



EFFICACY OF ARAGWADHADI VARTI IN THE MANAGEMENT OF PILONIDAL SINUS: A PRE-POST STUDY
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ABSTRACT:

Introduction: Pilonidal sinus is an epithelium lined tract, situated short in the sacrococcygeal region, containing hairs and unhealthy granulation tissue. It is due to penetration of hairs through the skin into subcutaneous tissue, causing a spectrum of clinical presentations, ranging from asymptomatic hair containing cysts and sinuses to large symptomatic abscesses. Many surgical and para surgical treatments are available for this condition. In Ayurveda, *salyaja nadivrana* can be compared with Pilonidal sinus based on its etiopathogenesis, signs and symptoms. Ayurveda classics mentioned the use of *varti* in the management of *salyaja nadi vrana*, which are having good healing property. One among them is *Aragwadhadi varti* mentioned in *Bhaishajya Ratnavali*. **Material and methods:** The aim of the study is to evaluate the healing effect of *Aragwadhadi varti* in Pilonidal sinus. An interventional open trial study was conducted in 15 participants. Sampling method is consecutive sampling. Participants of age group 15–40 years having Pilonidal sinus are selected. **Results:** Results shows that both subjective and objective parameters were statistically significant with $P < 0.001$. **Conclusion:** By analysing the data and results obtained from the study there is significant improvement in the subjective and objective parameters, and can be concluded that clinically and statistically, study is significant.

Keywords: *Pilonidal Sinus, salyaja nadivrana, Aragwadhadi varti.*

INTRODUCTION

A pilonidal sinus is a hair-containing, epithelium-lined tract located in the sacrococcygeal region, near the first piece of the coccyx. It forms when hairs penetrate the skin and enter the subcutaneous tissue, leading to a range of clinical presentations, from asymptomatic hair-containing cysts and sinuses to large, symptomatic abscesses.[1] The condition often presents as a chronic sinus, but can also occur in other areas, such as the interdigital cleft, axilla, and umbilicus, due to similar mechanisms of hair penetration and tissue reaction. Pilonidal sinus affects approximately 26 individuals per 100,000 population, with a significant male predominance, at a ratio of around 6:1. The condition typically manifests in the late teenage years, with a peak incidence during this period.[2] In Ayurveda, *salyaja nadvrana* can be compared with Pilonidal sinus on the basis of its etiopathogenesis, signs and symptoms. In the context of *Salyaja Nadvrana*, a rapidly advancing foreign body that is hidden from view can cause sinuses to form in the affected tissue (*vrana vasthu*).[3] This often leads to the manifestation of a discharge that is foamy, churned, clear, and tinged with blood, accompanied by sudden, sharp pains and rapid spurts of fluid.[3] In Ayurveda, *ksharasutra* application is widely practiced for Pilonidal sinus. The course duration lasts for several months in *ksharasutra* application. In addition to the cutting of unhealthy tissues, it also damages healthy tissues and the participants has to suffer pain during each thread change Ayurveda classics mentioned the use of *Varti* in the management of *salyaja nadi vrana*, which are having good healing property. *Varti Kalpana* is a derivative of *Vatikalpana*, distinguished by its unique shape, application, and indication. these medicated preparations are solid, wick-shaped, and

designed for insertion into bodily orifices (excluding the mouth)[4]. Depending on their site of application and action, *Varti Kalpana* is categorized into different types, including *Yoni Varti*, *Guda Varti*, *Netra Varti*, *Dhumra Varti*, and *Vrana Varti*. These preparations are intended for external use and are formulated to soften at body temperature, facilitating gentle and effective application.[4] Susrutha explains *sodhana* and *ropana Varti* as one among the *shashti upakramas* in *Dwivraneeya adhyaya*. *Aragwadhadi Varti* is explained in Bhaishajya Ratnavali in *Nadvrana* context.[5] The study evaluates the healing effect of *Aragwadhadi Varti* in pilonidal sinus.

