

Nadi Vrana: A Review of Clinical Features and Ayurvedic Treatment Strategies

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Abstract: *Nadi-Vrana is a tubular structure filled with pus or a blind tract that continuously discharges pus. According to various Acharyas, when Vranashopha (inflammatory swelling) is not properly treated or drained during its suppurative stage (Pakvaavastha), it can progress into deeper tissues, leading to the formation of Nadi-Vrana. This condition is comparable to the sinus tracts described in modern medicine, which are epithelial-lined channels containing unhealthy granulation tissue. The classical texts provide detailed descriptions of different types of Nadi-Vrana along with their treatments, including Bhaishajya Chikitsa (medicinal therapy), Kshara Sutra application, Agnikarma (therapeutic cauterization), and Shastrakarma (surgical procedures). Among these, the Kshara Sutra technique has gained prominence today for its effectiveness in managing Nadi-Vrana. Furthermore, the Shalyaja or Agantuja types of Nadi-Vrana show clinical resemblance to pilonidal sinus in terms of causative factors and symptoms. This article presents a comprehensive overview of Nadi-Vrana, covering its etiology, classification, clinical features, management, and relevant correlations between Ayurvedic and modern medical perspectives.*

Keywords: *Nadi-Vrana*

I. INTRODUCTION

Nadi Vrana is characterized as a hollow, tube-like structure or a blind tract with extensive pus accumulation, where the pus tends to burrow deeply into surrounding tissues. The term "Nadi" signifies movement or flow (*Gati*), and because the discharge flows continuously like a stream, it is referred to as *Nadi*. Nadi Vrana is classified as a type of *Vrana* (ulcer). Etymologically, *Nadi* means a tract, and *Vrana* means an ulcer. As per *Shabdakalpadruma*, an ulcer that develops a tract is termed *Nadi-Vrana*. According to *Amarkosha*, the term *Nadi* denotes a pathological condition characterized by the formation of an abnormal tract that exhibits continuous discharge. ^[3] *Acharya Sushruta* and *Acharya Vagbhata* explain that when *Vrana-Shopha* (inflammatory swelling) is not properly drained during its suppurative stage (*Pakvaavastha*) or is neglected at this critical stage, it can extend into deeper tissues, eventually leading to the development of *Nadi-Vrana*. ^[4,5]

In modern medical science, *Nadi-Vrana* can be correlated with a sinus tract, which is defined as a blind-ending channel that extends from the surface into underlying tissues. These sinuses are typically lined with granulation tissue or epithelium and persist due to factors such as the presence of a foreign body, inadequate drainage, or chronic infection. ^[6]

Ayurvedic texts describe a variety of treatment approaches for *Nadi-Vrana*. These include surgical procedures like *Chedana* (excision) and *Vidarana* (incision), ^[7] para-surgical techniques such as *Kshara Sutra* application, ^[8] and other supportive therapies like *Lepana* (external application of medicated paste), ^[9] *Varti* (medicated suppositories), ^[10] and *Prakshalana* (cleansing or irrigation).



Ayurvedic perspective

Vyutpatti of word Nadi-Vrana can be derived from two words Nadi and Vrana. Nadi - any tubular structure and that which has Gamana/Gati, Vrana - discontinuity in the bodily tissue, on combining word Nadi-Vrana, Shabdhakalpadruma says Nadisanglano Vranah which gives the meaning an ulcer with a sinus.

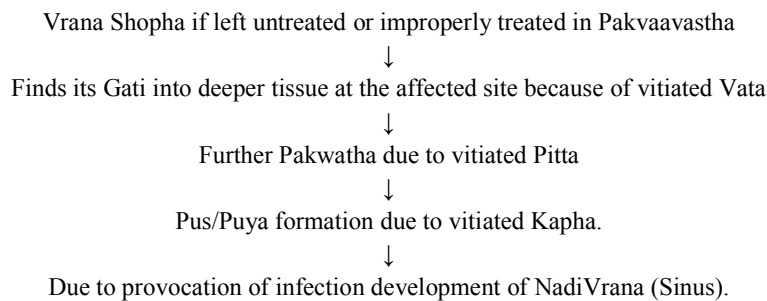
Nirukti (definition)

Tube like structure or tract which is blind in nature where excessive infiltration of pus burrowing deeply.^[11]

Aetiology and pathophysiology of Nadi-Vrana^[12]

If Vranashopha is treated improperly. Due lack of knowledge about the Avastha of Vranashopha, when a Pakwa Vranashopha is meant to be treated by surgical procedure, if it is left untreated the Puya or pus which is present in it finds its Gati into the deeper tissues of the affected part and forms large tracks resulting in formation of single or multiple tracts called as NadiVrana.

