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Case Report

Bilateral Ischiorectal Abscess

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An Integrative Approach in the management of Bilateral Ischiorectal Abscess: A Case Report

Bhoir V[1*], Pawar A[2], Raut D[3], Ishi D[4]

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[1*] Vedika Bhoir, Associate Professor, Department of Shalya Tantra, DY Patil School of Ayurveda, Navi Mumbai, Maharashtra, India.
[2] Aniruddha Pawar, Assistant Professor, Department of Shalya Tantra, DY Patil School of Ayurveda, Navi Mumbai, Maharashtra, India.
[3] Damini Raut, Final Year Post Graduate Scholar, Department of Shalya Tantra, DY Patil School of Ayurveda, Navi Mumbai, Maharashtra, India.
[4] Darshana Ishi, Second Year Post Graduate Scholar, Department of Shalya Tantra, DY Patil School of Ayurveda, Navi Mumbai, Maharashtra, India.

Background: Ischiorectal abscesses frequently arise as complications of perianal abscesses. In contemporary medicine, management typically involves a two-stage procedure: initial incision and drainage (I&D), followed by secondary wound healing. In Ayurveda, this condition is recognized as Gudavidradhi, which is traditionally managed through Bhedan Karma (surgical incision) and Ropan Karma (healing measures). The case presented here was treated following this Ayurvedic protocol, utilizing Nimb-Patol-Erandmool Kwath for wound cleansing, Yashtimadhu-Lajjalu Tail for dressing, and internal herbal medications.

Materials and Methods: This case study involves a 47-year-old male patient diagnosed with an acute bilateral ischiorectal abscess, Clinical features included severe pain, purulent discharge with foul odour, oedema, difficulty in walking and sitting. The condition was successfully managed through a comprehensive Ayurvedic regimen.

Results: Significant clinical improvement was observed, with complete wound healing and resolution of associated symptoms.

Discussion and Conclusion: The Ayurvedic approach, involving surgical and medicinal therapies rooted in traditional principles, proved effective in the management of a complex bilateral ischiorectal abscess. This case supports the potential of integrative Ayurvedic protocols in managing challenges in healing of Ischiorectal abscess.

Keywords: Bhedan Karma, Ischiorectal abscess, Gudavidradhi, Lajjalu, Nimb-Patol-Erandmool, Ropan Karma

Corresponding Author

Vedika Bhoir, Associate Professor, Department of Shalya Tantra, DY Patil School of Ayurveda, Navi Mumbai, Maharashtra, India.
Email: vedika.bhoir@dypatil.edu

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Introduction

Anorectal abscesses are a common surgical condition, categorized into five distinct types based on their anatomical location: perianal (60%), ischiorectal (30%), intersphincteric (5%), supralevator (4%), and submucosal (1%).**[1]** These abscesses typically originate from infections of the crypto glandular epithelium lining the anal canal. In the case of an ischiorectal abscess, as observed in our patient, pathogenic microorganisms may breach the internal anal sphincter via the crypts of Morgagni, subsequently spreading into the intersphincteric and ischiorectal spaces.**[2]**

An ischiorectal abscess is characterized by the accumulation of pus in the ischiorectal fossa, commonly resulting from an obstructed and infected anal crypt gland. Clinically, patients often present with deep-seated perianal pain, buttock swelling, and systemic symptoms such as fever and malaise. If left untreated, complications may arise, including fistula-in-ano formation or systemic infections such as septicaemia.**[3]** Prompt surgical drainage remains the cornerstone of effective management. From an epidemiological perspective, anorectal abscesses have a prevalence of 8 to 23 cases per 100,000 population, with a higher incidence in males than females. They can occur in all age groups, with a peak incidence between 20 and 40 years.**[4]** Ischiorectal abscesses specifically account for approximately 20% to 22.7% of all anorectal abscesses.**[5]**