AIM & OBJECTIVES

Aim –To assess the healing effect of *Aragwadhadi Varti* in management of Pilonidal sinus .

Objective-To assess the healing effect of *Aragwadhadi Varti*, in Pilonidal sinus by assessing pain, discharge, and length of tract.

MATERIALS AND METHODS

The study protocol was approved by the Institutional Ethics Committee at Govt. Ayurveda College, Thiruvananthapuram, Kerala, India(IEC- 683-30/08/2022). 15 participants between the age group of 15-40 years, diagnosed with Pilonidal sinus fulfilling the inclusion and exclusion criteria were selected.

Study setting

OPD and IPD , Dept. Of Salyatantra, Government Ayurveda College Thiruvananthapuram. The study was conducted for a duration of 1 ½ years, from 01/04/23 to 31/08/24.

Study Design:

Interventional pre- post study design

A) Inclusion criteria

- a. Participants presenting with classical symptoms of Pilonidal sinus, diagnosis confirmed by clinical examination and investigations.
- b. Participants with single tract of Pilonidal sinus.
- c. Pilonidal sinus with tract less than 10cm length.
- d. Sex – either sex
- e. Age group 15 – 40 years

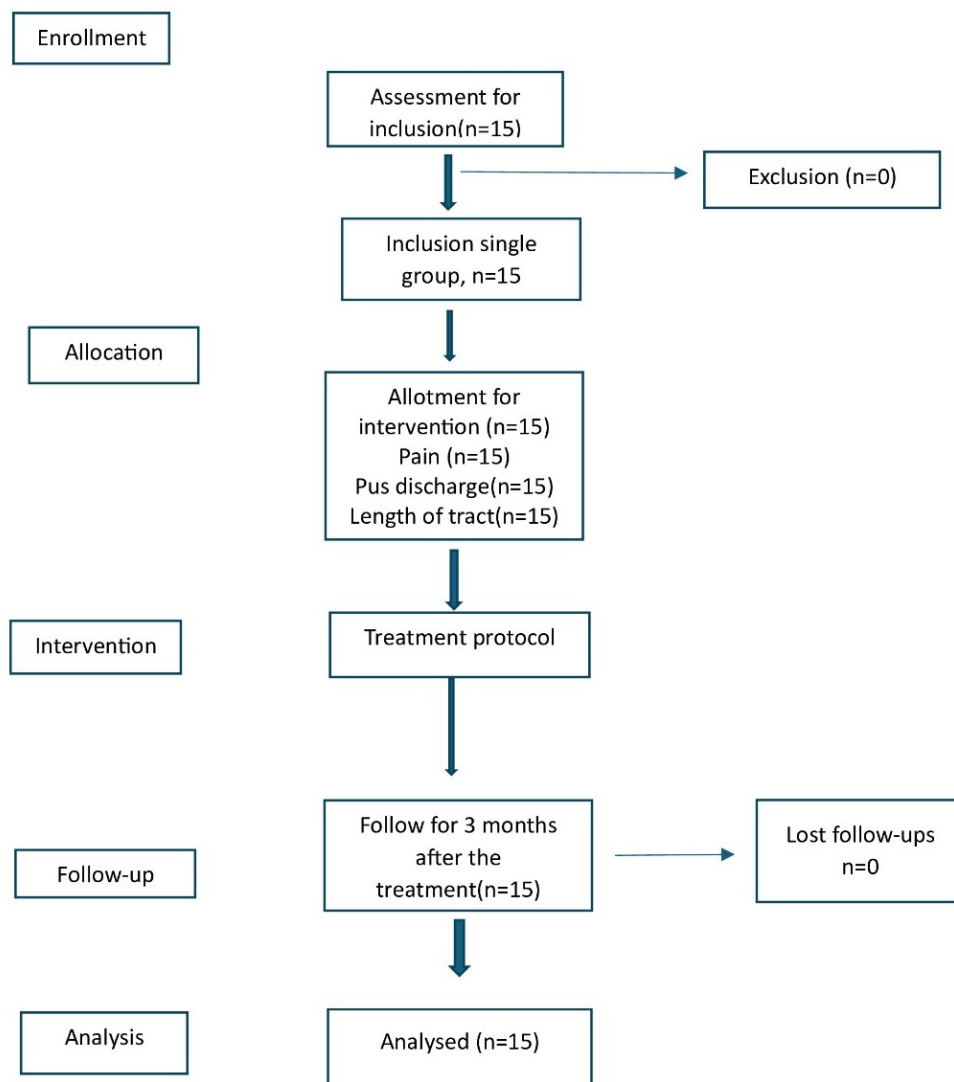
B) Exclusion criteria

- a. Participants with secondary fistula.

- b. Known case of Secondary sinus due to tuberculosis, osteomyelitis and carcinoma.
- c. Spinal disorders like Potts disease, scoliosis.
- d. Lumbosacral and coccyx bony disorders.
- e. Participants with known case of cardiac diseases, malignancy, uncontrolled diabetes mellitus

Participants was recruited to the study after necessary examinations and investigations. Then *Aragwadhadi Varti* was applied along the tract of pilonidal sinus for a period of 28 days, followed by a follow up period of 3 months.

Chart 1 : The CONSORT Flow diagram of the study



Assessment criteria

1. Pain – verbal rating scale

- Grade 0- no pain
- Grade 1-mild pain
- Grade 2– moderate pain
- Grade 3- severe paing

2 Discharge

- Grade 0 – no discharge
- Grade 1 – mild discharge
- Grade 2 – moderate discharge
- Grade 3 – profuse discharge

3. Length of tract

Measured using a copper malleable probe.

