Review Article

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A CLASSICAL REVIEW ON BHAGANDARA (FISTULA IN ANO): CURRENT TREATMENT STRATEGIES AND FUTURE PROSPECTS

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ABSTRACT

Bhagandara (Fistula in ano) is one of the most common and notorious disease among all anorectal disorders. Acharya Sushruta has been included it in Ashta Mahagada. It is recurrent in nature which makes it more and more difficult for treatment. It produces pain and inconvenience in routine life. Fistula in ano is a chronic purulent inflammation, usually affects peri-anal region, anal canal and rectum. It is initially manifested by an abscess followed by continuous or intermittent discharge of pus through the tract and leads to an unhealed condition. Improper care and negligence leads to further aggravation of the disease. It is very difficult to manage due to its multi fold variation of presentation. After modern technique of surgery, serious post-operative complications like recurrent sepsis, faecal incontinence and high recurrence rate is a matter of great concern. An appropriate answer in terms of Ayurvedic management is a unique specialized Para surgical procedure viz. 'Kshar Sutra therapy' which is well accepted and without any complication. Management of Bhagandara with Kshar Sutra has been proven as a big revolution and has gained popularity due to the minimally invasive approach and complete cure of the disease. Moreover, this therapy is well accepted by all patients and did not cause any hindrance in their daily routine work during period of management.

Keywords: Bhagandara, Fistula in ano, Ashta Mahagada, Kshar Sutra

INTRODUCTION

Bhagandara (Fistula in ano) is one of the oldest diseases known to the medical science[1]. History of medical literature available today very clearly speaks that the disease Fistula in ano affects more reputations of surgeons who deal with it. There is a proverb often used in medical world "The best way to take revenge for a surgeon is to refer him a patient of fistula in ano." Acharya Sushruta included Bhagandara in Ashta Mahagada[2] (Eight grave diseases) which are very difficult to manage. Ano rectal disorders, especially Bhagandara, is progressively increasing in the society due to many causes, viz. sedentary life style, prolonged sitting or standing, irregular and inappropriate diet[3], trauma and also some systemic disorders like Tuberculosis, Ulcerative colitis, Crohn's disease etc. Today many procedures are used by modern surgeons to manage fistula in ano, but Inspite of the best possible efforts, the recurrence rate is very high, which is a big challenge in front of the medical world. But in Ayurveda a full-fledged management by the Kshar sutra Therapy has been mentioned since thousand years ago. Kshar sutra placed in the fistulous tract is capable of dissolving the tough fibrous tissue and unhealthy granulation tissue and ultimately draining it out creating a healthy base for healing. It's gradual and sustained chemical action not only removes the debris from the Fistulous tract but also helps in encouraging fresh healthy granulation thereby inducing a long awaited healing pattern in the depth of tissue. So, in present modern era there is a great need to work on Fistula in ano. In fact, whole medical community seems to find a ray of hope in Ayurveda.

Etymology and Definition of Bhagandara

- The word Bhagandara is the combination of two terms "Bhaga" and "Darana"
- According to Dalhana 'Bhaga' is a word, means "Vipul Pippal patra sadrisha", which has Narrow External Opening and Wide Internal Opening.
- 'Bhaga' means all the structures around the Guda (ano-rectal region) including Yoni (vagina) in case of females and Vasti (urinary bladder).
- Darana– derived from "Dri" Dhatu
- Darana means "sense of tear of surface associated with pain".
- The disease in which Bhaga, Guda and Basti Pradesha becomes Vidaarita (get torn) is known as Bhagandara. In Apakvaavastha, known as Pidaka, which is in Pakvaavastha known as Bhagandara.
- In the Perineal region when any Pidaka is formed which is less painful and inflamed but it subsides soon, it is known as Pidaka, not Bhagandara.
- It is a result of bursting of 'Bhagandara Pidaka' which is deep-rooted in the ano-rectal region. Its location is within two Angula circumference of anal opening.

