

**Literary review on *Bhagandara* (fistula in ano): Ayurvedic and modern aspect**Dhurve Vaikhari A.*¹, Dudhamal T. S.²

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*Corresponding author: vaikhari.dhurve07@gmail.com**ABSTRACT-**

Bhagandara is defined as suppurative condition commonly affecting the *Bhaga* (ano rectal, Pelvirectal or perianal region) which can be correlate with "Fistula-in-ano" as per western medical science. It is a common disease and notorious disease occurring in the ano-rectal region. Acharya Sushruta, the father of surgery has included this disease as one among the *Ashtamahagadas* and also categorized *Bhagandara* under *Dushtavrana*. The main cause or nidana of *Bhagandara* is infective in nature mainly involving the infected and inflamed condition of a crypt of Morgagni and infection from a hair-follicle. At first it present as *Pidika* around *Guda* and when it bursts out, it is called as *Bhagandara*. It is recurrent nature of the disease which makes it more and more difficult for treatment. It produces inconveniences in routine life. It causes discomfort and pain that creates problem in day to day activities. In this present review article describes pathophysiology, investigate modalities and treatment option for fistula in ano in Ayurveda and Western medical science.

KEYWORD- Ayurveda, *Bhagandara*, Fistula in ano, Modern

INTRODUCTION-

Bhagandara is a common disease occurring in the ano-rectal region. Acharya Sushruta, the father of surgery has

included this disease as one among the *Ashtamahagada*.^[1] At first it present as *Pidika* around *Guda* and when it bursts out, it is called as *Bhagandara*. It can be correlated with Fistula in ano as de-scribed in western medical science. Fistula in ano is a tract lined by granulation tissue which opens deeply in the anal canal or rectum and superficially on the skin around the anus.^[2] The true prevalence of Fistula-in-ano is unknown. The incidence of a Fistula-in-ano developing from an anal abscess ranges from 26-38%.^[3] Treatment of fistula-in-ano is still a challenging job because of its complexity and recurrences. There are many surgical techniques that described in text from ancient age to till date.

The management of Fistula-in-ano and every technique has its own limitations. No single technique is appropriate for all types of anal fistulae. As per the type of fistula, extent of involvement of anal sphincter and the underlying disease or pathogenesis of Fistula-in-ano, line of treatment differs from patient to patient. It also depends on surgeon's skill and experience. Now a day, most common surgical procedure involves fistulectomy and fistulotomy in the treatment of fistula in ano. New surgical modalities like fibrin glue, fibrin plug, LIFT procedure, VAAFT, stem cell, PERFECT and OTSC treatment are being used as treatment modalities.^[4] But this

surgical management has several complications like frequent damage to the sphincter muscle resulting in incontinence of sphincter control, fecal soiling, rectal prolapsed, anal stenosis, delayed wound healing and even after complete excision of the tract there are chances of subsequent recurrence. Ancient Acharya have also described surgical, Parasurgical and medical treatment for *Bhagandara*. *Ksharsutra* is unique and an established procedure for *Bhagandara*. Acharya Chakradutta has given the idea about the preparation of *ksharsutra* ^[5]. Revival of such ancient technique in the management of fistula in ano is proved as a boon for humanity.

AYURVEDIC VIEW:

The description of the *Bhagandara* is available in *Ayurvedic* classics. Acharya Sushruta, the father of Indian surgery has described all the detail of *Bhagandara*. *Bhagandara* is a disease that exists among human beings since the period of *Vedas*, *Puranas* and *Samhinta* (*Bhrihatrayees* and *Laghutrayees*) do have abundant evidences regarding the existence and treatment of this disease.

Etymology of Bhagandara:

The word *Bhagandara* is made up by the combination of two terms “*Bhaga*” and “*Darana*”, which are derived from root “*Bhaga*” and “*dri*” respectively. ^[6] “*Bhaga*” means perineal and perianal area and “*Darana*” means tearing sensation with massive tissue destruction. Hence the derivation leads to draw an impression about a typical pathological lesion at the perineal and perianal area.

