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Therapeutic Interventions for Fissure in Ano: An Evidence-Based Review

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Abstract

The word *"Parikartika" means* "cutting agony at the anal region," or *"Kartanvat vedana ." The* main signs of this illness are a drop of blood or a streak of fresh blood, together with excruciating pain and a burning feeling that lingers for several hours during and after a bowel movement. According to *Acharya Sushruta*, the person who does not adhere to the *Aahara Vidhi* and consumes food like *Shushka(Dry), Viruddha (Incompatible),* and *Vishtambhi (Obstructing)* develops a condition called *Agnivaishmya* (dyspepsia), which is the main cause of all illnesses. One of the significant causes of the fissure-formation process is constipation. . The modern diet of most people is erratic due to the prevalence of fast food. Additionally, one leads a sedentary lifestyle and is constantly under stress. All of these cause the digestive system to become disturbed, which in turn causes a variety of diseases. Anorectal disorders are the most prevalent ones. The disease typically develops in females during pregnancy and after giving birth The majority of acute anal fissures resolve without surgical intervention. Finger anal dilatation, as well as lateral internal sphincterotomy, are two common operative techniques. *Ayurved* Treatment in *Parikartika* consists of *Basti Karma, Pichoodharan, Ksharakarma, Agnikarma, Shastrakarma*, and a few oral medications administered by *Sushrutacharya* and *Charakacharya*.

Keywords: Fissure-in-ano, *Parikartika*, constipation

Introduction:

The art of living in humans is also medical science, according to the ancient indigenous science of medicine known as *Ayurveda*. The modern diet of most people is erratic due to the prevalence of fast food. Additionally, one leads a sedentary lifestyle and is constantly under stress. All of these cause the digestive system to become disturbed, which in turn causes a variety of diseases. Anorectal disorders are the most prevalent ones[1]. Anorectal fissure is the most painful ailment that disallows individuals to go about their daily lives without too much discomfort. A fissure in ano is a painful anorectal ailment that helps people lead their regular activities with tolerable discomfort. A split or crack is what the word "fissure" itself means. [2] It is characterized by excruciating pain and bleeding during bowel movements and is linked to internal anal sphincter spasms. Modern research has divided fissure-in-ano into two categories: acute and chronic. Anal fissures typically heal on their own and are considered to be minor, but those that are still symptomatic after 4–6 weeks are frequently known as a chronic fissures. [3] The word *"Parikartika"* means "cutting agony at the anal region," or *"Kartanvat vedana"*. The main signs of this illness are a drop of blood or a streak of fresh blood, together with excruciating pain and a burning feeling that lingers for several hours during and after a bowel movement. In *Bruhatrayi*, *Parikartika* is described as an illness that develops as a result of other illnesses rather than as a separate illness.[4] The phrases *"Pari"* (around the anus) and *"Kartika"* (cutting pain) are combined to form the word *"Parikartika"*. Regarding the *Parikartika* idea, several distinct viewpoints are stated. It is a tearing agony that can occur anywhere in the body, according to *Acharya Dalhana*. It is described as a cutting type of agony that is particularly centered in *Guda* by *Madhavnidan* commentator *Vijayarakshit.* [5] According to *Kashyap*, pregnant women should be treated according to the three varieties of *Parikartika (Vataj, Pittaj, and Kaphaj). Charaka* described *Parikartika* as a Vataj Atisara(Diarrhea) complication, one of the symptoms of *Vataj grahani(Irritable bowel syndrome)*, *Parikartika* also occurs due to complications of various *Panchakarma* procedures in *Virechan Vyapad*(Complication related to purgation therapy), *Basti Vyapad(*Enema complication), *Basti Netra Vyapad* (complication due to enema nozzel). *Parikartika* is also referred to as *purvarupa* (prodormal symptom) of *Arsha* (Haemorrhoids) in the *Sushrut Samhita* and *Ashtanga Sangraha*. *Parikartika* was mentioned by Kashyapa as a distinct illness in the context of *Vyapada*(complication). [6]

Predisposing Factors

According to *Acharya Sushruta*, the person who does not adhere to the *AaharaVidhi (*diet regimen*)* and consumes food like *Shushka*, *viruddha*, and *Vishtambhi* develops a condition called *Agnivaishmya* (dyspepsia), which is the main cause of all illnesses. He continued by saying that everyone should consume food of all six *Rasas* (Tastes) every day. So all ailments, especially anorectal diseases, are caused by an unhealthy diet, hot food, and junk food.[7,8]