Samprapti^[13]



CLASSIFICATION

SN	SUSHRUT SAMHITA	ASHTANG HRIDAYA	BHAVPRAKASH	MADHAV NIDAN	YOGRATNAKAR
1	VATAJA	VATAJA	VATAJA	VATAJA	VATAJA
2	PITTAJA	PITTAJA	PITTAJA	PITTAJA	PITTAJA
3	KAPHAJA	KAPHAJA	KAPHAJA	KAPHAJA	KAPHAJA
4	VATA-PITTAJA	SANNIPAATAJA	SANNIPAATAJA	TRIDOSHAJA	VATA-PITTAJA
5	VATA-KAPHAJA	SHALYAJA	SHALYAJA	SHALYAJA	VATA-KAPHAJA
6	PITTA-KAPHAJA				PITTA-KAPHAJA
7	TRIDOSHAJA				TRIDOSHAJA
8	SHALYAJA				SHALYAJA

Lakshanas

1. **Vataja Nadi-Vrana According to Acharya Sushruta** - Parusha (Rough on touch), Sukshma Mukhi (narrow opening), Sa-Shoola (Painful), Adhika Phenodgham Srava (Frothy discharge), Kshapaya (Srava during the night).^[19] According to Acharya Vagbhata - Vivarna (Discoloration), Ratrau Adhika Srava (Discharge during night) rest other Lakshanas are as per Acharya Sushruta. ^[20] Bhavaprakasha, Madhava Nidana, Yogaratnakara has given same Lakshanas as of Acharya Sushruta.

2. **Pittaja Nadi-Vrana According to Acharya Sushruta** - Trishna (Thirst), Jwara (associated with fever), Paridaha (Pricking pain), Ushna (Warm on touch), Peetavat Srava (yellowish discharge).^[21] According to Acharya Vagbhata - Diva Srava (Discharge during day) rest other Lakshanas are as per Acharya Sushruta. ^[22] Bhavaprakasha, Madhava Nidana, Yogaratnakara has given same Lakshanas as Acharya Sushruta.



3. **Kaphaja Nadi-Vrana According to Acharya Sushruta** - Bahu Ghana (Hard), Picchila Srava (Viscous discharge), Arjuna Varna/Shweta Varna (whitish or pale in colour), Stabdha (fixed), Kandu (Itching), Aruja (Painless/mild pain).^[23] According to Acharya Vagbhata - Adhika Kledata at Nishi (Discharge during night), Kathina (Hard) rest other Lakshanas are as per Acharya Sushruta.^[24] Bhavaprakasha, Madhava Nidana, Yogaratnakara has given same Lakshanas as Acharya Sushruta.

4. **Vata-Pittaja Nadi-Vrana** - combined symptoms of Vataja and Pittaja Nadi-Vrana.^[25]

5. **Vata-Kaphaja Nadi-Vrana** - combined symptoms of Vataja and Kaphaja Nadi-Vrana.^[26]

6. **Pitta-Kaphaja Nadi-Vrana** - combined symptoms of Pittaja and Kaphaja Nadi-Vrana.^[27]

7. **Sannipataja Nadi-Vrana According to Acharya Sushruta** - Daha (burning sensation), Jwara (Fever), Shwasana (difficulty in breathing), Murchana (loss of consciousness), Vaktrashosha (dryness of mouth), combined symptoms of all three Doshas. This type of Nadi-Vrana should be considered as fatal and similar to Kalaratri (god of death).^[28] According to Acharya Vagbhata - Sarva Dosha, Sarvaakruti (Lakshanas of all Ekadoshaja Nadi-Vrana).^[29] Bhavaprakasha, Madhava Nidana, Yogaratnakara has given same Lakshanas as Acharya Sushruta.

8. **Shalyaja/Agantuja Nadi-Vrana According to Acharya Sushruta** - Shalya (foreign body) will be embedded or hidden in the deeper tissue and this type of Nadi-Vrana formation will be quicker in creating the passage. Phenilavat (Frothy), Ushnavat (warm), Asruk Mishritavat (blood mixed) Srava, Nitya Ruja (Pain).^[30] According to Acharya Vagbhata - Phenanuvidha (More of frothy discharge), Tanu (Tender in nature), Alpa Ushna (mild warmth) rest other Lakshanas are as per Acharya Sushruta.^[31] Madhava Nidana, Yogaratnakara has given same Lakshanas as Acharya Sushruta. Shalyaja / Agantuja Nadi-Vrana can be correlated to contemporary science's Pilonidal sinus.