Definition of Bhagandara:

The *Darana* of *Bhaga*, *Guda* and *Basti* with surrounding skin surface called *Bhagandara*. After he has described that a deep seated *Apakva Pidika* within two *angula* circumference of *Guda Pradesh* associated with pain and fever is called *Bhagandara Pidika*. If it is not treated properly, *Pidika* can burst & convert into

discharging track and is named as *Bhagandara*. ^[7] It is a typical “*saririkavrana*”. It can be correlated with “Fistula-in-ano

Etiology of Bhagandara in Ayurveda

In *Sushruta Samhinta*, *Bhagandara Pidika* is formed due to *nidana sevan*(*Vata prakopak ahar vihara*) causes ^[8]*Vata Prakopa* along with the *Pitta* and *Kapha* to the *Guda* and gets localized and vitiates the *Rakta* and *Manmsa*. This is initial state. If this *Pidika* is not treated and *Nidana Sevan* continues then it becomes a *Pakva Pidika*. The formation of *puya* will cause *Darana* and connects to *Gudanalika* which leads to *Bhagandara*. ^[9]

In *Charka Samhinta*, he has described etiological factors like *Krimi Bhakshan* which can be correlated with any infection caused by microorganism or Crypto glandular infection. *Pravahan* means straining during act of defecation as seen in dysentery etc. causing inflammatory changes in rectum and anal canal. *Utkataasan* is continuously sitting in Squatting posture causing ischemia and micro necrosis at pressure point. *Asthi Kshanan* due to trauma can be considered as of *Bhagandara*. Horse riding caused ischemic necrosis at cellular level triggering inflammation and infection. ^[10]

In *Ashtang Hridayam*, Acharya Vagbhata has mentioned few etiological factors such as riding on elephant or horse for long period, sitting on hard surfaces, squatting Posture which may be responsible for direct injury to *Guda* and ultimately cause inflammation in perianal area. They can deliver for infection and eventually lead *Bhagandara*. At the same time, specific etiological factors motivated specific doshas for respective type of *Bhagandara*. ^[11]

Acharya Vagbhata mentioned same etiological factors as per Acharya Sushruta vitiation of *Vata* along with *Pitta* and

Kapha doshas which causes *Khavaigunya* (vitiation) of blood & muscle tissues in the rectum which proceeded by *Pidika*(Boil) and formed ulcer(*vrana*). If this condition is not treated properly then turns to discharging opening either to interior or exterior around perianal region and named as *Bhagandara*.^[12]

Classification of Bhagandara:

Sushruta has classified the disease under five types as per predominant of Doshas, namely,^[13]

1. *Vataja* – *Shataponaka*, 2. *Pittaja-Ushtragreeva*
3. *Kaphaja-Parisrave* 4. *Tridoshaja*– *Shambookavarta* 5. *Abhighata/Trauma* – *Unmargee*.

Vagbhata has mentioned three more varieties namely and counted total eight types of *Bhagandara* namely 1. *Vata* and *Pitta* dominance – *Parikshepee* (Horse Shoe shaped fistula), 2. *Vata* and *Kapha* dominance – *Riju* (Straight) and 3. *Pitta* and *Kapha* dominance – *Arshobhagandara* (Piles fistula).^[14]

In *Bhagandara chikista*, Sushruta has mentioned another two types of *Bhagandara* at the time of *chhedan Karma*. 1. *Arvacheena-Antarmukha* (Blind internal) the tract opens inside the anorectal canal without external opening so called as *Antarmukhee*. In modern science, it is known as Blind internal. 2. *Paracheena- Bahirmukha* (Blind external) the tract opens outside or perianal region without internal opening so called as *Bahirmukhee*. In modern science, it is known as Blind external.^[15]

Purva Rupa (Prodromal Symptoms) of Bhagandara: The *Purvarupa* of *Bhagandara* included pain in *katikapala* (pelvic bone), itching, burning sensation and swelling in the *Guda* and this features start with during riding and defecation as per Sushruta. These features actually indicate the formation of *Pidika* serves as *Purva Rupa* of *Bhagandara*.

Rupa (Signs & Symptoms) Of Bhagandara: The *Rupa* of *Bhagandara* is

discharging *Vrana* within two-finger vicinity of anal canal with history of a *Pidika* that burst many times, heals and re-occurs. This is a painful condition of the perianal region and most typical sign of *Bhagandara*. All Ayurvedic scientists have postulate that the *Bhagandara Vrana* is preceded by *Bhagandara Pidika*. In the classification of *Bhagandara* the *Rupa* of each *Bhagandara* described having specific symptoms as per predominant of Doshas.