Fistula-in-ano

A fistula-in-ano, or anal fistula, is a chronic abnormal communication, usually lined to some degree by granulation tissue, which runs outwards from the ano-rectal lumen (the internal opening) to an external opening on the skin of the perineum or buttock.[4]

Concept of Guda (Anal canal)

The total length of Guda is 4 ½ Angula and there are three Valees from proximal to distal named as Pravahini, Visarjani and Samvarani. These are situated one above the other inside Guda at a distance of 1 ½ Angula from each other and all of them

obliquely projectile in one Angula spiral like conch (Shankhavartanibha) and resemble the colour of palate of Elephant (Gajatalu) as reddish black. Gudaushtha (anal verge) is situated a distance of 1 ½ Yava from Romanta (hairy margin). The first Vali is at a distance of one Angula from anal verge.[5]

Anatomy of anal canal

The anal canal is the terminal part of the large intestine. It is 3.8 cm long. It extends from the ano-rectal junction to the anal verge. Anal canal can be divided in three parts[6]

Upper part (Mucous)

It is about 15 mm long and extends from ano-rectal ring to pectinate line.

Middle part (Transitional zone or pecten)

It is situated between pectinate line above and white line of Hilton below having length of 15 mm.

Lower part (cutaneous)

It is about 8 mm long and is lined by true skin containing the sweat glands.

Anal Sphincter

Internal Sphincter

The internal anal sphincter is 2.5 cm long and 2 to 4 mm thick. The internal sphincter is closed by a sheath of striped muscle.

External Sphincter

It can be divided into three parts- deep, superficial and subcutaneous portion. It is considered to be one muscle.

A. Deep part

Which encircles the upper end of anal canal and it has no bony attachment.

B. Superficial part

It is attached posterior to the coccyx, while anteriorly they are inserted into the mid perineal point in males, whereas in females they fuse with the sphincter vagina.

C. C-Subcutaneous part

It encircles the lower end of the anal canal and has no bony attachments.

Anal Glands

Anal glands may be found in the sub mucosa and inter sphincteric space and normally number 0 to 10 in an individual. They drain via ducts into the anal sinuses (crypts) at the level of the dentate line.

Classification of Bhagandara

Bhagandara has been classified into several types by ancient authors. For each type, separate pathogenesis has been explained. The first and most widely accepted classification is that of Sushruta, who divided the disease into five types.[7]

1. Shatponaka 2. Ushtragriva 3. Parisravi 4. Sambukavarta 5. Unmargi

Vagbhata includes three more types added to the above five types of Bhagandara[8]-

1. Parikshepi 2. Riju 3. Arshobhagandara

Classification according to opening

a) **Arvachina-** Antarmukhi (blind external)- In this variety, the track opens inside the anal canal without external opening.[9]
b) **Parachina-** Bahirmukhi (blind internal)- In this variety, the track opens outside without internal opening.

Classification according to prognosis

Kashta sadhya - Shatponaka, Ushtragreeva and Parisravi
Asadhya –Shambukavarta and Unmargi[10]

Classification of Fistula-in-ano

The modern concept of Fistula in ano is based on its anatomical consideration.[11]

Standard classification

1. Subcutaneous
2. Submucous
3. Low anal
4. High anal
5. Anorectal- It has two sub types- a. Ischiorectal. b. Pelvirectal

Park's classification

1. **Inter sphincteric Fistula (70%)**

   It does not cross the external sphincter; most commonly they run directly from the internal to the external openings across the distal internal sphincter but may extend proximally in the inter sphincteric plane to end blindly with or without an abscess or enter the rectum at a second internal opening.

2. **Trans-sphincteric Fistula (25%)**

   It has a primary track that crosses both internal and external sphincters, which then passes through the ischiorectal fossa to reach the skin of the buttock. The primary track may have secondary tracks arising from it, which often reaches the roof of the ischiorectal fossa, it may rarely pass through the levator to reach the pelvis and may spread circumferentially (horseshoe).

3. **Supra sphincteric Fistula (4%)**

   It is very rare and by some is thought to be iatrogenic and is difficult to distinguish from high-level trans sphincteric tracks.