Trial drug

Aragwadhadi Varti

1. *Aragwadha* : Cassia fistula
2. *Haridra* : Curcuma longa
3. *Kaala (manjishta)* : Rubia cordifolia
4. *Ghritha* : Ghee
5. *Kshoudram* : Honey
6. *Gomutram* : Cow's urine

Method of preparation of aragwadhadi Varti

Powders of *aragwadha*, *haridra*, & *manjishta*(6gm each), are mixed with *ghritha* , *kshoudra* (12gm each) and *gomutra* (192 ml). These were mixed by churning into a *kalka* form. This *kalka* is smeared over gauze, made to the shape of *Varti* and preserved in airtight container after sufficient dryness is attained[5].

Intervention

Purva karma

Participants with pain and pus discharge as symptoms is thoroughly examined. Screening of cardiovascular and pulmonary system to assess the

fitness of the patient for procedure was done. Surrounding area made aseptic with antiseptic solution. Written consent was collected from the participants before the procedure.

Pradhana karma

The participants is asked to lie down in prone position on a surgical table. A lubricated copper probe was introduced through the course of sinus. *Aragwadhadi Varti* was fully packed in the tract throughout its whole length and sterile pad is placed. *Varti* is removed on the next day through opposite opening of tract for the effective debridement of tract. Cleaning with sterile water was done before placing *Varti* everyday and the procedure was repeated for a period of 28 days. After 28 days, no further intervention were done on the tract, but was observed for a follow up period of 3 month for healthy granulation tissue formation.



Figure 1. Varti application

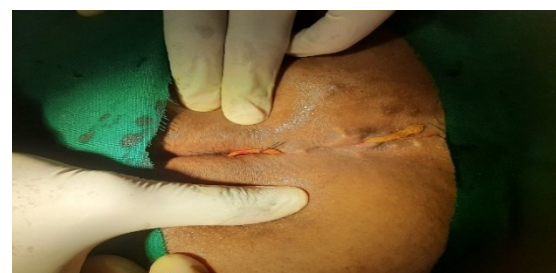


Figure 2. Varti inserted along the whole length of tract

Data analysis

The data related to various assessments of both subjective and objective parameters, before and after treatment of 15 participants were taken for statistical analysis. The result of treatment was analysed through Wilcoxon Signed Rank Test for subjective parameters like pain, discharge, objective parameters length of tract to interpret the significant changes.