Samprapti(Pathogenesis) of Bhagandara:

As per *Shat-kriyakala Bhagandara* can be develop as following manners.^[16] When the person continues to use the specific etiological factor they undergoes vitiation of *Dosha* and *Dushya* is *Chayaavastha* of *doshas* as a normal physiological response to various endogenous and exogenic stimuli. After that in *Prakopawastha*, *Dosha* get aggravated at their normal site. *Prasarawastha* is progress of previous stage so the *doshas* migrate through the body. *Sthanasanshray* is last stage, in which *doshas* situated in *Guda* after vitiating *Rakta* and *Mansadhatu*. After this stage of *Sthanasanshray*, *Purvarupa* like pain in waist (*Katikapala*), itching, burning sensation and swelling at the anus along with formation of *Pidika*. *Vyaktawastha* in this stage, *Pidika* get suppurates and continuously passes various type of discharge through it associate with various kind of pain. *Bhedavastha*, If previous stage is neglected or not treated properly it causes *Darana* of *Basti*, *Guda* and *Bhaga* through which discharge of *Vata*, *Mutra*, *Pureesha* and *Retasa*. Here, *Vata* is the predominant *Dosha* accompanied with *Pitta* and *Kapha*. In *Agantuja Bhagandara Samprapti* is due to the wound occurs first after that vitiation of *doshas* occurred.

Saadhya- Asadhyata (Prognosis): As per Sushruta *Bhagandara* is one of the *Ashtamahagadas* which is very difficult to treat. All type of *Bhagandara* are *Krichhasadhyata* But *Tridoshjanya* (*Sannipata*) and *Khsataj* (*Agantuja*) verities are *Aasadhya*. Sushruta stated that

if anal fistula communicates higher with rectum, urethra and bladder or prostate it becomes incurable. When *Bhagandara* tract crosses *Pravahani Valee* and *Sevarni Valee* is also became incurable.^[17]

MANAGEMENT OF BHAGANDARA:

Management of Apakva Pidika: The principles for the management of *Aama Shophā* which includes Eleven procedures mentioned for *vranashotha* like *Apatarpan*, *Alep*, *Parishkek*, *Abhyang*, *Swedana*, *Vimlapana*, *Upanaha*, *Parishravana*, *Snehan*, *Vaman*, *Virechan* is used to treat *Apakva Pidika*.

Management of Pakva Pidika: Though there are many type of treatment like medical, parasurgical and surgical for *Bhagandara*. The main treatment of *Bhagandara* is *Chhedan* (excision of entire tract) which can be correlated with fistulectomy in modern parlance.^[18] Sushruta mentioned the use of *Kshara* sutra in the management of *Bhagandara* in certain patients like weak, anxious those not fit for *chhedan*.

Agni Karma (Cauterization) -This *Karma* is indicated in all types of *Bhagandara* except in *Pittaja*. Main objective of *Agnikarma* is to stop the bleeding and to cauterize the granulated lining of the tract.

To understand in an easy way, this can be divided into 3 stages.^[19]

1. *Purva Karma* (Pre-operative measures)
2. *Pradhana Karma* (Operative Procedure)
3. *Paschat Karma* (post-operative procedure)

Purva Karma: One day before *Shastrakarma*, the patient should be prepared with *Snehana*, *Swedana*(*Avagahana*), *Langhana* and *Anulomana*(*Mrudu virechana*).

Pradhana Karma: Position of the patients- Patients should be made to lie down on a table and position is as described for the

operation of *Arsha* (piles). This position is similar to lithotomy position.

Instruments: Bhagandara Yantra- Similar as *Arshoyantra* which is of two types i.e. *Ekachhidram* and *Dvichhidram*. This *Bhagandara Yantra* and anal opening are lubricated by *Ghruta*; then *Yantra* is to be introduced into *Guda* after instructing the patient to strain down. *Eshanee* used to perform *Ksharsutra* and *Chhedan* Procedure. *Soochee-* Used for *Ksharsutra* procedure.

Chhedan karma :(Ayurvedic Surgical Procedure for any type of *Bhagandara*)

Lithotomy position is always used to perform surgical procedure. *Ghruta* is used to lubricate the anus and the *Bhagandara Yantra*. The *Bhagandara* tract is examined to decide whether the *Bhagandara* is *Paracheena* (blind internal) or *Arvacheena* (blind internal with the help of *Eshanee*). In *Paracheena* type of *Bhagandara*, the *Eshanee Yantra* (Probe) is introduced into the external opening and whole tract is excised without leaving its *Aashaya*. If it is *Arvacheena*, *Bhagandara Yantra* is introduced into the *Guda* and patient should be asked to strain down. During straining, the *Eshanee* (probe) is introduced through the internal opening. Then the whole tract is excised followed by cauterization with the help of *Kshara* or *Agni*. The modern fistulectomy is similar to this procedure if *Chhedana*, mentioned by Acharya Sushruta.