4. **Extra sphincteric Fistula** (1%)

   It runs without specific relation to the sphincters and usually results from pelvic disease or trauma.[12]

Broadly anal fistula can be divided into two groups-

1. Low Level Fistula

It opens in the anal canal below the ano-rectal ring. They are further subdivided into

a. Sub cutaneous
b. Sub mucous
c. Inter sphincteric
d. Trans sphincteric
e. Supra sphincteric

2. High Level Fistula

It opens in the anal canal at or above ano-rectal ring. These are further subdivided into

a. Extra sphincteric or Supra levator
b. Trans sphincteric
c. Pelvi rectal[13]

Aetiology

Charaka has mentioned that the main cause for the occurrence of Bhagandara is Pidaka, which is caused by improper Ahara and Vihara. Apart from this he has also mentioned Krimiroga as a cause. Foreign body impaction in Guda Pradesh, straining during defecation, excessive intercourse, prolong sitting and excessive horse riding are also causative factors of Bhagandara.

Sushruta has said that these are the causes of Bhagandara- Vaat, Pitta, Kapha Prakopak Ahara, Vihara and Asthisalya.

Most ano-rectal fistulae are due to Crypto glandular infection caused by enteric bacteria. A few are secondary to other diseases viz. Crohn's disease, Ulcerative colitis, CA Rectum, Tuberculosis, etc. Congenital fistulae may occur and may be associated with inclusion dermoids.[14&15]

Poorva roopa (Prodromal features)

The Poorva Roopa of Bhagandara are pain in Kati Kapala (pelvic bone), itching, burning sensation and swelling in Guda. Acharya Sushruta had further mentioned that it starts with itching, pain, burning sensation and swelling in the Guda during riding and defecation. These premonitory features actually indicate the formation of a Pidaka and not a Bhagandara itself. In fact, the formation of Pidaka serves as Poorva Roopa of Bhagandara.[16]

Roopa (clinical features)

Table 1: Symptomology of various types of Bhagandara

Symptomology	Vaataja	Pittaja	Kaphaja	Sannipataja	Kshataja
Specific name	Satponaka	Ushtragreeva	Parisravi	Sambukavart	Unmargi
Type of Pidaka	Aruna varna	Ustragriva khara	Shukla varna	Big toe size	Mixed
Type of Pain	Toda, Bheda, Chedana, Nishtudana, Avadeerrna	Chosha, Daha	Kandu	Toda, Daha, Kandu	
Ex. Opening	Multiple		Hard margin	Mixed	
Secretion	Frothy	Foul, hot	Thick,sticky	Multi coloured	Pus, blood
Discharge	Vaat, Mutra, Purisha, Shukra	Vaat, Mutra, Purisha, Shukra	Vaat, Mutra, Purisha, Shukra	Vaat, Mutra, Purisha, Shukra	Vaat, Purisha, Shukra[17]

Clinical presentation

Ano-rectal fistulae is present with purulent discharge around the anus and from within the anal canal. Discharge is associated with impaired anal hygiene and soiling. There may be a history of recurrent episodes of ano-rectal sepsis that have required surgical drainage or that have spontaneously ruptured. In some patients, there may be a history of sexually transmitted disease, inflammatory bowel disease, or malignancy. Inspection in most cases reveals an external opening around the anal canal but, particularly in patients with inter sphincteric fistulae, there may be no apparent external opening.

Clinical assessment

A full medical history (including obstetric, GIT, and surgical) and Proctosigmoidoscopy are important to gain information. The key point to determine is:

- The site of internal opening
- The site of external opening
- The course of the primary track
- Presence of secondary extension
- Presence of other conditions complicating the fistula

Palpable indurations between the external opening and anal margin suggest a relatively superficial track, whereas supra levator indurations suggests a primary track above the levators or high in the roof of the ischio-rectal fossa or a high secondary extension.

- Inter sphincteric fistula usually have an external opening close to the anal verge.
- Goodsall's rule, used to indicate the likely position of the internal opening according to the position of the external opening, is helpful but not infallible.