OBSERVATIONS AND RESULTS

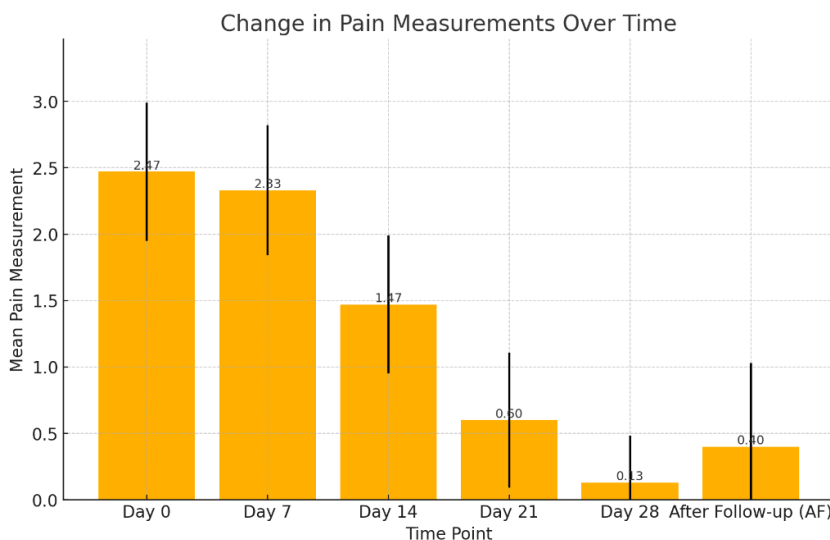
Change in Pain Measurements

The mean pain scores decrease progressively from Day 0 to Day 28, suggesting an improvement over time. The final follow-up shows a mean of 0.4, with a somewhat larger variability indicated by the SD of 0.63 compared to earlier time points.

Table 1 – Change in pain measurement

| Variable | Mean | SD | Median | IQR |
|----------|------|------|--------|-----|
| Day0 | 2.47 | 0.52 | 2.5 | 2-3 |
| Day7 | 2.33 | 0.49 | 2 | 2-3 |
| Day14 | 1.47 | 0.52 | 1 | 2-3 |
| Day21 | 0.6 | 0.51 | 1 | 0-2 |
| Day28 | 0.13 | 0.35 | 0 | 0-1 |
| AF | 0.4 | 0.63 | 0 | 0-1 |

Figure 3 – Graph showing change in pain measurement



Change in Pus Discharge grades

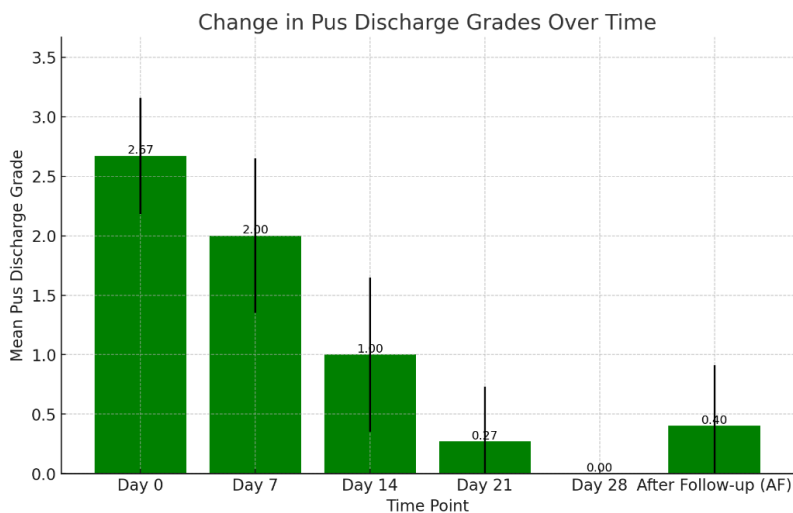
There is progressive reduction in the mean grades of pus discharge from 2.67 on Day 0 to 0 by Day 28,

indicating a significant improvement. The final follow-up reports a slight increase in the mean to 0.4, with a corresponding SD of 0.51.