Management of specific type of Bhagandara:

1. *Shataponaka*: One tract should be treating at a time. After healing one tract, other tract should be treated. In *Shataponaka Bhagandara* *Langalaka* (T-Shaped), *Ardhalangalaka* (L-shaped), *Goteerthaka*(semi-circular) or *Sarvatobhadra*(circular) incision used. *Agnikarma* is used after *Chhedan* for pain and discharge in this *Bhagandara*.

2. *Ushtragreeva*: This type is treated with *Chhedan* and *Ksharkarma*. No use of *Agnikarma* in *Ushtragreeva* as it is *Pittaj* variety. Application of *Tail* and *Ghrita*, *Ghrita*, *Parishek* with *Ghrita* are indicated.
3. *Parisravee*: Excised tract followed by *Agni* and *Kshara Karma*. *Parisheka* of anorectal area with *Anutaila*, *upnaha*, *Parisheka* with *Gomutra* and *Kshara* (*Apamarga*) are indicated. In *Parisravee* *Bhagandara* *Chandrardha*, *Chandrachakra*, *Soocheemukha*, *Avangmukha*, *Kharjoorapatraka* incisions are indicated.
4. *Shambookavarta*: This type is *Aasadhya* so should not be treated.
5. *Unmargee*: Excision of tract along with foreign body followed by *Agnikarma* with red hot *Shalaka* (*Jaambvaushtha*). *Krimighna* treatment is indicated.
6. *Parikshepee*: *Ksharsutra* is indicated in this type of *Bhagandara* as per Acharya Vagbhata.
7. *Riju*: General treatment of *Bhagandara*.
8. *Arsho-Bhagandara*: In this type of *Bhagandara* first manage the *Arsha* and then general management of *Bhagandara* is indicated.

PATHYA-APATHYA:

Pathya (Do's):^[20] The following *Pathya* are mentioned in classics like *Shali Dhanya*, *Mudga*, *Patola*, *Vilepee*, *Jangala*, *Mamsa*, *Rasa*, *Shigru*, *Vetagra*, *Bala*, *Mulaka*, *Tila*, *Saeshapa*, *Taila*, *Tikta*, *Varga*, *Ghrita*, *Madhu*.

Apathya (Don'ts):^[21] The following *Apathya* are mentioned in classics like *Ati Vyayaama*, *Ati Maithuna*, *Kopa*, *Yudha*,

Prishtayana, *Guru Aahara*, *Vega Avarodha*, *Ajeerna*, and *Sahasa Karma*.

REVIEW OF MODERN LITERATURE

Fistula-in-Ano:

Fistula is the Latin word which means a reed, pipe or flute. In surgery Fistula implies a chronic granulating tract connecting two epithelial-lined surfaces. These surfaces may be cutaneous or mucosal. In its simplest form an anal fistula is a single tract with an external opening in the skin of the perianal region and an internal opening in the modified skin or mucosa of the anal canal or rectum. However, the fistulous tract is often more complicated in its course i.e. it can have several openings; multiple internal opening are very rare. The wall of the tract is composed of a thick tough layer of fibrous tissue which forms a fibrous tube lined on its inner aspect by a layer of granulation tissue

Aetiology of Fistula in ano:^[22]

The anorectal fistula are commonly develops due to crypto glandular infection caused by enteric bacteria. The anal glands lie in the intersphincteric space, and their ducts enter the anal canal to discharge at the dentate line. The acini ramify in the intersphincteric space as well as some penetrate the internal sphincter muscle and the external sphincter. In intersphincteric space pus spreads upward, downward or laterally and results in abscess in the perianal region or in the ischioanal. These abscesses may spontaneously discharge or treated by drainage. There is a potential communication from perianal region to anal canal at dentate line, as the anorectal abscess has drained. There is a potential communication between the two epithelial surfaces result in anorectal fistulae. Most of the fistulae are primarily caused by crypto glandular infections, only some are secondary to other disease. Secondary fistulae are common in crohn's disease and are common manifestations but secondary fistula should not be regarded as specific, because 7% of

patients with ulcerative colitis also develop perianal fistulae. Anorectal fistulae may be complicate due to tuberculosis, actinomycosis, anal fissure and foreign bodies around the anal canal. Other abdominal diseases leading to formation of pelvic abscess (e.g., Acute appendicitis, sigmoid diverticulitis, salpingo-oophoritis and presacral dermoid cyst), Congenital fistulae may occur and may be associated with inclusion desmoids.