Goodsall's Rule

This rule relates the location of internal opening to the external opening. It is an important phenomenon to understand the course of the track. It describes that to centre the anal verge an imaginary horizontal line is drawn to make the perineal region into two halves, anterior half and posterior half. In anterior half, a semi-circle is drawn centring the midpoint of anus with a radius of $1^1/_2$ inch. All the external openings falling in this circle will have the straight track and open radially in the anus. The opening beyond the half circle tends to have a curved track and opening will be found in the posterior midline. All the openings in the posterior half will have the curved tracks and internal opening will be in the midline posteriorly.[18]

Physical examination

No laboratory studies are required in the diagnosis of Fistula in ano (although the normal preoperative studies are performed, based age and co-morbidities). Instead, physical examination findings remain the main stay of diagnosis. The examiner should observe the entire perineum, looking for an external opening that appears as an open sinus on elevation of granulation tissue.

Rectal examination Inspection

External opening

Examination may demonstrate one or more external openings, seen as an elevation of granulation tissue with discharge of pus, sometimes elicited on rectal examination. Identification of the internal opening by anoscopy is usually difficult, and examination under anesthesia is often required.

Scar of previous surgery

Scar of previous surgery for anorectal abscess, haemorrhoids, fissure or fistula may be seen. In some cases, post-operative infection may lead to fistula in ano. On the other hand, fistula is known for its recurrence; the causes may vary.

Digital Examination

It may reveal a fibrous track or cord beneath the skin. It also helps to delineate any further acute inflammation that is not yet drained. Lateral or posterior indurations suggest deep postnatal or ischiorectal extension. The examiner should determinate the relationship between the anorectal ring and the position of the track before the patient is relaxed by anesthesia. The sphincter tone and voluntary squeeze pressures should be assessed before any surgical intervention.

Special investigations

Proctoscopy

Occasionally Internal opening of fistula can be seen as a nodule or hypertrophied papilla. Other conditions like haemorrhoids, proctitis can also be revealed.

Injection of Methylene Blue

If methylene blue is injected from external opening, it comes out from internal opening, if the fistula is complete. Thus it will help to know that whether the fistula is complete or blocked in between and also to locate the internal opening.

Probing

This is the examination of fistula with a probe. It should be done under suitable anesthesia. As per the requirement straight or curved probes can be used to know the course of the tract, to reach up to the internal opening and for procedures like Kshar Sutra therapy, Seton therapy and fistulectomy. This is done always with help of a lubricant. A lubricated finger is inserted prior to probing to guide the probe.

Radiological Examination

Radiologic studies are not performed for routine fistula evaluation. However, they can be helpful when the primary opening is difficult to identify. In the case of recurrent or multiple fistulas, such studies can be used to identify secondary tracks or missed primary openings.

Fistulography

This involves injection of contrast via the internal opening, which is followed by anterior, posterior, lateral and oblique images to outline the course of track. The accuracy rate is 16-48%.

Endoanal/Endorectal Ultrasonography

This study is reported to be 50% better than physical examination alone, to help find an internal opening. It can help to outline the fistula track course. This modality has not been used widely for routine clinical fistula evaluation.

CT scan

It is more helpful in setting of peri-rectal inflammatory disease than in setting of small fistula. It requires administration of oral and rectal contrast. Muscular anatomy is not well delineated.

Magnetic Resonance Imaging (MRI)

It shows 80-90% concordance with operative findings when a primary tract course and secondary extensions are observed. MRI is becoming the study of choice when evaluating complex and recurrent fistulas. It has been shown to reduce recurrence rate by providing information on otherwise unknown extensions.

Treatment of fistula in ano at Modern Parlance

- Fistulotomy
- Fistulectomy
- Seton
- LIFT (Ligation of Inter Sphincteric Fistula Tract)
- VAAFT (Video Assisted Anal Fistula Treatment)
- AFP (Anal Fistula Plug)
- Fibrin glue
- Radiofrequency ablation
- Advancement flaps

All these modalities of Fistula in ano treatment seem to have limited scope due to high chance of recurrence and some of them complicates as incontinence.[19]

Table 2: Rate of recurrence and incontinence of different procedures

Procedure	Rate of Recurrence	Rate of Incontinence
Fistulotomy	0 -18%	3-7%
Seton	0-17%	0-17%
Mucosal advancement flap	1-17%	6-8%
LIFT	15-40%	Continence preserved
Anal fistula plug	20-85%	Continence preserved[20]

The surgical management of Bhagandara caries several problems like severe pain for a long period during dressing. Operative raw site is the potential space for infection by faeces. Hospitalization and non-ambulatory life for a long period, Retention of urine, Incontinence, cellulitis, Recto-vaginal Fistula in females, persistent sinus, anal stenosis etc. are other associated problem. In all these different procedures, the cure is often not certain and there is always a great possibility of recurrence of disease.

