

UNDERSTANDING OF KSHALANA KARMA AND ITS APPLICATION IN THE MANAGEMENT OF BHAGANDARA (FISTULA IN ANO)

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ABSTRACT

Therapeutically the word *Kshalana* (irrigation) means the irrigation of the affected site using a suitable solution for the purpose of purification^[1]. It is mentioned in the classical textbooks of ayurveda as *Poorvakarma*, *Pradhana karma*, and *Paschath karma*. *Kshalana* is beneficial in controlling foul-smelling and slimy exudating conditions like ulcers, vaginal infections, etc. A fistula in ano is an abnormal tract or cavity lined with unhealthy granulation tissue that connects a primary opening inside the anal canal to a secondary opening in the perianal skin^[2]. Its prevalence is the second highest after haemorrhoids among anorectal diseases. In Ayurveda, fistula in ano is correlated with the vyadhi *Bhagandara* (fistula in ano). Modern medical managements have its own limitations, even with various surgical modalities. Due to the presence of irritant discharges and non-dependent drainage, fistula in ano seldom shows healing intention^[3]. Although Ayurvedic classics explain various treatment modalities for the management of fistula in ano, *Ksharasuthra* therapy owes the glorious part of management. But improper pus drainage, pus stagnation, and microbial invasion hinder the action of *Ksharasuthra*. *Kshalana* is a simple and cost-effective therapeutic technique. The present review focuses on the understanding of *Kshalana karma* along with its mode of action and application in fistula in ano.

Key words: *Kshalanam*, bhagandara, fisula in ano, analgesic, antimicrobial

INTRODUCTION

Ayurveda is the science of life. The curative, promotive, and preventive aspects of this approach toward a disease makes Ayurveda medicine more relevant in the modern era. Treatment modalities of ayurveda can be broadly divided into *Anthar parimarjana* (internal medication) and *Bahir parimarjana* (external therapies). *Kshalana* is a kind of external therapy mentioned in different disease contexts in the classical textbooks of ayurveda. This technique is used for the purpose of external cleaning of a body part. *Kshalana* is a technique in which suitable irrigating kashaya is used to remove cellular debris and surface pathogens and to facilitate proper drainage of pus using *Kshalana yandra*. *Kshalana* is mainly intended for eye diseases, skin diseases, *Guhya rogas*, *Yoni rogas*, and in ulcers also. *Susrutha* includes *Kshalana* under *Shashtirupakrama* for the management of vrana while explaining *Kashaya*. It acts as both *Sodhana* (purificatory) and *Ropana* (healing). It can prevent most pathogenic organisms, such as bacteria, fungi, etc. The most interesting phenomenon of the process of *Kshalana* is that the mutation of organisms does not happen like the modern antibiotic treatment. In the majority of the conditions, *Kshalana* is done as *Poorva karma* before starting a proper and systematic treatment, but in certain conditions like *Yoni rogas*, particularly *Upaplutha*, *Slaishmiki*, and certain eye diseases, *Kshalana* serves the functions of *Pradhana karma*. It aids in achieving wound hydration, removing deep debris, and assisting with the visual examination and, thus, proper wound healing. Fistula in ano is a disease that greatly affects the quality of life, from mild complaints like pain and discharge to major complications like sepsis. Management of fistula in ano is not very satisfactory in modern medicine due to the postoperative complications and recurrence. Thousands of years back, Acharyas extensively described the treatment of *bhagandara*. The Ayurvedic approach promises a positive outcome in the management of fistula in ano using *Kshara sutra* therapy with minimum complications. *Ksharasuthra* is a surgical thread coated with suitable aushadhas 21 times to do chemical cauterization. In the pathogenesis of *Bhagandara*, infection and

development of a *Pidaka* proceeds with the formation of a sinus, and later it becomes a fistula^[4]. Features of *Dushta vrana*, like delayed healing and chronicity, can be seen in *Bhagandara*. Profuse pus discharge and delayed healing are signs of microbial invasion in the fistula in ano, even during *Ksharasuthra* therapy. The improper pus drainage and pus stagnation in the fistulous tract may hinder the action of *Ksharasuthra* and can cause severe pain and discomfort to the patient. To achieve proper cleaning of the fistula tract, the treatment technique like *Kashaya Kshalana* mentioned in the context of *Naadi vrana* and *Vrana chikithsa* can be adopted here due to the similarity in the etiopathogenesis of these diseases. In *Rasaratnasamuchaya*, *Kshalana* is indicated for the treatment of *Bhagandara*^[5]. So, the present review provides us the opportunity to understand more about *Kshalana* and its utility in the management of fistula in ano.