Multiple social, psychological, and physiological variables might influence the chronic anal fissure's start, progression, and effects on quality of life. The severity of depression and anxiety has a deleterious effect on patients with CAF (Chronic anal fissure) due to the high comorbidity of psychopathology. Stress contributes to CAF by acting as both a trigger and an aggravating element. [9,10]

One of the significant causes of the fissure-formation is constipation. Among the other contributing causes include the passing of hard stool, erratic eating patterns, ingestion of hot and sour foods, poor bowel habits, and lack of anal hygiene. The disease typically develops in females during pregnancy and after giving birth. Initially appearing as a Superficial split in the anoderm, an acute fissure has the potential to develop into a chronic fissure. [11,12]

Methodology:

The terms "Fissure in ano" and "*Parikartika*" were searched for in the online databases PubMed, PubMed Central, Ayush portal, and IndMed. A total of 100 references from the databases' inception were found through the search. The review included articles, case studies, and case series written in English that discussed the causes and remedies for fissures in ano. The review did not include studies whose abstracts were unavailable or in languages other than English. A total of 50 studies were chosen for the final review.

Review Of Literature:

The fissures can be classified into Acute and Chronic. Acute fissure is a longitudinal tear in the long axis of anal canal. Chronic or complicated fissure in ano exhibits one or more of the following characteristics, it is classified as chronic or complex.[13]

1. A fibrous anal polyp is present.
2. The existence of an external anal skin tag
3. Indurations or fibrosis of the edges of the fissure.
4. Visible fibres of the internal sphincter at the floor of the fissure

5. An infected or suppurated fissure.
6. A bridged fissure with an underlying fistula (a post-fissure fistula).

In the past, it has been seen that fissures exacerbated by any of the aforementioned factors do not heal on their own or respond to conservative treatment.[14] Anal fissures can have a significant adverse effect on patients' quality of life.[15]Various treatment modalities are given as per modern and Ayurved which are discussed below. As per Ayurveda the principal treatment of *Parikartika* is mainly based on conservative and surgical management.

Conservative management	Para-Surgical management
Dietary modification[16]	*Kshar*(Alkali)[21]
Matrabasti (Enema)[17]	*Agnikarma* (Therapeutic heat burns)
Taila/Grita Pichu (Medicated gauze)[18]	*Shashtra karma* (Surgery)
Awagahsweda ((Hot fomentation-sitz bath) [19]	
Local application of medicated *Ghrita and Taila*[20]	

Dietary modifications:[22]

In *Saama (*Indigestion) condition, *Langhana (*Fasting)-*Deepana (*Appetizer) and *Ruksha – Ushna (*hot*) – Laghu (*Light) diet

1. *Madhura* (sweet) and *Brihaniya (*Nourishing) diets are advised in thin & lean Patients.
2. In severe *Vata aggravated condition* , *Ghrit* with *Daadimarasa* should be given.[23]

Local treatment as per Ayurveda:

Treatment in *Parikartika* consists of *Basti Karma* (medicated enema) and a few oral medications administered by *Sushruta*charya and *Charakacharya*. The majority of enemas are made with *Sarpi (*Clarified butter), oil, *Godugdha(Cow milk),* and other ingredients as necessary. The majority of *Basti Karma* ingredients, such as *Vrana Shodhaka (*Wound purification*)* and *Vrana Ropaka(*Wound healing), have *Vata Pitta*-pacifying properties. Systemic oral formulations improve digestion through *Agnideepana* and *Amapachana* and treat gastrointestinal disorders. [24-25]

***1.Matrabasti* (type of *Anuvasanabasti*):** It acts as a retention enema and helps in the easy voiding of stools, by this *Vatanulomana (*Correcting the functions of vata dosha) occurs and it cures the diseases caused by aggravated *Vata* as *Parikartika* is *Vata* dominant disease. By giving *Matra Basti* local oleation occurs spasms will also be reduced, which lowers the discomfort. It helps maintain the anal canal, softens the faeces, and makes expulsion simple. It functions as a detention enema and facilitates easy bowel movements; as *Parikartika* is a *Vata*-dominant disease, this causes *Vatanulomana* , which cures diseases brought on by provoked *Vata*. By administering *Matrabasti*, local oleation decreases pain while also relieving spasms. It oleates the urethra, softens the stools and makes evacuation of urine and stools easy.