Post-drainage management is crucial for facilitating healing and reducing the risk of recurrence or complications. Conservative management typically includes daily wound cleansing, dressing, analgesics, and systemic antibiotics. However, inadequate post-operative care may result in persistent infection, leading to fistula formation, recurrent abscesses, or even life-threatening systemic infections like septicaemia.**[6]** Recurrence rates for ischiorectal abscesses remain high, ranging from 26% to 69% annually, highlighting the challenges in long-term management.**[7]**

In *Ayurveda*, this clinical condition is aligned with *Gudavidradhi*, a type of deep-seated inflammatory swelling in the anal region. Delayed wound healing, referred to as *Dushta Vrana*, can occur due to various aetiologies, including infection, improper post-operative care, and systemic imbalances.**[8]**

Acharya Sushruta has described the *Shashti Upakrama* (sixty therapeutic procedures) for comprehensive wound care, including *Vrana Shodhana* (wound cleansing) and *Vrana Ropana* (wound healing), customized according to the wound's stage and severity.**[9]**

This case was managed effectively through an *Ayurvedic* approach, using wound cleansing (*Dhavan*) with *Nimb-Patol-Erandmool Kwath*, an herbal decoction (*Kwath*) with anti-inflammatory, antioxidant, and antimicrobial actions, followed by dressing with *Yashtimadhu-Lajjalu Tail*, known for promoting *Vrana Ropana* (wound healing), desloughing (*Klednashak*), and granulation tissue formation *(Ropan)*.**[10]**

Clinical indicators of successful healing included reduction in wound size and depth, decreased discharge, lessened inflammatory signs, and healthy granulation tissue formation within four weeks.

Thus, understanding the pathophysiology of ischiorectal abscesses - primarily driven by anal gland obstruction and infection spread - is essential to implement a structured and integrative treatment plan. This case supports the use of Ayurvedic wound care modalities as a complementary approach to enhance clinical outcomes in complex wound (Dushta *Vrana*).

Case Report

Patient Information

A 47-year-old male comes to OPD no. 3 of D. Y. Patil school of Ayurveda Nerul, Navi Mumbai on 10/12/24 with complaints of severe throbbing pain, oedema, tenderness, discharge (slough), foul smell, difficulty in walking in the last 5-6 days with UHID NO:34430

Clinical Findings

The patient was hemodynamically stable having

Table 1: Chief complaints with grade and duration of complaints.

Chief complaints	Grade	Duration
Severe throbbing pain	+++	5-6 days
Oedema	+++	3-4days
Tenderness	+++	2-3days
Discharge (slough)	++	1-2days
Foul smell	++	1-2days
Difficulty in walking	++	1-2days

Patient's History
History of Present illness

Onset - Before 7-8 days,
Duration - since last 5-6 days,
Progress - Gradual

Past History

No history of similar episode
No any comorbidities
No h/o past surgery

Family History - Mother - NAD, Father - NAD,

Personal History

Diet: Mixed
Sleep: Normal
Appetite: Adequate
Bowel: 1-2times/day
No history of any addiction.

Local Examination
Local Examination at Perianal Region

Inspection

- Ischiorectal abscess of right gluteal region approx. 2 cm away from anal verge.
- Edema at right Ischiorectal abscess +++
- Ischiorectal abscess of left gluteal region approx. 3 cm away from anal verge.
- Edema at left Ischiorectal abscess +++

Palpation

- Tenderness (at B/L ischiorectal abscess) +++
- Fluctuation tests positive (at B/L ischiorectal abscess)
- Pus discharge from left ischiorectal abscess ++
- No pus discharge from right ischiorectal abscess.

P/R done with lox 2%
No spasm
P/S done with lox 2%
NAD

Investigations

Imaging Test

MRI was advised for the patient; however, due to lack of cooperation, MRI imaging could not be performed, and therefore no MRI evidence of the ischiorectal abscess is available.

Table 2: Laboratory Examination

Before Drainage	Post Drainage
CBC + ESR - reports done on 10/12/24	**CBC + ESR -** reports done on 12/12/24
Hb -14.8 gm/dl TLC - 20,7700 cu/mm PLT - 5.2 lakh/cumm ESR - 130 mm/hr HHH - Negative RBS - 142 mg/dl SR Creat - 1.4 mg/dl	Hb -14.8 gm/dl TLC - 14000cu/mm PLT - 5.2 lakh/cumm ESR - 70 mm/hr

Diagnosis

B/L Ischio-Rectal Abscess.

