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FISTULA-IN-ANO (BHAGANDARA): A COMPREHENSIVE REVIEW INTEGRATING MODERN AND AYURVEDIC PERSPECTIVES

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ABSTRACT
Fistula-in-ano, or *Bhagandara* in Ayurveda, is a chronic, often recurrent anorectal disorder involving an abnormal communication between the anal canal and the perianal skin.It is a morbid condition that commonly occurs following perianal abscess drainage and requires thorough followup to be diagnosed and treated. While modern medicine offers surgical and pharmacologic interventions, Ayurveda provides holistic and minimally invasive treatment strategies, such as *Ksharasutra* therapy.Though this disease is not life-threatening it produces inconveniences in routine life. This review presents a comprehensive overview of fistula-in-ano, covering its etiology, classification, diagnosis, and treatment modalities from both modern and Ayurvedic perspectives.

KEYWORDS: *Bhagandara*, Fistula-in ano, *kshara sutra*, Ayurveda.

INTRODUCTION

Fistula-in-ano is a distressing condition that affects patient's quality of life due to pain, discharge, and social embarrassment. Anal fistula occurs most commonly when the anal glands, which reside in the intersphincteric plane, become occluded and infected, which results in a cryptoglandular abscess.[1] Whether surgically or spontaneously drained, a perirectal abscess may still result in fistula in up to 40% of cases.[2] A thorough understanding of anorectal anatomy is critical to understanding abscess-to-fistula development. The correct localization of the fistula relative to the sphincters is vital to correct operative management.

In Ayurvedic texts, it is described as *Bhagandara*, one of the eight *Mahagadas*[3] (major diseases), reflecting its complexity and treatment difficulty. The disease in which *Bhaga*, *Guda* and *Basti Pradesa* becomes *Vidaarita* (get torn) is known as *Bhagandara*. In *Apakvaavastha*, known as *Piḍaka*, which in *Pakvaavastha* causes *Bhagandara*. *Bhagandara* can be screened in ancient Ayurvedic texts and varying systematic, scientific detailed descriptions are found. It is the common ano-rectal disease prevalent in the population worldwide. Because of its tedious nature of healing *Bhagandara* is considered difficult to be cured also it is found to be one amongst the *Ashta Mahagada*, where *Acharya* has explained the limitation of the treatment by considering it as *Duschikitsya Vyadhi.*

A comparative understanding of both modern and Ayurvedic approaches offers a broader, patient-centered perspective.

ETIOLOGY AND PATHOGENESIS

Modern Medicine:
An anorectal fistula is relatively uncommon and has an incidence of 1-8 per 10,000 persons every year. It is two times more common in males than females and usually presents in the 3rd to 5th decade of life. A multitude of causes cause fistulas, but the well-known mnemonic "FRIEND" here aids memory. "F" for foreign body, "R" radiation, "I" infection or Inflammatory Bowel Disease, "E" epithelialization, "N" neoplasm, and "D" for distal obstruction (as is the case in the cryptoglandular theory).

Infection is the most common cause of anorectal fistula and is thought to originate from a blockage of the anal glands and crypts. The two anal sphincters are divided by an avascular fatty areolar plane, which provides means for the spread and infiltration of an infection. Often an abscess will develop in this region, and it will find a way to drain via a fistula spontaneously. Obstruction of the anal glands allows bacteria to proliferate and ultimately

forms a perirectal or anorectal or perianal abscess. With or without surgical treatment of the anorectal abscess, there is a significant risk of fistula formation. In addition to an incision and drainage, a 5 to 10-day course of antibiotics has been shown to decrease the rate of fistula formation.[4] An anal fistula, which is an epithelialized connection between the anal canal and external peri-anal area, is characterized by inflammatory tissue and granulation tissue. The distal obstruction prevents the fistula from healing. Because cells are continually being turned over, there is constant debris in the fistula tract, which causes obstruction and prevents healing.

Ayurveda (*Bhagandara)*
- Caused by the vitiation of *Vata*, *Pitta*, and *Kapha doshas*
- Aggravated by faulty dietary habits (*Viruddha Ahara)*, excessive sexual activity, suppression of natural urges, chronic constipation.