Sadyasadyata^[32]

- Sannipataja Nadi-Vrana : Asadya
- Vataja, Pittaja, Kaphaja, Dwidoshaja, Shalyaja : Krichrasadya or Yatna Sadya.

Chikitsa of Nadi-Vrana

- **Nidana Parivarjana** - factors causing Nadi-Vrana i.e., Vranashopha should be treated properly based on the Avastha.
- **Samprapti Vighatana** - Bhaishajya, Ksharasutra application, Agnikarma^[33] and Shastra Chikitsa.
- **Bhaishajya Chikitsa** - Acharyas have mentioned various Bhaishajya Chikitsa like Lepa Karma, Upanaha and Varti Prayoga using Dravyas based on Dosha Dushti.
- **Kshara Sutra application** - All the Acharyas have explained Kshara Sutra Chikitsa for Nadi-Vrana, after Eshana of Nadi in cases of Krisha (lean), Durbala (weak), Bhuru (one who is scared of surgery/surgical instruments), and Nadi present at Marma Sthana Kshara Sutra ligation should be done to the Nadi.^[34]
- **Shastra Karma** - Patana, Vidarana and Eshana Karma has been mentioned.

Chikitsa based of Individual Type

1. **Vataja Nadi-Vrana According to Acharya Sushruta** - Upanaha Karma to dilute the Puya and once it gets aggregated at one point, Eshana then Vidarana Karma is done followed by Vrana Shodhana and Ropana by Tilapishta, Apamarga with Saindhava followed by Bandhana Karma. Prakshalana of Vidarita Vrana with Vatahara Dravyas like Panchamoola Kwatha, Bala, Gojihva, Bilva. Taila of Vatahara Dravyas are used for Shodhana, Poorna and Ropana of Vrana.^[35] According to Acharya Vagbhata and Yogaratnakara - explains the same treatment.
2. **Pittaja Nadi-Vrana According to Acharya Sushruta** - Upanaha in the form of Ksheera and Ghrita mixed Utkarika, then Shastrakarma. Vrana is created Prakshalana with Somalata, Nimba and Haridra followed by Lepa of Nagadanti and Madhuyashti.^[36] According to Acharya Vagbhata - Patana followed by Tiladi Pradeha.^[37] According to Yogaratnakara - Patana followed by Lepa of Tila, Manjishta, Nagadanti, Haridra.^[38]
3. **Kaphaja Nadi-Vrana According to Acharya Sushruta** - Upanaha of Kulatha, Siddhartaka, Shaktu, Khinva once it attains Mrudutva, Eshana and Shastra Karma is done. Vrana Prakshalana with Kwatha of Karanja, Nimba, Jati, Pilu and Bibhitaka. Lepana of Nimba, Tila, Danti, Saurashtra Mrittika, Saindhava Lavana on the Vrana. Taila prepared of Apamarga and Gomutra is used for Vrana Ropana.^[39] Acharya Vagbhata and Yogaratnakara - explains the same treatment.



4. **Agantuja Nadi-Vrana According to Acharya Sushruta** - Vidarana of Nadi then evacuation of Shalya present in the Nadi-Vrana, Shodhana and Ropana with Taila, Ghrita and Madhu. Taila prepared with Kumbhi, Karanja, Musta, Sarala Priyangu, Sugandhika, Mocharasa, Rodra, Dhataki should be used for Ropana purpose of the Vrana. ^[40] Acharya Vagbhata and Yogaratnakara - explains the same treatment.

Modern perspective Sinus

The sinus is a blind ending tract connecting a cavity lined with granulation tissue (often an abscess cavity) to an epithelial surface. ^[41,42] Sinus means “hollow” or “a bay” (Latin) ^[43] Types of Sinus

Congenital sinus Causes: arise from remnants of persistent embryonic ducts like preauricular sinus, post auricular sinus. ^[44]

▪ Preauricular sinus: congenital entity occurring due to imperfect fusion of the six tubercle which form ear cartilage. Sinus opening may be seen at the root of helix or on tragus. ^[45]

Acquired sinus Causes:

results from retained foreign body (ingrowing of hair or suture material), Chronic infection (tuberculosis, osteomyelitis, actinomycosis), chronic inflammation (Chron’s disease), malignancy or inadequate surgical drainage of the cavity.