Therapeutic Intervention

Methodology

Patient was admitted to Male Shalya ward of D.Y. Patil Ayurvedic Hospital on 9/12/2024.

Line of Treatment

Pre-operative

- Mgso4 + glycerin dressing done OD
- Augmentin 1.2 gm in 100 ml NS IV/BD
- Pan40 mg IV BD
- Emset 4mg IV sos
- Dynapar 75 AQ in 100 ml NS IV SOS

Table 3: Local Examination of Post-Op Wound at Perianal Region:

Parameters	Right Ischiorectal abscess	Left Ischiorectal abscess
SITE of Ischiorectal Abscess after, I & D	post drained wound of Ischiorectal abscess of right gluteal region approx. 3-4 cm away from anal verge.	post drained wound of ischiorectal abscess of left gluteal region approx. 5-6 cm away from anal verge
Dimension of opening of wound post I & D	2cm*1.5cm*0.5cm	3cm*1.5cm*0.5cm
Dimension	5*3*0.5 cm	5.5*2*0.5 cm
shape	Oval	Oval
Odour	Foul	Foul
Discharge during, I & D	++++	++++
Discharge after, I & D	++	++
Edges	Defined	Defined
Local temp	Raised	Raised

Operative

- Incision and drainage done under local anesthesia done on 11/12/2024.

Post-Op management

- Done by *Nimba- Patol- Erandmool Kwath Vrana Dhavan*.
- Topical application of *Yashtimadhu Lajjalu Tail* dressing for 4 weeks.

The line of treatment was adopted, shown in Table 4.

Table 4: Post-operative Line of treatment

SN	Type of intervention		Time of administration	Anupana	Duration
1.	Dhawan	Nimb-Patol-Erandmool Kwath Dhawan	Once daily for 20 min in morning	NA	30 days
	Local application	Yashtimadhu-Lajjalu Taila - Dressing	Once daily in morning	NA	30 days
2.	Internal Adminis-tration	Triphala Guggulu 350mg 2BD AF Hingwashtak + Avipattikar Churna 3gm BD BF Gandhak Rasayan 250mg 2BD AF Gandharva Haritaki Churna 5gm HS AF		Lukewarm water	30 days
3.	Advice	• Sitz bath post defecation for 10min BD with warm water • Daily Kwath Dhawan and dressing		NA	30 Days

Image 1: Day 0 - Before I & D (left sided perianal abscess)

Image 2: Day 0 - Before I & D (Right sided perianal abscess)

Image 3: Day 1 - After I & D (left sided perianal abscess)

Image 4: Day 1 - After I & D (Right sided perianal abscess)

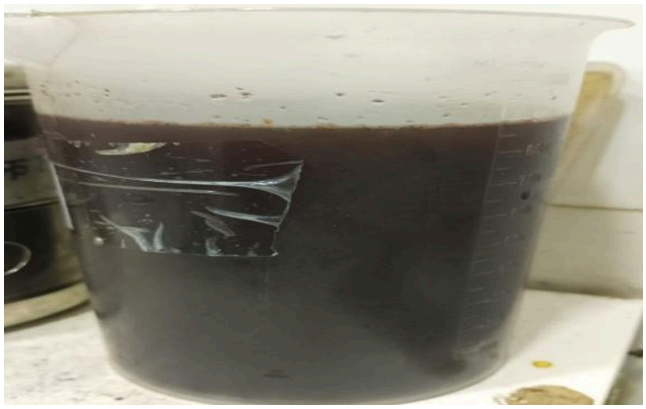

Image 5: Nimb-Patol-Erandmool Kwath:

Image 6: Dhavan with Nimb-Patol-Erandmool Kwath:

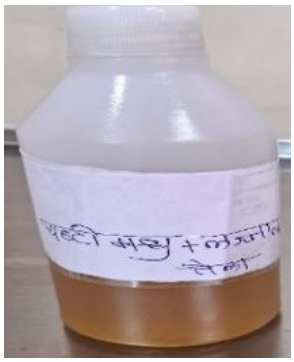

Image 7: Yahtimadhu-Lajjalu Tail:

Image 8: Yashtimadhu-Lajjalu Tail dressing:

Figure 1: of right & left ischiorectal abscess & post-op dressing with *Ayurvedic* Approach:

Follow Up Images:

Figure 2: Follow up after 1 week (Healthy Granulation tissue)

Figure 3: Follow up after 2 weeks (collapse of cavity)

Figure 4: Follow up after 3 weeks (healing of post-op wound)

Figure 5: Follow up after 4 weeks (complete healing with no scar mark)

Method of Preparation:

- *Nimb-Patol-Erandmool Kwath:* for *Dhawan* was prepared as per *Bhaishjyaratnawali* all 3 authenticated drugs was taken and 16 times of water added and heated until it remains 1/8th of total quantity.
- *Yashtimadhu-lajjalu Taila*: is a medicated oil prepared using sesame oil as the base, along with a paste (*Kalka*) of *Yashtimadhu* (*Glycyrrhiza glabra*) and *Lajjalu* (*Mimosa pudica*), and their decoction (*Kashaya*) as the liquid media. All ingredients are combined in a 1:1:4 ratio and heated on mild flame until the water evaporates and the oil meets classical signs of proper preparation (*Taila Siddhi Lakshana*). The final oil is filtered and stored. It is used externally for wound healing, especially in post-abscess care, fissures, fistula, and bleeding disorders due to its soothing, styptic, and healing properties (*Yogaratnakara / Bhaishajya Ratnavali, Arsha Chikitsa Prakarana).*

Table 5: Drug Review

Drug name	Raspanchak	Main Active ingredients	Action
Nimb (Azadirachta indica)	Guna Laghu-Ruksha, Rasa: Tikta Kashay, Vipaka Katu Veerya: Sheeta Karma: Pitta-Kapha Hara	Nimbin, salannin	antimicrobial action
Patol (Trichosanthes dioica)	Guna: Laghu: Rasa: Tikta Vipak: Katu Veerya: Ushna Karma:Kapha-Pittahar	Riboflavin, vit A	anti-inflammatory, antioxidant
Erand (Ricinus communis)	Guna: Snigdh: Rasa: Madhur, Kashayvipak: Madhur. Veerya: Ushna Karma: Vat-Kapha Har	Ricinic acid	tissue regeneration & moisturizing properties
Yashtimadhu (Glycyrrhiza glabra)	Guna:Snigdh, Guru: Rasa: Madhur Vipak: Madhur Veerya: Sheeta. Karma: Vat-Pittahar	Glycyrrhizin	wound-healing and soothing properties, reduced discomfort & reducing scar formation
Lajjalu (Mimosa pudica)	Guna: Laghu, Ruksha: Rasa: Tikta , Kashay. Vipak: Katu Veerya: Sheeta. Karma-Kapha-Pitta Har	Flavonoids, tannins	may have promoted faster tissue regeneration
Til Tail (sesamum indicum)	Guna:Snigdh, Guru: Rasa: Madhur. Vipak: Madhur Veerya: Ushna. Karma: Vata-Kaphahar	Phytosterols	Moisturising the wound, reducing scar formation, better for absorption

Observation: (Diagnostic Assessment)

Patient was observed on the following parameters on every week for 4 weeks,

Follow-up- Day-1, Day-7, Day14, Day-21, Day-30

Table 6: Diagnostic Assessment

Sign and symptoms	Right gluteal region					Left gluteal region				
	Day 1	Day 7	Day 14	Day 21	Day 30	Day 1	Day 7	Day 14	Day 21	Day 30
1) Size of wound	++++	++++	+++	++	-	++++	++++	+++	++	-
2) Tenderness	+++	++	++	+	-	+++	++	++	+	-
3) Bleeding	++	+	+	-	-	++	+	+	-	-
4) Discharge	+++	++	+	+	-	+++	++	+	+	-
5) Granulation tissue	-	+	++	++	+++	-	+	++	++	+++

Result

The wound in this case was successfully managed using an *Ayurvedic* protocol involving meticulous wound care combined with herbal formulations. Specifically, *Nimb Patol Erandmool Kwath* was utilized for wound cleansing (*Vrana Dhavan*), owing to its established anti-inflammatory, antioxidant, antimicrobial, and cleansing properties. This was followed by the topical application of *Yashtimadhu-Lajjalu Taila* to promote wound healing.