2.Taila*/Grita pichu:* *Pichu* is a unique drug delivery system of *Ayurveda, "Pichu Sthoola kavalika"* –The term *"Pichu"* refers to a thick cotton pad or swab. In the *Pichu Dharana* procedure, a piece of cloth, gauze, or linen is soaked in *Ghrita* or *Taila* and applied to the affected area of the body. *Pichu's* local effects includes oleation, scraping, and wound healing, are based on the body's ability to absorb the medication.[26]

***3.Avgahasweda* (hot fomentation-sitz bath):** Seating in the hot/warm tub following each bowel emptying relieves discomfort and temporarily reduces internal sphincter spasm. Additionally, it aids in fissure wound cleaning. It takes 10 to 15 minutes to complete. [27]

4.Local application of medicated *taila and Ghrita:* Application of medicated taila or ghrita at the affected site helps in healing the fissure due to the healing properties of drugs used.

Chronic Fissure-In-Ano treatment According to the *Ayurvedic* texts on *Shushkarsha, Bahyarsha* (External haemmorhoids) and Sentinel Piles are related.

Sushruta Acharya Listed four treatment modalities.

1) *Bheshaja* (conservative line of Management)
2) *Kshara (Alkali)*
3) *Agnikarma*
4) *Shastra*.

1. Kshara (Medicated thread smeared with *kshar*) : Ligation of the *KsharSutra* to the Sentinel pile masses, which cause them to collapse. Scraping action of *Kshara*, reduces the excess fibrous Tissue present over the ulcer surface and ulcer heals & Sphincter relaxation occurs simultaneously.

2. Agnikarma: Para surgical procedure like *Agnikarma* has been widely advised by *Sushruta* & doing *Agnikarma* Treatment has provided marked relief & no recurrence. Excision of sentinel piles by *Agnikarma* i.e. by

electro Thermal cautery is done. [27]

3. *Shashtra* (Surgical management)

Successful nonsurgical management of chronic anal fissures improves symptoms and has a positive impact on health. [28]

The principle aim of treatment for anal fissures as per modern is based upon conservative and surgical management via decreasing inner sphincter tone and hence facilitates the blood flow with subsequent tissue healing. The use of medications and surgery are two treatment options. Traditional pharmaceutical care involves the use of muscle relaxants, commonly topical and occasionally oral agents. These medications include calcium channel blockers, Botulinum toxin, nitrates (ISDN or glyceryl trinitrate (GTN)), agonists and antagonists of the - adrenoreceptors, agonists of the muscarinic receptor, and - adrenoreceptors. Gonyautoxin, a paralytic neurotoxin derived from shellfish, is one of the more recent pharmacological agents being tested.

Operative management:

i. Lateral internal sphincterotomy.[29]
   a. Open method
   b. Closed method
ii. Lord's anal dilation (blunt sphincterotomy) [30]
iii. Fissurectomy and local advancement flap [31,32]

Anal dilatation, as well as lateral internal sphincterotomy, are two common operative techniques. Several colorectal surgeons believe that finger anal dilatation is no longer an effective treatment since it has been linked to the emergence of anal incontinence. For treating persistent fissures, lateral sphincterotomy has long been widely recommended. Local flap operations like V-Y advancement flaps and rotation flaps are examples of more recent surgical interventions. The fissurectomy and fissurotomy procedures were developed in response to efforts at fissure correction. The advancement of calibrated and regulated processes using anal dilatators or pneumatic balloons is the result of renewed interest in the anal dilatation technique. Sphincteroly, a novel technique for bluntly dividing internal sphincter fibers, also has been tried. [33]

Discussion:

Anal fissures can have a significant adverse effect on patients' quality of life. Major symptoms of this disease are severe agonizing pain and burning sensation during and after defecation which lasts for some hours and is associated with a hard stool pellet and there is a drop of blood or streak of fresh blood. Various treatment modalities as per *Ayurveda* and modern medicine are practiced worldwide. Different studies are conducted to check the effectiveness of the single treatment modalities as well as comparative studies.