The factors responsible for the cause of *Bhagandara* may be classified
***AHARAJA* FACTORS**
1) *Kashaya-Rasa Sevana*
2) *Ruksha Sevana*
3) *Mithyaahara (Apathya Sevana)*
4) *Asthi Yukta Ahara Sevanaa*

• *VIHARAJA* FACTORS
1) Excessive sexual activity
2) Forceful defecation
3) Horse & elephant riding

• *AGANTUJA* FACTORS
1) Trauma by *Krimi*
2) Trauma by *Asthi*
3) Improper use of *Vasti - Netra*

• *Manasika* factors (Mental Disorders)
- *Bhagandara* forms due to inflammation, ulceration, and suppuration in the anal region leading to tract formation

CLASSIFICATION
Modern
Fistulas are commonly classified based on their anatomical locations, first described by Parks, Gordon, and Hardcastle, in 1976.[5]

1. Intersphincteric: Intersphincteric fistulas are the most common type of fistula comprising 50-80% of all cryptoglandular fistulas. Inevitably, as most abscesses develop in the place between these sphincters. That is one that crosses the internal sphincter and then has a tract to the outside of the anus.

2. Transsphincteric: Trans is a Latin word for "on the other side of." So a trans-sphincteric fistula is one that crosses to the other side of the external sphincter before exiting in the perianal area and thus involving both sphincters. Transsphincteric fistulas represent a challenge in management because of this and often require more complex or staged treatment. The extent of involvement of the external sphincter dictates the likelihood of postoperative incontinence as a partial sphincterotomy will usually be tolerated. Still, if the fistula involves the majority of the sphincter, then incontinence will result after a complete division.

3. Suprasphincteric: These fistula tracts travel superior to the external sphincter and cross the puborectal muscle before changing course caudal to their external opening. Accordingly, they pass the internal sphincter and the puborectal muscle but spare the external sphincter. When these patients typically present with a perirectal abscess, it may not be visible on inspection, but they will have tenderness on the digital rectal exam.

4. Extrasphincteric: These fistulas often arise in the more proximal rectum rather than the anus and are often sequelae of a procedure. Their external opening is in the perianal area and the tract courses superiorly to enter the anal canal above the dentate line.

Ayurveda
Acharya *Sushruta* described *Bhagandara* into five types based on clinical presentation:
1. ***Shatponaka***[6] [7] – Dosha –*Vata*
Feature- *Toda, Tadana, Chedana, Vyadhana, Gudadarana,*
Discharge - Continuous *Phenila* discharge
Appearance-Water can or sieve like, multiple fistula.

In this type of *Bhagandara, Vāta Doṣa* dominates. *Prakupita vāyu* gets localised in 1 or 2 *Angula* of *Guda Pradeśa* and forms a *Pidaka* by vitiating *Māmsa and Rakta*. The *Piḍakā,* if untreated undergoes pus formation and causes *Bhagandara* with many openings.

2. ***Ustragreva***[8] [9]*– Dosha –Pitta*
Features- *Chosha* pain like *Kshara or Agni* being applied to a wound
Discharge- *Ushna & Durgandhita* smelling
Appearance -Camel's neck.

Prakupita Pitta is brought to the anorectal area by *Prakupita Vata* gives rise to red, thin and a small raised *pidika* which resembles neck of camel *"Ustragriva"*

3. ***Parisravi***[10] [11]*- Dosha- Kapha*
Feature- *Kandu*, less painful
Discharge- Continous and slimy
Appearance -Whitish.

The term *Parisravi* has been used because of the continuous discharging nature of the wound. The vitiated *"Kapha*"carried down by the "*vayu*" (into the rectum) lodged there in gives rise to white, hard, itching *pidika*

4. *Shabukavarta*[12 [13] *– Dosha- Vata* along with *Pitta - Kapha*

Features- *Toda, Daha, Kandu* migratory pain around the Anal canal
Discharge- Multi colour
Appearance – Tip of great toe, turns of conch.