Clinical Observations

1. Granulation Tissue Formation:

Healthy granulation tissue began forming within a few days of initiating treatment, indicating active tissue repair and regeneration.

2. Wound Size and Depth Reduction:

A progressive reduction in wound size and depth was observed over a period of four weeks.

3. Inflammatory Response:

Signs of inflammation, including swelling, redness, and local temperature, significantly decreased within the first week, demonstrating the anti-inflammatory effects of the treatment.

4. Discharge and Infection:

There was a marked reduction in wound discharge with no evidence of pus formation, secondary infection, or excessive exudation throughout the treatment period.

5. Pain and Discomfort:

The patient reported a noticeable reduction in pain and discomfort within the initial few days of therapy.

6. Overall Recovery Time:

Complete collapse of abscess cavity and wound healing was achieved in a period shorter than typically expected i. e. 4 weeks with conventional treatments.

The patient also exhibited improved mobility and was able to resume daily activities without any post-treatment complications.

Discussion

In present case, patient was diagnosed with bilateral ischiorectal abscesses without any interconnecting tract between them. Bilateral abscess formation, though not uncommon, may evolve into horseshoe-shaped abscesses, which pose a greater therapeutic challenge due to their deep anatomical extension, higher recurrence rate, and risk of fistula-in-ano development.**[11]** The objective of this study was to evaluate role of *Ayurvedic* interventions in managing postoperative complications associated with bilateral ischiorectal abscess, in line with principles described in classical *Ayurvedic* texts. Anorectal abscesses are primarily classified into five types: perianal (60%), ischio-rectal (30%), intersphincteric (5%), supralevator (4%), and submucosal (1%).**[12]** These infections originate in anal cryptoglandular epithelium, spreading along anatomical fascial planes. In ischiorectal abscesses, pathogenic organisms breach internal anal sphincter and propagate through ischiorectal fossa, a space composed of loose connective tissue, allowing extensive infection spread.**[13]**

The standard modern medical approach involves incision and drainage under anaesthesia followed by healing by secondary intention. Antibiotic therapy is typically reserved for patients with systemic signs of infection or underlying immunosuppression.**[14]** However, such wounds often exhibit delayed healing and recurrence. Thus, integrative approaches that enhance granulation, reduce microbial burden, and modulate local immunity are desirable.

In *Ayurvedic* pathology, the condition is closely related to *Antarbahya Vidradhi*, with *Guda Vidradhi* described as an internal variety. Classical management involves *Bhedana* (incision) and *Visravana* (drainage) followed by wound care with herbal formulations possessing *Shodhana* (cleansing) and *Ropana* (healing) properties.**[15]**

In this case, treatment was executed in phased manner:

During the *Pachyamanavastha* (immature stage), the patient was managed conservatively with antibiotics and Magnesium sulfate dressing to reduce local inflammation and induration.

Upon abscess maturation (*Pakwa Avastha*), surgical drainage was performed.

Postoperatively, *Ayurvedic* wound management was initiated, comprising *Vrana Dhavana* with *Nimba-Patol-Erandmool Kwath* followed by local application of *Yashtimadhu-Lajjalu Tail.*

Pharmacological Rationale of Ayurvedic Formulations

Nimba (*Azadirachta indica*) possesses antimicrobial, anti-inflammatory, and antioxidant properties, attributable to bioactive compounds like azadirachtin, nimbin, and quercetin.**[16]** Its *Tikta Rasa* and *Kashaya* properties are effective in reducing wound exudate and promoting drying.