Table 2 - Change in pus discharge

| Variable | Mean | SD | Median | IQR |
|----------|------|------|--------|-----|
| Day0 | 2.67 | 0.49 | 3 | 2-3 |
| Day7 | 2 | 0.65 | 2 | 2-2 |
| Day14 | 1 | 0.65 | 1 | 1-1 |
| Day21 | 0.27 | 0.46 | 0 | 0-1 |
| Day28 | 0 | 0 | 0 | 0-0 |
| AF | 0.4 | 0.51 | 0 | 0-1 |

Figure 4 – Graph showing change in pus discharge



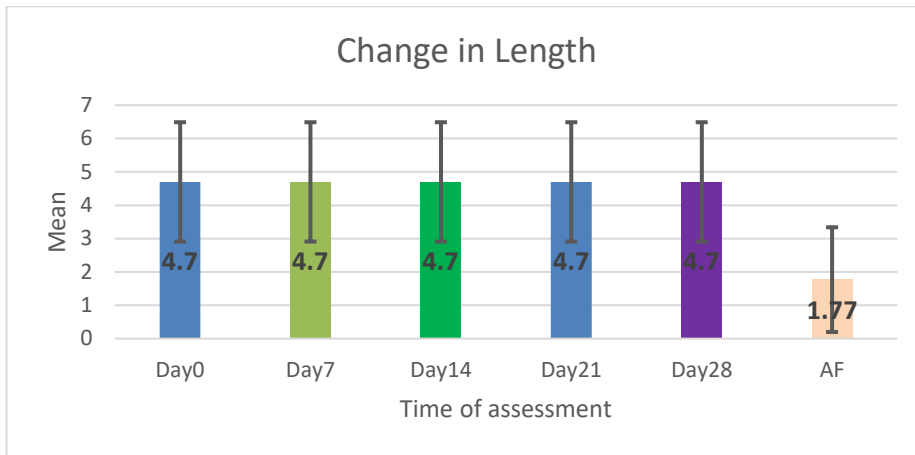
Change in Length of the Tract Measurements

The data shows that there was no change in the mean, standard deviation (SD), median, or interquartile range (IQR) from Day 0 to Day 28, with all these values remaining consistent. However, a significant change is observed at the final follow-up (AF), where the mean drastically reduces to 1.0 with an SD of 1.4.

Table 3- Change in length of tract

| Variable | Mean | SD | Median | IQR |
|----------|------|------|--------|---------|
| Day0 | 4.7 | 1.79 | 4.6 | 2.9-6.8 |
| Day7 | 4.7 | 1.79 | 4.6 | 2.9-6.8 |
| Day14 | 4.7 | 1.79 | 4.6 | 2.9-6.8 |
| Day21 | 4.7 | 1.79 | 4.6 | 2.9-6.8 |
| Day28 | 4.7 | 1.79 | 4.6 | 2.9-6.8 |
| AF | 1.77 | 1.57 | 1.6 | 0-3 |

Figure 5 – Graph showing change in length



DISCUSSION

The Study was mainly aimed to evaluate the healing effect of *Aragwadhadi Varti* in pilonidal sinus by assessing pain, discharge and length of tract for a period of 28 days followed by follow up of 3 months. After completion of study, mean pain scores reduced from 2.47 on Day 0 to 0.13 on Day 28. The mean pus discharge grade decreases from 2.67 on Day 0 to 0 on Day 28. Considering the length of tract, a significant change is observed at the final follow-up (AF), where the mean drastically reduces from 4.7 to 1.0.