The study was conducted on 135 patients who underwent lateral internal sphincterotomy and received injections of botulinum toxin to treat CAF. In this study, lateral internal sphincterotomy has shown a higher complication rate than botulin toxin injection but the recurrence rate was found to be more in botulin toxin injection. [34]

A study was conducted at the SBV University, Pondicherry, India, a randomized study contrasting topical 2 % diltiazem against LIS for the management of CAF. 90 CAF patients (45 in each group) were divided into groups A and B. The study concludes that LIS provides rapid pain relief and healing of fissures, and it offers an effective treatment choice. However, topical diltiazem is safe, and easy to use with minimal adverse effects and may be considered the first option. [35]

In a prospective experiment, 60 surgical patients with persistent fissures in ano were randomly assigned to Group 1 (Diltiazem gel) and Group 2 (internal sphincterotomy), each with 30 patients. According to the study, Chemical Sphincterotomy with Topical Diltiazem 2 percent should be recommended as the initial course of therapy for persistent anal fissures. Patients who have therapeutic failure from past pharmacological therapy and relapse should be administered internal sphincterotomy. [36]

In a study patients were randomly randomized to receive treatment either with a basic anal dilatation or a lateral SC sphincterotomy. The allocation of patients was 30 for lateral SC sphincterotomy and 28 for straightforward anal dilatation. They concluded that lateral SC sphincterotomy, as opposed to anal dilatation, is the preferred course of treatment for individuals with chronic anal fissures. [37]

In a study, ninety people diagnosed with fissure in ano Glyceryl Trinitrate(GTN) Lotion significantly reduced discomfort, prevented hemorrhage, and promoted recovery. After 12 weeks, the GTN group demonstrated that 86.6 percent of the chronic anal fissure had healed. At 6 and 12 weeks, however, the LIS group demonstrated 86.7% and 100% healing of the CAF, and the PIS group demonstrated 80% and 100% healing of the chronic anal fissure, respectively. Twenty percent of patients in the GTN group experienced mild headaches as a secondary effect, which were effectively handled with acetaminophen. Although not substantial, comorbidities including anal leakage and flatus incontinence were somewhat more common after posterior sphincterotomy than after lateral sphincterotomy. LIS thus outperforms PIS. [38]

In a study of 50 patients having CAF participated in quasi-experimental research at a university hospital in Kerman, where 25 got 20 units of botulinum toxin and 25 had LIS. Botulinum toxin was found to be an efficient non-invasive option in the clinical assessment for the management of CAF. [39]

According to the results of some other non-randomized controlled experiments LIS and botulinum toxin injection therapies appear to be equally beneficial in the management of CAF,. [40]

In a study conducted at Shahed University's performed a prospective randomized controlled experiment. In this research, 130 CAF patients were included. Two groups of patients were created randomly. 65 individuals got oral nifedipine (ON) and the same amount received topical nifedipine (TN) . In the topical nifedipine group, ulcer healing happened in 43 (73.33%) patients as opposed to 29 (49.5%) patients who received oral nifedipine, which was substantially different (P 0.05). The oral nifedipine group experienced higher adverse effects than the topical nifedipine group, including headaches and redness. Topical nifedipine has a greater function for treating anal fissures with a positive effect and fewer complications, even though oral nifedipine can lessen anal fissure symptoms and indicators.[41]

The study was carried out at the general surgery division of a tertiary care facility in Eastern India. It was discovered in this study that LIS was a superior kind of therapy for CAF to fissurectomy. LIS had fewer postoperative complications than fissurectomy. However, there was no relapse in the fissurectomy group, although there was a greater rate of relapse in the LIS group. [42]

In a study *Yashtimadhu Ghrita* was administered to 18 of the 36 patients admitted in Group A (n = 18), while lignocaine-nifedipine ointment was applied locally to 18 of the 36 *Parikartika* patients in Group B (n = 18). When treating *Parikartika* symptoms, *Yashtimadhu Ghrita* and lignocaine-nifedipine ointment both are similarly efficient (acute fissure in ano). Mild adverse effects were reported with lignocaine-nifedipine ointment. [43]

In a study there were 30 patients with fissures in the ano, of which 15 were in group A and 15 were in group B. Group A *(Ksharasutra)* took less time than Group B to provide postoperative pain, bleeding, edema, and tissue repair alleviation (OLIS). OLIS produced superior outcomes in the treatment of *Parikartika* relative to *Ksharasutra* ligation (chronic fissure-in-ano). [44]

In a study, patients with CAF were arbitrarily chosen from the OPD and IPD of ShalyaTantra, IPGT, and RA, Gujarat Ayurved University, Jamnagar, Gujarat, India. 50 patients in Group A and 50 patients in Group B.