Patol (*Trichosanthes dioica*) has demonstrated anti-inflammatory, hepatoprotective, and antimicrobial activity**[17]**, and balances *Kapha-Pitta*, aiding in skin healing and infection control.

Erandmool (*Ricinus communis*), rich in flavonoids and ricinoleic acid, is known for its analgesic, anti-inflammatory, and *Srotoshodhana* (microchannel cleansing) properties.**[18]**

Yashtimadhu (*Glycyrrhiza glabra*) has been extensively studied for its anti-ulcerogenic, anti-inflammatory, and mucosal protective activities. Glycyrrhizin and liquiritin promote re-epithelialization and fibroblast proliferation.**[20]**

Lajjalu (*Mimosa pudica*) is reported to have antibacterial, astringent, hemostatic, and wound healing properties due to phytoconstituents like mimosine, alkaloids, and flavonoids.

Tail (clarified butter) acts as a bio-enhancer, facilitating deeper tissue penetration of drugs. It also provides a protective lipid barrier, reduces inflammation, and enhances collagen synthesis.**[21]**

Combined Mode of Action

The *Dhavan Kwath* acts synergistically to reduce microbial load, prevent secondary infection, and maintain an aseptic wound environment. Daily wound cleansing reduces *Kleda* (moisture), promotes *Shodhana*, and facilitates effective *Ropana* by preventing slough accumulation. The *Yashtimadhu-Lajjalu Tail* provides continuous moisturization, protection, and enhances fibroblast activity, thereby accelerating the wound healing process.

Notably, no adverse events such as hypersensitivity, irritation, or delayed healing were observed throughout the postoperative period, highlighting the biocompatibility and therapeutic efficacy of *Ayurvedic* formulations when used in a structured, evidence-informed manner.

Conclusion

The successful management of ischiorectal abscess through integrated *Ayurvedic* interventions highlights the potential of classical wound care principles described in ancient texts like the *Sushruta Samhita* and *Charaka Samhita*. While modern surgical drainage addresses the acute suppurative pathology, the postoperative wound remains vulnerable to delayed healing and chronic complications. In such scenarios, *Ayurvedic* management serves as a complementary strategy, offering holistic wound care by promoting *Shodhana* (cleansing), *Ropana* (healing), and *Dhatu Poshana* (tissue nourishment). In this case, postoperative use of *Nimba-Patol-Erandmool Kwatha* for *Vrana Dhavana* and local application of *Yashtimadhu-Lajjalu Tail* provided favourable outcomes in terms of wound contraction, granulation tissue formation, and prevention of infection recurrence—without any adverse effects. These formulations, supported by both *Ayurvedic* textual evidence and modern pharmacological validation, offer a safe and effective approach for wound management, especially in high-risk or recurrent abscess.

This case supports the view of *Sushruta* who emphasized that "*Shuddha Vrana* (clean wound) heals spontaneously with proper treatment, just as a well-watered seed grows by itself" (Su. Chi. 1/71). Furthermore, the pharmacodynamic actions described under *Tikta-Kashaya Rasa, Ushna-Virya*, and *Lekhana-Ropana* Guna contributed significantly to the healing cascade. These interventions, grounded in *Tridosha* balancing and tissue-level rejuvenation, reflect the unique strength of Ayurveda in surgical convalescence. Thus, structured integration of *Ayurvedic* principles in post-surgical wound care can provide enhanced healing outcomes, reduce complications, and potentially minimize the recurrence of conditions like fistula-in-ano or chronic sinuses. Further randomized controlled trials and pharmacological studies are warranted to explore these results on a larger scale.