Probable mode of action of drug

Most drugs used in wound healing possess certain characteristics: *Tikta* and *Katu rasa*, *Ruksha*, *Laghu*, and *Teekshna gunas*, and *Ushna virya*. These substances exhibit *tridosahara karma*, along with *sulahara*, *lekhana*, and *vrana nasana* properties.[6] According to Ayurvedic pharmacodynamics, wound healing requires the use of drugs with specific properties at different stages. *Vrana-shodhana* and *vrana-ropana* properties are essential.[7] As described in Sushruta Samhita, Sushruta explains the benefits of various drugs with these properties. Drugs with *Katu* and *Tikta rasa* are effective in

vrana-shodhana, while those with *Madhura*, *Kashaya*, and *Tikta rasa* are beneficial for *vrana-ropana*. [7] This understanding guides the selection of appropriate herbs for wound healing, ensuring effective treatment and optimal recovery. Most *vrana sodhana* drugs, including those in *Aragwadhadi Varti*, possess *Tikta*, *Katu*, and *Kashaya rasa*. These properties enable effective wound cleansing, preventing infection and promoting healing [6] *Katu rasa* acts as *vrana sodhana* and also has *sodhahara* properties, thus acts as anti-inflammatory. [8] *Tiktha & Kashaya rasa dravyas* are having *soshana* properties, which may be helpful in reduction of excessive discharge formation and may also help in wound healing & reducing inflammation. *Aragwadha*, in particular, have *sophahara* properties due to its *sheetha veerya* and *madura rasa*, which attributes to *pitha samana* and anti-inflammatory effects. [9] Additionally, curcumin in turmeric demonstrates anti-inflammatory and analgesic properties, promoting healthy granulation tissue formation, healing, and thus results in pain reduction. [10] *Madhura rasa* of *madhu* and *ghritha* pacifies *vatha dosha* leading to reduced pain and enhances

healing.[11] The presence of *madhu* and *ghritha* also inhibits the release of histamines and kinins, further contributing to anti-inflammatory effects *Gomutra* possesses antimicrobial properties, due to its *Krimihara*, *kushtangna* attributes which effectively prevent infections. Its *Rooksha*, *Teekshna*, and *Ushna gunas* contribute to its *lekhana* property, facilitating the debridement of unhealthy tissues.[12] The presence of creatinine, urea, and manganese in *Gomutra* further underscores its antimicrobial efficacy. Moreover, *Gomutra* enhances the phagocytic activity of macrophages, supporting the body's natural defence against infection and discharge. *Aragwadhadi Varti* is carefully inserted along the entire length of the tract using a probe, ensuring complete contact between the medicated thread and the tract, for optimal therapeutic effect The *Varti* is inserted through the external opening and daily removed through the opposite opening, allowing for the removal of any entrapped foreign bodies, such as deeply embedded hair, promoting a clean and healing tract environment. The *Varti* is strategically placed to preserve as much healthy tissue as possible throughout the procedure, while precisely targeting and debriding the unhealthy granulation tissues to promote a healthy healing environment. Tube in tract method is a modern method to manage sinus wounds, in which the external opening is kept open by keeping a tube in the external opening.[13] This method facilitates the drainage of pus in the tract and prevents false healing in the sinus, which further results in the complete healing of the tract. Placing *Varti* throughout the length of the tract substantiates the process of drainage from the tract, prevents false healing and thus results in healing of tract during the follow up. The major limitation of the study was inability to

effectively apply *Varti* in deeper tracts which restricted its potential benefits.

CONCLUSION

The treatment of Pilonidal sinus by *Aragwadhadi Varti* was based on the the principles of management of *Nadivrana* by means of *Vrana Varti*. Objective of the study was to assess the healing effect of *Aragwadhadi Varti* in pilonidal sinus by assessing pain, discharge and healing rate of tract. This procedure is a minimally invasive technique that preserves healthy tissues and overlying skin, causing minimal damage. It is a time-efficient method that requires minimal skill to perform. Notably, *Aragwadhadi Varti* is particularly effective for acute cases and shorter tract lengths, making it an ideal therapeutic option in such scenarios. However, in cases where the condition is chronic and the tract length is extensive, conventional management of pilonidal sinus may be necessary to prevent recurrence and ensure optimal outcomes. From the present study, it is evident that the treatment is effective in reducing symptoms, helps in healthy granulation tissue formation and thus enhances healing.

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