▪ **Median mental sinus** - Occurs as a result of tooth abscess (evidence of caries which occurs in the midline just beneath the mentum. Clinical features - recurrent swelling in submental region which bursts open spontaneously discharging at times mucus and seropurulent fluid. **Treatment** - extraction of caries tooth will heal sinus. ^[46]

▪ Osteomyelitis - Gives rise to sinus discharging pus with or without bony spicules.

▪ Most common sinus in the neck is due to tubercular lymphadenitis. Cheesy material discharge associated with bluish discoloured surrounding skin will be seen.

Clinical features of Sinus ^[47]

- Discharge from the opening of sinus.
- No floor
- Raised indurated edge, indurated base, nonmobile.
- Often sprouting granulation tissue over the sinus opening.
- Bone thickening in osteomyelitis
- Surrounding skin may be erythematous in inflammatory, pigmented in chronic sinus.
- Enlargement of regional lymph node
- Sinus may be single or multiple. Pilonidal Sinus (Jeep Bottom) ^[48]

Pilonidal sinus means nest of hairs (Greek).

- Most common in jeep drivers and in dark people.
- It is an acquired condition which appears between age group of 20-30 years, hairy men.

Sites of Pilonidal sinus:

Midline over coccyx, umbilicus, interdigital in barbers. ^[49, 50]

Pathogenesis

The hair follicle is never demonstrated in the wall of the pilonidal sinus but hair is the content of pilonidal sinus. Hair accumulates due to vibration and friction causing shedding of the hair. Thus, it accumulates in the gluteal cleft and enters the opening of the sweat glands. Contents: mainly Hair, granulation tissue, epithelial scales and debris. ^[51]

Clinical features

- External Opening of the sinus seen just above the anal verge in the midline over the coccyx.
- History of discharge of pus.
- History of recurrent abscesses which rupture, discharging pus



Treatment Excision –

Open method and closed method

- Open method - wound left open.
- Closed method - wound closed by 'Z' plasty,
- Karydakos procedure - through a semi-primary procedure is to remove all the sinus tracts and branches till sacral bone. Semilateral incision is made around the sinuses and flap mobilised to excise all the sinuses and their branches. Then the tension free closure is done. This procedure decreases the chances of skin necrosis.^[52]
- Bascom's procedure - incision is given laterally, not midline. After raising the flaps, wide excision of infected sinuses and tracts is done followed by closure of the midline openings. Lateral wound is left open.^[53]
- Lahey and Cattell's relaxing skin incisions.^[54]
- Davies and Starr buttock skin flap rotation.^[55]
- Buie's marsupialisation of the sinus track.^[56]

Complication^[57]

Abscess formation

Recurrent inflammation

Recurrence of sinus formation

Very malignant degeneration may occur in the lesion

Note: Based on the clinical features, among various types of Nadi-Vrana, Shalyaja/Agantuja Nadi-Vrana can be correlated to Pilonidal sinus.

II. CONCLUSION

Nadi-Vrana is a tubular structure filled with pus that extends into deeper tissues, forming a tract. According to classical Ayurvedic texts, *Acharyas* have described the pathogenesis of Nadi-Vrana as a complication arising when a *Pakva Shotha* (mature abscess) is not properly treated. In such cases, the inflammation penetrates deeper structures, leading to the formation of a tract known as Nadi-Vrana, often considered a sequel to *Pakva Shotha* or *Vidradhi* (abscess). This condition closely resembles the sinus tracts described in modern medicine, as both share similar clinical features.

Acharyas have classified various types of Nadi-Vrana based on their etiology, a classification approach that parallels the etiological categorization of sinuses in contemporary medical science. In both systems, the persistence of an untreated underlying pathological condition in the tissues leads to the development of a hollow, pus-filled tract or unhealthy granulation tissue—establishing a strong correlation between the pathogenesis of Nadi-Vrana and sinus formation.

Modern medicine recommends both medical treatment to address the root cause and surgical intervention to manage the sinus tract itself. Similarly, Ayurveda offers a holistic management approach, incorporating *Aushadha Prayoga* (medical therapy), *Kshara Prayoga* (alkaline therapy), *Agnikarma* (therapeutic cauterization), and *Shastra Karma* (surgical procedures). These interventions not only help in relieving symptoms but also aim to prevent recurrence, making them highly relevant and effective even in the current clinical context.

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