Clinical features:^[23]

On inspection, most of cases reveals an external opening around anal canal but, in patient with intersphincteric fistulae, there may be no apparent external opening. Anorectal fistulae present with purulent discharge around anus and from within anal canal. A patient gives a history of an abscess which had burst spontaneously or required surgical drainage. An anal fistula is painless condition, although pus accumulates to form recurrent abscess, pain is experienced till abscess bursts, which give immediate relief. Itching and soreness at perianal skin are sometimes common, due to pruritus resulting from the moist condition of the skin.

CLASSIFICATION OF FISTULA IN ANO:^[24]

Milligan and Morgan (1934) classified fistula in ano according to their relationship to the anal sphincters and in particular to the anorectal ring 1. Low Fistula- Opening to anal canal at the level of pectinate line. a) Sub mucous type, b) Subcutaneous and c) Transpincteric fistula. 2. High Fistula –all other varieties of fistulae.

Standard classification: Goligher (1975)^[25] -1.Subcutaneous, 2.Submucous, 3.Low anal, 4.High anal Anorectal has a) Ischiorectal and b)Pelvirectal

Pathologic Classification:^[26] 1.Tubercular fistula, 2.Diabetic, 3 Leprotic, 3.Secondary to Ulcerative colitis, 4.Secondary to Crohn's disease, 5.Secondary to Colloid, Ca of the rectum

Park's Classification of Fistula-in Ano and its Management:^[27]

Park's classification of fistula in ano gives an accurate description of the anatomical course of fistulous tracts i.e. 1.Intersphincteric, 2.Trans-sphincteric, 3.Supra-levator, and 4.Supra-sphincteric

Classification according to St. James University Hospital ^[28] (Based in axial plane, primary fistulous tract, secondary extension and abscess) **Grade I** is Simple linear inter-sphencteric fistula. **Grade II** include Inter sphencteric with secondary tract or abscess. **Grade III** is Transpincteric. **Grade IV** involves transpincteric with abscess or secondary tract in ischiorectal or ischioanal fossa. **Grade V** is supra levator or Trans levator.

DIAGNOSIS:^[29] Inspection-On inspection one or more external openings seen as an elevation of granulation tissue with discharge of pus. Previous scar of anorectal surgery for abscess, Fistula in ano, fissure and Hemorrhoids may be seen. Palpation-The next step is a careful digital palpation of the perianal region and anal canal. On palpation, indurations may be felt from external fistulous opening to the anus. The indurations is caused by the fibrosis of the wall of the tract. A pus discharge on palpation shows improper drainage and tenderness be there if inflammatory condition of fistula is present. In simple direct fistula which is fairly superficial, the tract can generally felt as a distinct rod of indurations' extending in a straight line from external opening to anal verge. The tract of a posterior horseshoe fistula, when it hoods the Puborectalis sling, is easily felt as a thick, horizontal rod like indurations on one or both sides and posteriorly just above the level of anorectal ring. Digital examination of anal canal is helpful to reveal the area of indurations or internal opening. Goodsall's rule helps imaging the site of internal opening. Proctoscopy examination show internal opening of fistula as a dimple and hypertrophied papilla. Some other disease condition like hemorrhoids, proctitis can also be revealed with Proctoscopy. Methylene blue dye -

When methylene blue is injected from external opening coming out through internal opening, the fistula is complete. This is very helpful to know whether the fistula is complete or not and also to locate the internal opening. Probing-The role of probing examination is quite essential for diagnosis of the tract of fistulas. Probing done after preliminary survey has been made by simple inspection and palpation. With this information, probing gives the probable course of the fistulous tract and passage of probe can made more purposeful.

Goodsall's rule^[30]: If the external opening of the fistula in ano lies Anteriorly within 1 and ½ inches of the anus, the tract will be straight and the internal opening will be in same plane. But if the external opening is beyond 1 ½ inches away from the anus, or if it is posteriorly situated, the internal opening will be at 6 o'clock posteriorly and tract will be curved. When methylene blue is injected from external opening coming out through internal opening, the fistula is complete. This is very helpful to know whether the fistula is complete or not and also to locate the internal opening. It is also required in the procedure like *ksharsutra* therapy, Seton therapy and fistulectomy. A lubricated finger is inserted prior to guide the probe. It is very important to exercise the utmost gentleness in probing.