References

1. Abcarian H. Anorectal infection: abscess-fistula. Clin Colon Rectal Surg. 2011;24(1):14–21. *doi:10.1055/s-0031-1272828 [Crossref][PubMed][Google Scholar]*

2. Parks AG. Pathogenesis and treatment of fistula-in-ano. Br Med J. 1961;1(5224):463–9. *[Crossref][PubMed][Google Scholar]*

3. Whiteford MH. Perianal abscess/fistula disease. Clin Colon Rectal Surg. 2007;20(2):102–9. *doi:10.1055/s-2007-977465 [Crossref][PubMed][Google Scholar]*

4. Sahnan K, Adegbola SO, Tozer PJ, Watfah J, Phillips RK. Perianal abscess. BMJ. 2017;356:j475. *doi:10.1136/bmj.j475 [Crossref][PubMed][Google Scholar]*

5. Rivadeneira DE, Steele SR, Ternent CA, et al. Practice parameters for the management of perianal abscess and fistula-in-ano. Dis Colon Rectum. 2011;54(12):1465–74. *doi:10.1097/DCR.0b013e31823122b3 [Crossref][PubMed][Google Scholar]*

6. Malik AI, Nelson RL. Surgical management of anal fistulae: a systematic review. Colorectal Dis. 2008;10(5):420–30. *doi:10.1111/j.1463-1318.2008.01435.x [Crossref][PubMed][Google Scholar]*

7. Garcia-Aguilar J, Belmonte C, Wong WD, Lowry AC, Madoff RD. Anal fistula surgery: factors associated with recurrence and incontinence. Dis Colon Rectum. 1996;39(7):723–9. *[Crossref][PubMed][Google Scholar]*

8. Dash B. Materia Medica of Ayurveda. New Delhi: B. Jain Publishers; 2001. *[Crossref][PubMed][Google Scholar]*

9. Sharma PV. Sushruta Samhita (with English translation). Vols. I–III. *Varanasi: Chaukhambha Orientalia; 2001 [Crossref][PubMed][Google Scholar]*

10. Kaphle K, Wu LS, Yang NY, Lin JH. Herbal medicine and acupuncture for veterinary conditions: a review of the recent literature. J Vet Med Sci. 2006;68(9):963–70. *[Crossref][PubMed][Google Scholar]*

11. Garg P. Understanding and managing horseshoe fistula-in-ano: a review. Indian J Surg. 2016;78(2):103–8. *[Crossref][PubMed][Google Scholar]*

12. Abcarian H. Anorectal infection: abscess-fistula. Clin Colon Rectal Surg. 2011;24(1):14–21. *doi:10.1055/s-0031-1272828 [Crossref][PubMed][Google Scholar]*

13. Biswas K, Chattopadhyay I, Banerjee RK, Bandyopadhyay U. Biological activities and medicinal properties of neem (Azadirachta indica). Curr Sci. 2002;82(11):1336–45. *[Crossref][PubMed][Google Scholar]*

14. Parks AG, Gordon PH, Hardcastle JD. A classification of fistula-in-ano. Br J Surg. 1976;63(1):1–12. *[Crossref][PubMed][Google Scholar]*

15. Shastri KA, editor. Sushruta Samhita, Chikitsa Sthana 1/68–69. Varanasi: Chaukhambha Sanskrit Sansthan; year unknown. . *[Crossref][PubMed][Google Scholar]*

16. Singh A, et al. Pharmacognostic and phytopharmacological overview of Trichosanthes dioica. Asian J Pharm Res. 2022;12(2):75–82. *[Crossref][PubMed][Google Scholar]*

17. Burgos RA, et al. Biological activities of Ricinus communis and its derivatives. Fitoterapia. 2017;124:15–24. *[Crossref][PubMed][Google Scholar]*

18. Asha MK, et al. Wound healing and anti-inflammatory activity of Glycyrrhiza glabra. Indian J Exp Biol. 2014;52(4):358–66. *[Crossref][PubMed][Google Scholar]*

19. Kar A, et al. Phytochemical and pharmacological review on Mimosa pudica. Int J Res Pharm Chem. 2013;3(3):653–60. *[Crossref][PubMed][Google Scholar]*

20. Sharma PV. Dravyaguna Vigyan. Vol. II. *Varanasi: Chaukhamba Bharati Academy; 2012 [Crossref][PubMed][Google Scholar]*

21. Nelson R, et al. Management of anorectal abscess and fistula-in-ano. Clin Colon Rectal Surg. 2022;35(1):17–23. *[Crossref][PubMed][Google Scholar]*