Group-A: Under appropriate anesthetic, *Ksharasutra* suturing (KSS) at the fissure bed and trans-fixation of the sentinel tag, if present, were performed. Compared to Group-A, patients in Group B (KSS with Lord's anal dilatation) experienced lower postoperative discomfort and recovered faster (KSS). Each group's surgical wounds healed in 21 days, so it can be deduced that neither *Ksharasutra* nor the rectal installation of *Jatyadi Taila*, which aided in the rapid healing process, caused any septicemia. No unfavorable medication or *Ksharasutra* side effects were seen throughout or during this surgery. The study's findings revealed that *Ksharasutra* is one modality that may be employed to treat *Parikartika*. [45]

There were 50 *Parikartika* patients altogether. Standard *Apamarga Ksharasutra,*sitz bath *Panchavalkala kwatha*, *Eranda Bhrishta Haritaki Churna* 5 g at night, along with *Triphala Guggulu Vati* and *Jatyadi Taila Pichu* (Gauze soaked in oil) for regional retention over the anal area. Sentinel pile *ksharasutra* trans-fixation and ligation (KSL) an appropriate anesthetic was used when working with the fissure bed. The study concluded that *Parikartika Ksharasutra* ligation, which involves lesser postoperative discomfort and is simple to conduct, is a great substitute for contemporary surgery. After the *Ksharasutra* was removed, the wound continued to be normal, and the mean surgical wound recovery duration was 21 days. Consequently, it is an effective method for treating chronic fissures.[46]

In a study of 50 patients were diagnosed with *Parikartika* treatment lasted a single stage with *Ksharasutra* suturing for *Parikartika*, and patients were evaluated every week for up to four weeks at the IPD (male and female Shalya wards) as well as after leaving the hospital. In all, 56 percent of patients were judged to be cured, while 28 percent of patients were reported to be improving. 10% of patients showed substantial improvement, while 6% of patients showed modest improvement. As a result, all patients received treatment by the evaluation criteria established for the needed duration for relief in signs and symptoms, and no patient was identified as having "No alleviation." [47]

In a study of 130 cases , 70 cases got complete relief, 29 cases got marked relief.14 cases got moderate relief, 1 case got mild relief while 16 cases were dropped out from the study as they did not turn up for follow-up. Thus it is concluded that the efficacy of this treatment is highly encouraging and the fissure healed without leaving any scar. And this can be achieved with minimum expenditure and without any risk. The principal drug and the supportive therapy including the diet prescribed, dose schedule, and duration of the treatment are as *Kasisadi*

Taila Vasti, Hot sitz bath: 2-3 times a day, *Jatyadi Ghrita*: Applied externally as well as rectally once a day *Triphala Churna*: 3 gm At bedtime with Luke warm water as a laxative Diet: Avoid spicy and non-vegetarian food and Take plenty of water and milk at bedtime.[48]

Conclusion:

Due to the popularity of fast food, the majority of people's diets are unpredictable today. One also lives a sedentary lifestyle and experiences continual stress. These all result in *Agnidushti*(vitiation of digestive fire), which in turn results in several disorders. Anorectal diseases are the most common of them. According to *Ayurveda, Nidanparivarjan(*avoiding causative factor) and shaman *Chikitsa* (palliative treatment) assist to avoid the disease since, as the saying goes, prevention is always preferable to treatment. The *Ayurvedic* therapy methods include *shaman Chikitsa (Agnideepana, Aamapachana, and Vata Pitta Shamak Dravya) Basti Karma, Pichu Dharan, and Awagaha Sweda.* Para Surgical procedures include *Agnikarma, Shastrakarma*, as well as *Ksharakarma* (*Vrana Shodhaka* and *Vrana Ropaka)*. Anal dilatation, sphincterotomy, fissurectomy, antibacterial, purgatives, and lotions are among the therapies used in allopathy medicine. Modern surgical therapy is more useful for CAF than *Ayurvedic* medicine. Modern surgeries make use of advanced equipment which has a targeted approach and are focused on reducing complications and hospital stay. But they require special expertise to perform and also are not widely available and they are not cost efficient. Also, they come with complications and recurrence. On the other hand, Ayurvedic modalities focus on lifestyle modifications along with surgical management and are aimed at reducing the recurrence of the disease, and have minimal risk and side effects. Thus the integrative approach using both modern and Ayurveda treatment modalities should be done to improve the outcomes in the management of fissure-in-ano.

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