INVESTIGATIONS: Fistulography, Endoanal Ultrasonography or (TRUS):^[31], Computerized Tomography:^[32], Magnetic Resonance Imaging:^[33] X ray Chest:

SURGICAL MANAGEMENT OF FISTULA

Fistulotomy: Under appropriate anesthesia, patient kept in lithotomy position. Identification of external fistulous opening should be done then probe having groove is passed from external opening to the internal opening. The tract is laid open over the probe. Granulation tissue curetted and sent for Histopathological examination. Secondary tract, often

identified as granulation tissue that persists despite curettage, should be laid open or drained. Advantage is simple and effective method for the treatment low type of fistula. It has shorter operating time with less postoperative pain and less time required for wound healing. At the low level, the internal sphincter and subcutaneous external sphincter can be divided at right angles to the underlying fibers without affecting continence. This technique is useful for 85-95% of primary fistulas i.e. sub mucosal, intersphincteric, low transphincteric.

Fistulectomy: In fistulectomy involves coring out of the fistula by either sharp dissection or diathermy cautery. It allows better definition of fistula anatomy than fistulotomy, especially the level at which the tract crosses the sphincters and the presence of secondary extensions. Advantages are in low fistula in ano success rate is high. Therefore it is mainly used for intersphincteric fistula and transphincteric fistulae. Disadvantages are pain- these surgeries lead to a large wound from the anal opening to the buttock with lot of pain in the post-operative period. Invasive- The procedure is associated with a lot of cutting, scarring and distortion of anatomy. Prolonged Hospitalization-The patient required 4-8 day or more days to stay in the hospital. High morbidity- The patient needs dressing for 4-6 weeks and is obviously off the work for this time. High recurrence rate- In spite of all these difficulties, this surgery is associated with chance of high recurrence rate.

Seton-A Seton is a piece of surgical thread that's left in the fistula for several weeks to keep it open. This allows it to drain and helps it heal, while avoiding the need to cut the sphincter muscles. A variety of materials have been used but the Seton should be non absorbable, comfortable and non degenerative. A tight or cutting Seton are placed with the intention of cutting through the enclosed muscles. A Seton is passed along the residual tract around the external sphincter and tied loose and

dressed wound daily wound irrigation and dressing require during post operative management. Advantages: Seton can be used with fistulotomy, or separately and in a staged fashion. This technique is helpful in recurrent fistulas after previous fistulotomy. Complicated cases of fistulas i.e. High transphincteric, supra-sphencteric, extrashincteric or multiple fistulas. Anterior fistula in female patient. Poor preoperative sphincter pressure. Patients with crohn's disease or in immunosupressed. Disadvantage is this technique has Recurrences and incontinence. The Cutting rates of Seton ranging from 82-100%: However, long term incontinence rates can also up to exceed 30%.^[34,35,36]

Mucosal advancement flap-This procedure involves cutting or scraping out the fistula with removal of the primary and secondary tracts and completes excision of internal opening. This technique is mostly use for chronic high fistula but is indicated for the same disease condition as Seton use.^[37,38,39] Advantage is 1- stage procedure with no additional sphincter damage.

LIFT Procedure: The ligation of the intersphincteric fistula tract (LIFT) procedure is a treatment for fistula that passes through the anal sphincter muscles, where a fistulotomy would be too risky. This procedure for complex transphincteric fistulas first described in 2007. The goal is performing secure closure of the internal opening and by removing the infected crypto glandular tissue.^[40] The success rate of LIFT ranges from 40to 95%, with recurrence rate of 6-28%.^[41] A small incision is taken overlying the probe connecting the external and internal opening then intersphincteric plane is

identified and isolated by accurate dissection done through intersphincteric plane. After isolation, the intersphincteric tract is twisted using a small, right –angled clamp and the tract is ligated close to the internal sphincter and divided distal to the point of ligation. To confirm the division of the correct tract Hydrogen peroxide is injected from external opening. The remnant fistulas tract and external opening are curetted to the level of the proximity of external sphincter complex. At the end, the intersphincteric incision is loosely reapproximated with an absorbable suture. The curetted wound is left opened for dressing. It compares same success rate of the anorectal advancement flap technique.

