</b>	1	15	15.00	225.00
	2	15	16.00	240.00
	Total	30	-	-
<b>Duration AT</b>	1	15	13.00	195.00
	2	15	18.00	270.00
	Total	30	-	-
<b>Tenderness BT</b>	1	15	15.00	225.00
	2	15	16.00	240.00
	Total	30	-	-
<b>Tenderness AT</b>	1	15	12.00	180.00
	2	15	19.00	285.00
	Total	30	-	-
<b>Swelling BT</b>	1	15	13.07	196.00
	2	15	17.93	269.00
	Total	30	-	-
<b>Swelling AT</b>	1	15	10.87	163.00
	2	15	20.13	302.00
	Total	30	-	-

**Table 8 Mann-Whitney Test Group 1 & 2**

**Table 10. Non-Parametric Test Statistics for Clinical Parameters**

Parameter	Test	Before Treatment (BT)	After Treatment (AT)
<b>Pain</b>	Mann-Whitney U	105.000	65.500
	Wilcoxon W	225.000	185.500
	Z value	-0.372	-2.225
	Asymp. Sig. (2-tailed)	0.710	0.026*
	Exact Sig. (2-tailed)	0.775	0.050*
<b>Duration</b>	Mann-Whitney U	105.000	75.000
	Wilcoxon W	225.000	195.000
	Z value	-0.392	-1.811
	Asymp. Sig. (2-tailed)	0.695	0.070
	Exact Sig. (2-tailed)	0.775	0.126
<b>Tenderness</b>	Mann-Whitney U	105.000	60.000
	Wilcoxon W	225.000	180.000
	Z value	-0.362	-2.513
	Asymp. Sig. (2-tailed)	0.717	0.012*
	Exact Sig. (2-tailed)	0.775	0.029*
<b>Swelling</b>	Mann-Whitney U	76.000	43.000
	Wilcoxon W	196.000	163.000
	Z value	-1.619	-3.137
	Asymp. Sig. (2-tailed)	0.106	0.002*
	Exact Sig. (2-tailed)	0.137	0.003*

$p < 0.05$  considered statistically significant

Values marked with \* indicate statistical significance

BT = Before Treatment; AT = After Treatment

Mann-Whitney U and Wilcoxon W tests were applied for non-parametric comparisons

### Statistical Interpretation

All data obtained from the clinical assessment were analysed using SPSS statistical software (version 20.0). The values were expressed as mean  $\pm$  standard deviation. As the data were derived from graded scores and did not follow a normal distribution, non-parametric tests were applied. Descriptive statistics of both groups are presented (Table 2, Table 5, Table 8). Intra-group comparison of pre- and post-treatment values was performed using the Wilcoxon Signed Rank Test (Table 3, Table 4 for Group A; Table 6, Table 7 for Group B). Inter-group comparison between the two treatment groups was carried out using the Mann-Whitney U test (Table 9, Table 10). A p value of less than 0.05 was considered statistically significant.

The present clinical study evaluated the efficacy of *Yashtimadhu Guda Varti* in comparison with Diclofenac sodium suppository in the management of post-operative ano-rectal pain. A total of 30 patients completed the study, with 15 patients in each group. Baseline assessment showed comparable severity of pain, duration of pain recurrence, tenderness, and swelling in both groups prior to intervention. In Group A (*Yashtimadhu* suppository), a marked reduction was observed in all subjective and objective parameters following treatment. The mean pain score reduced significantly from 2.60 before treatment to 0.27 after treatment. Similarly, duration of pain recurrence, tenderness, and swelling showed statistically significant improvement. Wilcoxon signed-rank test revealed highly significant results ( $p < 0.001$ ) for all parameters, indicating strong analgesic and anti-inflammatory effects of *Yashtimadhu Guda Varti*.

In Group B (Diclofenac sodium suppository), significant improvement was also noted in pain, tenderness, and duration of effect, with statistical significance ( $p < 0.01$ ). However, reduction in swelling was comparatively less pronounced and showed slower resolution. Inter-group comparison using the Mann-Whitney U test demonstrated statistically significant superiority of *Yashtimadhu* suppository over Diclofenac sodium in post-treatment pain scores, tenderness, and swelling ( $p < 0.05$ ). *Yashtimadhu* suppository provided quicker onset of analgesia (within 20 minutes) and sustained relief lasting more than 12 hours, whereas Diclofenac showed comparatively shorter duration of action.