Inspite of the tremendous developments of modern medical science especially of surgery, the disease Fistula in ano still remains a challenge to the science as no specific surgical method or other medication has proven complete remedy to cure Fistula in ano.

Management of Bhagandara at Ayurvedic Paralance

Main treatment of Bhagandara is Chhedana karma (excision of entire tract).[21]

Management of specific types of *Bhagandara*

1. **Shataponaka Bhagandara**

   Treat one tract at a time. After healing one tract, another tract should be treated. The incisions should be Langalaka, Ardhalangalaka, Goteerthakaor Sarvatobhadraka. Agnikarma of the excised track is also advised.

2. **Ushtragreeva Bhagandara**

   Two procedures are indicated: Chhedana and Kshar Karma. Agnikarma is contraindicated. Application of Tila treated with Ghrita, Parisheka with Ghrita are indicated.

3. **Parisravi Bhagandara**

   Incisions indicated are: Chandraardha, Chandrachakra, Suchimukha, Avaangmukhor Kharjoorapatraka. The tracts are excised followed by Agniand Kshar Karma. Parisheka of ano-rectal area with Anutaila, Upanaaha, Parisheka with Gomutra and Ksharare indicated.

4. **Shambukavarta Bhagandara**

   Asaadhya

5. **Unmargi Bhagandara**

   It is Asadhya but excision of the tract along with the removal of Asthiadi Shalya, followed by Agnikarma with red hot Jambvaushtha or Shalaka. Krimighna treatment is also indicated.[22]

Ksharsutra management

The use of Kshar Sutra in the management of Bhagandara is mentioned in the Visarpa Nadi Stanaroga chikitsita Adhyaya[23] of Sushruta Samhita.

Application of Kshar Sutra (Primary Threading)

The application of Kshar Sutra is done under aseptic precaution and suitable anesthesia. The patient is kept in lithotomy position, peri-anal region is cleaned with antiseptic lotions and the operative area is draped with sterile cut sheets. Local anesthesia (Xylocaine jelly 2%) is applied over perianal region. Then the patient is assured, gloved and lubricated index finger is gently introduced into the anal canal and a suitable metallic malleable probe is gently passed with the help of other hand through the external opening of the Fistula. The index finger inside the anus guides the probe. The probe is progressed towards the internal opening in the less resistant area. Forceful probing should not be done. After passing the internal opening, the tip of the probe comes out through the anal canal. Then a suitable length of sterile Linen Barbour thread no. 20 is taken and threaded into the eye of the probe. Thereafter, the probe is gently pulled out through the anal orifice, to leave the thread in situ i.e. in the fistulous tract. The two ends of the thread are then tied together outside the anal canal. Complete hemostasisis checked by inserting a plain lubricated gauze piece in the anal canal.

Changing of Kshar Sutra

The Kshar Sutra should be changed weekly after primary threading. This procedure is repeated every week until cutting and complete healing of the track and finally 'cut through' of the Kshar Sutra automatically. The method of changing the Kshar Sutra is known as Rail-road technique.

Pathya apathya* in *Bhagandara

Pathya

Shaali Dhaan, Mudga, Patola, Tila, Vilepi, Jangal Mansa Rasa, Shigru, Vetaagra, Dhattura Baala. Mulaka, Sarshapa Taila, Tikta Varga, Ghrita, Madhu[24]

Apathya

Ati Vyayama, Ati Maithuna, Kopa, Yuddha, Prishthayana, Guru Ahara, Vega Avarodha Ajeerna, Sahasa Karma[25]

CONCLUSION

Kshar Sutra in ano rectal disorders has shown miraculous results and now it's a Precious gem in the crown of Shalya Tantra. This therapy is cost effective, can be easily prepared, and devoid of side effects like irritation, post ligation burning sensation etc. during treatment and no recurrence after treatment.

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