VAAFT- VAAFT (Video –Assisted Anal Fistula Treatment) is a new improved painless and minimally invasive and sphincter-saving technique for complex fistula. It was first developed by Meinero in 2006. The surgery is performed under a subarachnoid block with the patient in the dorsal lithotomy position. In this technique, the internal opening is visualized with the aid of a fistuloscope, which navigates through the tract under vision. The complete destructions of fistula tract and closure of the internal opening. A unipolar electrode is inserted into fluoroscope to fulgurate the fistula walls from the inside out und direct vision, when

all the tract is completely destroyed, a endobrush is inserted instead of electrode to remove the necrotic material from fistula and irrigation fluid.

After the removal, the opening is closed by application of absorbable suture or with fibrin glue. It is a sphincter-saving procedure and offers many advantages to patients. The running glycine mannitol solution helps to open the fistulous tract.^[42]

Plugs and adhesive (Fistula Plug)-This is cone-shaped plug made from animal tissue that's used to block the internal opening of fistula. Johnson et al first described the anal fistula plug, a bio xenograft made of lyophilized porcine intestinal sub mucosa. Another option in cases where a fistulotomy carries a high risk of incontinence is the insertion of a bioprosthetic plug. Due to less invasive nature, these therapies mark to less postoperative morbidity and risk of incontinence but long term data are lacking for eradication of disease, especially in complex fistulas, which carry high recurrence rates. The national institute for health and care currently recommends carrying out the procedure as part of medical research.^[43]

Fibrin Glue-Fibrin glue is currently the only non-surgical option for the treatment

of anal fistulas. This procedure performed by injecting special glue into the fistula under general anesthesia. The glue helps to seal the fistula and encourage it to heal. It is less effective than fistulotomy for simple fistulas and result may not be long lasting. This may be useful option for fistula that passes through the anal sphincter muscles because they do not need to be cut.^[44]

Endoscopic Ablation:^[45] -In Endoscopic ablation an endoscope (a tube with a camera on the end) is put in the fistula. Through the endoscope an electrode is passed to seal the fistula. This technique works well and there are no serious concerns about its safety.

Laser Surgery^[46]: In this radially emitting laser fiber treatment includes using a small laser beam to seal the fistula. There are uncertainties around how well it works but there is no safety concern.

Limitation of surgery in fistula in ano: Recurrence in postsurgical procedure Fistulotomy is 0-18% and rate of incontinence is approx-3-7% is reported. In Seton recurrence is 0-17% and rate of incontinence is approx-0-17% is reported. In Mucosal advancement flap recurrence is 1-17% and rate of incontinence is approx 6-8% is reported.

Postoperative complications- Early postoperative complications are bleeding, urinary retention, fecal impaction, thrombosed hemorrhoids. Delayed

postoperative complications are delayed wound healing- Complete healing occurs by 12 weeks unless an underlying disease process is present (i.e. recurrence, crohn's disease). Anal stenosis is the healing process causes fibrosis of the anal canal. Recurrence and incontinence

PERFACT Procedure: PERFACT procedure (Proximal Superficial Cauterization, Emptying Regularly Fistula Tracts and Curettage of Tracts) is a new concept to treat highly complex anal fistula, effective even in fistula associated with abscess, supralelevator fistula-in-ano and where the internal opening is non-localizable. The procedure is performed under a saddle block (spinal anesthesia) or a short general anesthesia. With the patient in lithotomy or a prone jack-knife position, the internal opening is localized. This is facilitated by injecting saline, Povidone iodine or hydrogen peroxide through the external opening. This procedure has three steps 1) Proximal superficial cauterization the area around the internal opening is made fresh and de-epithelize by using electrocautery. The basic principle behind this cauterization is to close the internal opening permanently by granulation tissue and subsequently allowing the wound to heal by secondary intention. This usually closed the internal opening in about 10 to 12 day. Step 2) Curettage of fistula tracts: All the tracts of the complex fistula are

curetted and debrided of their lining with a curette. Step 3) Emptying regularly fistula tracts: After curetting, the tracts are allowed to remain empty by cleaning them regularly in the post operative period till it heal completely. Regularly cleaning keeps the tract wide open to drain off the serous fluid and promotes the healing of the tracts by formation of fresh granulation tissue. Cleaning is done by gentle rubbing of the wound by inserting the finger in anorectal canal. The multiple tracts; horse shoe fistulas; recurrent fistulas; anterior fistula in females; fistula with long tracts emptying is done by a cotton swab mounted on an artery forceps. Now a day, PERFACT procedure is becoming a first line definitive procedure for all types of complex fistulae including fistula associated with (any tract length > 10cm); fistula with supralelevator blind extension (not with high rectal opening); fistula where internal opening cannot be localized; and fistula associated with abscess/pus collections.^[47]

OTSC Fistula Closure: Over-the-Scope-Clip (OTSC) is the newer innovative surgical device for anal fistula closure. It is a sphincter-preserving minimally invasive procedure with promising initial results and a high rate of patient satisfaction. It consists of a super-elastic Nitinol clip and a clip applicator. The clip is placed with the aid of a transanal applicator on the

internal fistula opening to achieve healing of the fistula track. Crypto glandular anorectal fistula can be better treated by this technique.