METHODOLOGY

In Ayurvedic classics, many modalities of treatments, such as *Samana* (pacificatory) and *Sthanika* (local) *chikitsas*, are described in the context of *Bhagandara*. In the present study, a scientific understanding of one such *Sthanika chikithsa*, *Kshalana karma*, is attempted, and its practical relevance in *Bhagandara chikithsa* is discussed. A literary review has been conducted from various references from different valuable sources, which include *Susrutha samhitha*, *Charaka samhitha*, *Hareetha samhitha*, *Bhoja samhitha*, *Rasaratna samuchaya*, previous thesis works, PubMed article and thus a hypothetical conclusion is generated.

DERIVATION OF THE WORD KSHALANA

The word *Kshalana* is derived from क्षल (ksal, "to clean, wash," root) + -अन (-ana)^[6]. So *Kshalana* is referred to as the act of washing, cleaning, or purifying. It can be defined as the steady flow of a suitable kashaya across a specific part of the body (wound/*yoni/guhya pradesa*) for a set period of time. Compared to other means of wound healing, such as swabbing or bathing, irrigation is considered to be the most consistently effective method of wound dressing. Choosing an appropriate *Kashaya* is a critical step in

Kshalana. The cytotoxicity of the solution should certainly be considered. *Kshalana* is indicated in conditions such as wounds that emit a foul smell and exudes slimy fluid^[7]. In the context of *Vrana prakaranam*, different *Kashaya yogas* are mentioned for the purpose of *Kshalana*^[8].

KASHAYA PREPARATION

Kashaya is one among *Pancha vidha kashaya Kalpana*. It is the aqueous extract of drugs. There are different methods of *Kashaya* preparations are mentioned in ayurvedic classics. *Sarangadhara samhitha* is one of the authorized textbooks of medicinal preparation. Generally, *Kwatha* is prepared by taking 1 *Pala* of the drug adding 16 times water to it, then boiling and reducing it to 1/8^[9]. For the purpose of *Kshalana*, different ratios of *Kashaya* preparation are mentioned by acharyas. Direct reference for *Vrana prakshalana kashaya* is mentioned by *Acharya Bhoja* in *Bhoja samhitha*. in which 1 *Pala* drug boiled with 8 times of water and reduced to 1/12th^[10]. In *Hareetha samhitha*, 7 types of *Kashaya* preparations are mentioned. According to that *Doshapachana*, *Kwatha* is prepared using 1 *Pala* of drug boiled with 16 times of water and reduced to half^[11]. Because of the non-availability of *Bhoja samhitha*, *Hareetha samhitha* reference is opted for preparing *kshalana kashaya*.

METHOD OF KSHALANA

The ideal irrigation technique and pressure required for a better outcome are not mentioned anywhere. As per the latest knowledge, continuous irrigation is the uninterrupted stream of irrigant to the wounds surface. Pulsed irrigation is the intermittent or interrupted pressurized delivery of an irrigant, typically measured by the number of pulses per second. Power-pulsed lavage is a wound irrigation system that uses an electrically powered pump system to deliver a high volume of irrigation solution under pressure. The advantages of pressurized canisters compared to traditional methods of irrigation include speed, simplicity, and cost-effectiveness. Disadvantages include the reliability of canisters and difficulties in warming contents to consistent temperatures^[1].

ROLE OF KSHALANA IN FISTULA IN ANO

The fistula in ano is an inflammatory track that has an external opening in the perianal skin and an Internal opening in the anal canal or rectum^[12]. This track is lined with unhealthy granulation tissue and fibrous tissue. Cryptoglandular infection is the root cause of the disease. Fistula in ano is correlated with *Bhagandara* in *Ayurveda*. An extensive description of this disease, including different modalities of management in each variety of *Bhagandara*, is available. Even though different types of incisions, *Agnikarma*, and *Aushadhas* are well explained, practically, *Ksharasuthra* therapy has the upper hand in this time period, also owing to its simplicity and effectiveness. Practically profuse pus discharge and intense pain, even during *Ksharasuthra* therapy, signifies microbial invasion in the fistula and which in turn delays healing. For solving the problem, usually, we need to choose an antibiotic and analgesic support along with *Ksharasuthra* therapy for the sake of the patient. All we know is that antibiotics can make the body antibiotic-resistant. So, it is better to rely on some other techniques if we have one. *Kshalana* is one of the purification techniques told in *Ayurvedic samhithas*. In *Rasarathna*, *samuchaya Kshalana* is indicated in *Bhagandara* in case of foul-smelling profuse discharge. It is found that *Kshalana* has certain actions both in flushing out the debris and facilitating the healing by the *Sodhana Ropana* action of *Kashaya* used. The procedure of *Kshalana*, using drugs possessing antimicrobial properties, will definitely be a better option for reducing pus and microbial load along with *Kshara sutra* therapy and thereby decreasing the demand for antibiotics and analgesics.