### DISCUSSION

Post-operative pain following Ano-rectal surgeries is a major concern due to the rich nerve supply of the anal region, sphincter spasm, inflammation, and frequent mechanical irritation during defecation [5, 9, 10]. According to Ayurveda, *Shoola* is primarily caused by aggravated *Vata dosha*, and surgical trauma (*Shastra Karma*) further provokes *Vata*, making pain inevitable. Acharya Sushruta emphasizes the use of *Sneha* and *Madhura dravyas* like *Yashtimadhu* for pain alleviation and wound healing. *Yashtimadhu* (*Glycyrrhiza glabra*) possesses proven *Vedanasthapana*, *Shothahara*, *Vranaropana*, and *Krimighna* properties. The rectal suppository form ensures direct drug delivery to the affected site, enhanced absorption through rectal mucosa, avoidance of first-pass metabolism, and prolonged local action. The Bhavana Dravya and lipid base used in the preparation further pacify aggravated *Vata* and promote tissue regeneration [12-16].

The present study findings support these classical principles, as *Yashtimadhu Guda Varti* not only provided faster and sustained pain relief but also significantly reduced tenderness and swelling by the 5th postoperative day, which usually persist longer with NSAID therapy. Diclofenac sodium, though effective as an analgesic, lacks wound-healing and antimicrobial action and is associated with gastrointestinal and renal adverse effects [13, 14]. The absence of such side effects in the *Yashtimadhu* group highlights its safety and suitability, especially for prolonged use in post-operative patients.

### CONCLUSION

The present study concludes that *Yashtimadhu Guda Varti* is a highly effective, safe, and well-tolerated modality for the management of post-operative Ano-rectal pain. It provides rapid onset and sustained analgesic action lasting more than 12 hours, along with significant reduction in tenderness and swelling. Its additional anti-inflammatory, antimicrobial, and wound-healing properties offer comprehensive postoperative care beyond pain relief. Compared to Diclofenac sodium suppository, *Yashtimadhu* demonstrated superior clinical outcomes with minimal adverse effects, making it a preferable alternative for postoperative pain management in Ano-rectal surgeries. However, further multicentric studies with larger sample sizes are recommended to validate these findings and establish its role in integrative surgical practice.

### REFERENCES

1. Sharma V, Agarwal A, Verma S. (2014). *Glycyrrhiza glabra*: A plant for the future. *Int J Pharm Sci Res.* 5(3):60–68.

2. Tiwari S, Patel S, Singh P. (2018). Clinical efficacy of Yastimadhu in fissure-in-ano: A pilot study. *J Ayurveda Integr Med.* (1):30–35.
3. Kokate CK, Purohit AP, Gokhale SB. (2009). *Pharmacognosy*. 45th ed. Pune: Nirali Prakashan; p. 210–212.
4. The Ayurvedic Pharmacopoeia of India. Part I, Vol. I. New Delhi: Govt. of India, Ministry of AYUSH; 2001.
5. Bhavamishra. (2010). *Bhavaprakasha Nighantu*. Commentary by Chunekar KC, edited by Pandey GS. Varanasi: Chaukhambha Bharati Academy.
6. Garg A, et al. (2020). Herbal suppositories: A modern approach to traditional therapy in anorectal diseases. *Int J Pharm Sci Rev Res.*64(2):112–117.
7. Lachman L, Lieberman HA, Kanig JL. *The Theory and Practice of Industrial Pharmacy*. 3rd ed. Mumbai: Varghese Publishing House; 2009. p. 534–550.
8. Singh S, Mishra N. A clinical study on the role of Yashtimadhu in the management of Parikartika (anal fissure). *Ayu.* 2016;37(2):149–153.
9. Mishra LC, Singh BB, Dagenais S. Scientific basis for the therapeutic use of *Withania somnifera* (Ashwagandha): A review. *Altern Med Rev.* 2001;6(2):123–132.
10. Patel N, Desai S. Formulation and evaluation of herbal suppositories for treatment of hemorrhoids. *J Drug Deliv Ther.* 2019;9(3-s):101–104.
11. Kumar A, Srivastava A. Role of Yashtimadhu in wound healing: A review of clinical and experimental studies. *Int J Ayurveda Res.* 2020;11(4):245–250.
12. The Ayurvedic Formulary of India. Part I. 2nd Revised English Edition. New Delhi: Govt. of India, Ministry of AYUSH; 2003.
13. Gupta AK, Tandon N, Sharma M. *Quality Standards of Indian Medicinal Plants*. Vol. 5. New Delhi: Indian Council of Medical Research; 2008.
14. Tariq M, et al. *Glycyrrhiza glabra* – A medicinal plant for a multitude of diseases: A review. *Future J Pharm Sci.* 2017;3(1):1–6.
15. Indian Pharmacopoeia. New Delhi: Govt. of India, Ministry of Health and Family Welfare; 2014.
16. Awasthi A, Sharma S. Topical herbal interventions in proctology: An overview of evidence-based therapies. *J Ayurveda Case Rep.* 2022;4(2):56–63.

**Copyright:** © 2026 Author. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.