Operative Procedure: In this procedure, First step Fistula is probed and seton inserted while inserting OTSC the infection along the tract. As for preparation in other therapies this can be achieved with the placement of seton drainage for two to three month before clip application. Second Step is excision of circularly around internal opening of fistula approximately two centimeters then clip applied onto the sphincter muscle. Third Step is debridement and removal of granulation tissue, epithelium and debris lining the fistula with the help of special Fistula brush. Fourth step is precise alignment with suture or OTSC Proctology Anchor. Fifth Step is the sutures are knotted at distal end. Sixth step is by holding the suture under slight tension, the OTSC applicator is advanced towards the internal opening of fistula. Seventh step is the applicator caps centered and placed on tissue around the fistula opening with stable contact After folding back safety lock the deployment trigger of the applicator is pressed and the deployment ring pushes the clip off the applicator cap. Post operatively, it takes nearly six months to heal the tract completely. Advantages are no intra-operative technical or surgical

complications. Postoperatively there is no intolerable discomfort or a sensation of a foreign body in the anal region. Disadvantage is rarely the clip may get spontaneously detached.^[48]

DISSCUSION:

Acharya Sushruta the father of surgery described *Bhagandara* elaborately in Sushruta Samhinta. This disease can be correlated with Fistula in ano. The Definition, Etiology, Types, Pathogenesis as per *Shatkriyakala* (onset and progress), *Purva roop* (Prodromal features), *Roop* (Clinical manifestation), stage wise management and even the complications of *Bhagandara* has been perfectly explained by Acharya. Infection from a hair-follicle or a sebaceous gland and prolonged negligence leads to formation of fistula. The main symptom is pus discharge in the perianal region. Pain and tenderness are present. He described *Bhagandara* Pidika which causes abscess if not treated properly then ultimately causes fistula in ano. He described types of Bhagandara as per *doshic* involvement and symptom of particular Bhagandara. Acharya Sushruta has mentioned stage wise treatment of Bhagandara. He has advocated that in unripe stage, one should follow 'Apatarpan' to 'Virechan' measures of 'Vranachikitsa' (wound management) and once the *Pidika* (Boil) achieves the ripening stage, Snehana, Avagah Swedan (oleation

and fomentation) of the peri anal region should be practiced. Ayurvedic Para-surgical procedure like *Ksharsutra* and *Agnikarma* for *Bhagandara*. *Agnikarma* is indicated in all types of *Bhagandara* except in Pittaja. Main objective of agni karma is to stop the bleeding and to cauterize the granulated lining of the tract. *Ksharsutra* is gold standard treatment having less recurrence rate and minimum chances of incontinence than modern surgical modality. This Karma is indicated in all types of *Bhagandara* except in Pittaja. Main objective of agni karma is to stop the bleeding and to cauterize the granulated lining of the tract. He mentioned *Chedan Shastrakarma* i.e. radical excision of fistulous tract for the surgical management of *Bhagandara*. Despite various advancement made in the surgical management of fistula in ano, Ayurvedic para-surgical procedure *Ksharsutra* remains more effective and acceptable scientific treatment, having less recurrence rate and minimum chances of incontinence than contemporary modern treatment alternatives. In this article, we tried to compile all the scattered description about *Bhagandara* available in various Ayurvedic texts and incorporated modern description too.

Conclusion: The management of fistula in ano needs complete knowledge of perianal anatomy and pathophysiology. Almost all

the surgeons starting from Acharya Sushruta to Hippocrates and also modern reputed surgeons of present time have realized the difficult course of this disease and have mentioned different type of surgical, parasurgical and medical management for it. In spite of many modifications in surgical procedures, fistula in ano still remain challenge even for a meticulous and skillful surgeons. *Ksharsutra* therapy is still gold standard technique for management of *Bhagandara* employed by *ayurvedic* surgeons.

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