The word *Shabukavarta* literally means "ridges of a conchshell" suggesting that the pathway of track is curved and deeper one looks like ridges of *sankha*. *Prakupita vayu* carries both *Prakupita Pitta* and *Prakupita Kapha* to anorectal area causing this type of *Bhagandara*. It has the dominance of all the three *Doṣha* and hence it exhibits all the characters of the separate *doshic* type of *Bhagandara.*

5. ***Unmargi/Agantuj***[14] [15] – *Dosha*– Trauma to Rectum or Anal canal
Features- *Kotha* of *Mamsa* and *Rakta* infestation with *Krimi*
Discharge- Puss, faces, flatus, urine, semen
Appearance- No specific course of track.

This variety is caused by injury. Here, The person, who is fond of *Mamsa* eating, anyhow ingests a piece of bone with the meat, which ultimately comes to the anus and causes ulcer / injury. Here *Kotha* of *Mamsa* occurs in which pus and blood accumulates and at last *Kṛimi* develops. This Kṛimi causes the Bhagandara by eating away the tissues. The *Piḍaka* is not mentioned in this variety probably due to the fact that Piḍakā is usually originated with Doshic involvement and here the Bhagandara is created directly by the Krimi (worms or maggots) without the formation of the *Pidika* initially. Therefore, *Krimi*, history of Trauma, ingestion of bone pieces (foreign body) play important role in producing this variety of *Bhagandara.*

CLINICAL FEATURES
Common Presentations:
- Perianal pain and swelling
- Discharge of pus or stool
- Itching, irritation, and occasional bleeding

Ayurveda adds constitutional symptoms due to *dosha* vitiation and considers body constitution *(Prakriti)* for diagnosis.

5. Diagnosis
Modern Tools
- Clinical examination
-Imaging
An anorectal fistula is a clinical diagnosis, but imaging is beneficial in determining the course of a fistulous tract or determining its etiology. Imaging studies include endo-anal ultrasound, CT pelvis, CT-fistulography, and MRI of the pelvis.

Endoanal Ultrasound
Endorectal ultrasound is also a useful modality to assess for an abscess with similar sensitivity but less specificity than MRI.[16] The introduction of hydrogen peroxide into the external fistulous opening canal improves the accuracy of endoanal ultrasound in identifying both fistulous tracts and occult abscesses. It is a less expensive modality than MRI.

CT scan and CT Fistulogram
Computerized tomography is useful for identifying abscesses and drainable fluid collections, as is quick and readily accessible in the majority of clinical scenarios. In the clinical setting where an acute infection of an anal fistula or an underlying abscess is suspected, and timely diagnosis is needed, a CT scan may be the most appropriate imaging to expedite diagnosis and treatment for a patient.[17]

In the outpatient setting, CT-fistulography is a useful and efficient modality for identifying fistula tracts preoperatively.[18] However, it requires expert radiologists to read the images as well as a skilled surgeon being available to inject the contrast for the exam. It may be cost-saving when compared to MRI.

Magnetic Resonance Imaging (MRI)
MRI of pelvis assists in the identification of fistulous tracts and occult abscesses as well as characterizing proximity of tracts to the internal and external sphincters to coordinate effective planning. MRI has been shown in different studies to aid operative planning and reduce fistula recurrence or need for various operations as it allows the surgeon to identify occult fistulous tracts and plan for a more extensive procedure when necessary.

Ayurveda
- Clinical examination focusing on tract type, discharge, and *doshic* involvement
- Use of probes (*Shalaka*) for tract identification

MANAGEMENT
Modern Approaches
- Fistulotomy: Procedure contains identification of external and internal opening followed by probing. After probing, laying open of the fistulous tract. Thus the whole tract is opened and wound healing is achieved. This technique is mainly useful for fistula having short tract like low intersphincteric fistula, subcutaneous fistula

-Fistulectomy: After identification of external and internal opening of fistula, probing is done. Then coring of the fistulous tract is done using cautery. This makes a wound deeper than fistulotomy. This technique is useful for intersphincteric fistula, low trans sphincteric fistula and the fistula.

- Seton placement: Seton placement works by the simple concept of allowing a fistula to adequately drain so that healing by secondary intention, from internal to external, may occur. A seton may be placed in the operating room once both the internal and external openings of a fistulous tract are known, and the tract is probed with a

lacrimal probe. By allowing the tract to drain and having the seton in place continuously, the tract will slowly migrate from a deeper or higher space to a more superficial location. There are various kinds of setons, mainly simple setons, which may be a small vessel loop that is placed loosely. Setons may be used as the primary treatment for a fistula or as a staged procedure, and the patient return to the operating room for a fistulotomy after their high fistula has converted to a low fistula.