MODE OF ACTION

Generally, the term wound irrigation is defined as the steady flow of a solution across an open wound surface to achieve wound hydration, to remove deeper debris, and assist with the visual examination. The irrigation solution means to remove cellular debris and surface pathogens contained in wound exudate or residue from topically applied wound care products. Compared to swabbing or bathing, wound irrigation is considered to be the most consistently effective method of wound cleansing^[1]. *Kshara Suthra* acts by cutting and healing

action of the fistular track. The fibrous lining is cut, and the exposed part of the track is healed simultaneously by the tensile strength and the coated medicinal activity of *Kshara*. Due to the aseptic nature of the body part and general immunity of the patient, invasion of the track by proliferating microorganisms may occur to a level and initiate a local or systemic response in the host. Even though *Ksharasuthra* itself possesses an antimicrobial action, it may not be sufficient to meet the need. The presence of microorganisms within the wound causes local tissue damage, and delays wound healing, along with severe pain and pus discharge. Normal wound healing is characterized by 3 interrelated phases inflammatory, proliferative, and remodeling. In normal healing infectious microorganisms, foreign debris, and necrotic tissue are removed from the wound during inflammatory due to vascular and cellular response. Overpowering surface pathogens can cause delayed angiogenesis and granulation tissue formation. It can also upset collagen synthesis and matrix metalloproteinases, leading to anoxia and impending neutrophil and macrophage function. Along with debridement, irrigation is a critical step in facilitating the progression from the inflammatory to the proliferative phase. It can aid in healing from the inside tissue layers outward to the skin surface. It may also help to prevent premature surface healing over an abscess pocket or infected tract^[1]. The action of *Kshalana* also depends on the area selected for *Kshalana*, the *Kashaya* used, its method of preparation, the method of *Kashaya* delivery to the wound, choosing a sufficient pressure, and choosing a sufficient volume of *Kashaya*.

DISCUSSION

Fistula in ano is a disease that affects the quality of life. Modern management has certain limitations, whereas *Ayurvedic Ksharasuthra* therapy provides a better outcome. But the microbial invasion and profuse pus discharge may lead to delayed wound healing, severe pain, and prolonged hospitalization. Heavy bacterial bio burden increases the metabolic requirement, which negatively impacts wound healing. Bacteria also secrete harmful cytokines, which can lead to

vasoconstriction and decreased blood flow. Thus, controlling and preventing infection is essential for the normal wound-healing process to occur. For enhancing wound healing, antimicrobial drug irrigation will be a possible intervention in fistula in ano. The *Sodhana*, *Sopana*, *Bhoothaghna*, and *Vishaghna* actions of the *Kashaya*(irrigant) may destroy the bacterial colony, facilitate drainage and thus reduce pain and promote healing. The method of drug delivery and pressure of irrigation are also important. For fistula in ano syringing method is convenient. A sufficient quantity of irrigant should be used. It will depend on the length of the fistula track. An average of 30-50 ml may be sufficient for up to 8cm in length. Inappropriate way of drug delivery and pressure may traumatize the track and force bacteria back into the tissue, thus aggravating the pain. It is better to opt for this technique for low anal fistulas. There may be the risk of irrigating *Kashaya* stagnation and, thus, reinfection in high anal and complex fistulas. *Kshalana* may reduce the medicinal properties and tensile strength of *Ksharasutra*. So, it is safer to stop *Kshalana* immediately after the *Ksharasuthra* application for 2 days.

CONCLUSION

- In fistula in ano profuse pus discharge and pain caused by microbial invasion along with *Ksharasuthra* therapy is a relevant clinical problem
- *Kashaya kshalana* can be used as an appropriate solution to facilitate pus drainage and enhance wound healing.
- *Kshalana* can be used as an effective pain-relieving technique during the course of *ksharasuthra* therapy.
- The action of *Kshalana* depends on the *Kashaya* used as an irrigant, the pressure of drug delivery, the site of irrigation, and the volume of *Kashaya* used.
- *Kshalana* cannot be done in case of high anal fistula, complex fistula, and immediately after the new *Ksharasuthra* application.
- *Kshalana* may traumatize wounds and force bacteria back into the tissue and thus aggravating the pain.

- More clinical validation of this hypothetical concept is needed through research.

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