- LIFT procedure:The LIFT procedure involves ligating the fistula tract between the sphincter muscles, minimizing the risk of incontinence. Recent modifications to the LIFT technique, including using bioabsorbable plugs or fibrin glue, have further improved success rates and reduced recurrence.

-VAAFT: Video-Assisted Anal Fistula Treatment of VAAFT is an emerging modality for the treatment of anal fistulas. It involves placing a tiny endoscope, a "fistuloscope," through the external opening of the fistula tract and the tract is explored for its internal opening. Any contiguous tracts or abscesses are identified. Diathermy is used to obliterate the tract under direct visualization, and, similar to plug therapy, the tract is debrided with a brush. The internal opening, once localized, and after debridement, is closed with sutures.

- Fibrin glue/plugs:An anal fistula plug is another sphincter sparing procedure which can be utilized in patients with a high risk of incontinence or complex fistulas. Plugs can be made of fibrin, porcine, or other biologic absorbable materials. Adequate drainage of the fistula must take place before placing any foreign body to minimize the risk of anal sepsis. For the fistula plug surgery, the internal and external opening of the fistula is first identified, and a probe is placed through them. This is sometimes followed by a mini-debridement of the track using a "fistula brush" or curette. A suture is easily pulled through the track, and the plug threaded through it.

- Biologics for Crohn's-associated cases: Fistulizing disease in Crohn patients is a severe disease to treat, but early recognition and diagnosis are critical to effective therapy. These patients should be referred to a gastroenterologist and receive anti-TNF alpha therapy as their primary treatment for fistula disease. After medical treatment, if the fistula persists, setons are the most commonly used primary surgical option in these patients with reasonable healing rates after anti-TNF alpha therapy.

Ayurvedic Approaches

***Ksharasutra* Therapy**

- A medicated thread prepared using *Apamarga Kshara, Snuh*i latex, and *Haridra*
- Applied through the tract to cut, drain, and heal the fistula
- Proven effective for low and mid-level fistulas, minimizing recurrence.

***Bheshaja Chikitsa* (Medicinal Therapy)**

- Internal medicines like *Triphala Guggulu, Arshoghni Vati, Gandhaka Rasayana,Saptavinshati guggulu* etc.
- External application of *Jatyadi Taila, Nimba* oil for wound healing and infection control

***Panchakarma* Procedures**

- *Basti* (medicated enemas) to cleanse the colon and balance *Vata*
- *Raktamokshana* (bloodletting) in chronic cases

Prognosis and Complications

Recurrence remains a concern in both systems, particularly for complex tracts. *Ksharasutra* shows lower recurrence rates with appropriate patient selection. Key complications include incontinence, abscess recurrence, chronic pain, or fibrosis.

DISCUSSION

Fistula in ano is a challenging disease for the surgeon especially complex fistula due to high recurrence rate even after surgery. There are many surgical treatment modalities available for fistula in ano. Among these modalities Ayurveda includes *Ksharasutra* therapy, IFTAK, Modified conventional *Ksharasutra* therapy and multistage *Ksharasutra* therapy. *Ksharasutra* therapy which has proven its efficacy in the management of fistula in ano with less recurrence rates and it properly drains the pus pocket, thus curing the fistula.

Modern surgical techniques include fistulotomy, fistulectomy, VAAFT, FiLaC, OTSC, LIFT and seton replacement. Fistulotomy is useful for small fistulous tracts as it opens the whole tract. Fistulectomy creates a big wound compared to fistulotomy and takes time to heal. While VAAFT is the minimal invasive technique and sphincter saving procedure for complex fistulas having 76% success rate.[19] LIFT is a novel procedure based on secure closure of internal opening[20]

These all modern and Ayurvedic surgical techniques help to cure from fistula by one or another way depending upon the techniques chosen and on the type of fistula.

CONCLUSION

Fistula-in-ano is a condition that requires an integrative approach for effective management. While modern surgery provides rapid intervention, Ayurveda offers sustainable, low-risk options, particularly through Ksharasutra therapy. A collaborative model of care that respects both traditions may provide optimal outcomes for patients.

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