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A review on disease *Nadi Vrana*

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ABSTRACT

Nadi-Vrana is a tubular structure which contains pus within it or *Nadi-Vrana* is a blind tract which has continuous pus discharge from it. According to various Acharyas, if *Vranashopha* is not timely drained or treated during its *Pakvaavastha* or neglected at this stage, it traverses into deeper tissues and results in formation of *Nadi-Vrana*. The disease nature of the *Nadi-Vrana* can be correlated to Sinuses of the contemporary science, where Sinus is the epithelial lined tubular structures which contain unhealthy granulation tissue. Acharyas have given detailed explanation on different types of *Nadi-Vrana* along with its treatments, which include *Bhaishajya Chikitsa*, *Kshara Sutra* application, *Agnikarma* and *Shastrakarma*. Among these various treatment modalities *Kshara Sutra* application stands out in present days in combating the disease *Nadi-Vrana*. *Shalyaja/Agantuja Nadi-Vrana* can be correlated to Pilonidal sinus by its causative factors and clinical features. In this article the compiled explanation of *Nadi-Vrana* which includes its causes, classification, signs and symptoms, management and many more descriptions according to Ayurveda and modern medicine will be dealt.

Key words: *Nadi-Vrana*, *Shalyaja Nadi-Vrana*, *Sinus*, *Pilonidal sinus*.

INTRODUCTION

Nadi Vrana is a hollow tube like structure or a blind track, which has excessive pus infiltration where pus burrows deeply. In *Nadi Vrana*, due to copious flow it is known as *Gati* and as it flows like a drain, that's why it is known as *Nadi*.^[1]

Nadi Vrana is a type of *Vrana*. *Nadi* means a track and *Vrana* means an ulcer. According to *Shabdakalpadruma*, an ulcer which has track is called *Nadi-Vrana*.^[2]

According to *Amarkosha* the word *Nadi* refers to a deformity where an abnormal track formation occurs,

which has continuous discharge.^[3]

According to *Acharya Sushruta* and *Acharya Vagbhata*, if *Vrana-Shopha* is not timely drained in *Pakvaavastha* or if it is neglected at particular stage, then it invades into deeper tissue resulting in formation of *Nadi-Vrana*.^[4,5]

Nadi-Vrana can be correlated to Sinuses in the modern science. The sinus is defined as a blind tract which leading from surface down into the tissue and lined either by granulation tissue or by epithelium. It persists due to presence of foreign body, non-dependant drainage and infection.^[6]

Ayurvedic classics has described various treatment modalities for *Nadi-Vrana* such as surgical procedures like *Chedana* or *Vidarana*,^[7] para-surgical procedures like *Kshara Sutra* application,^[8] other procedures like *Lepana*,^[9] *Varti*,^[10] *Prakshalana* etc.

Ayurvedic perspective

Vyutpatti of word *Nadi-Varna* 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*, *Shabdakalpadruma* says *Nadisanglano Vranah* which gives the meaning an ulcer with a sinus.

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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 *Nadi-Vrana*.

Samprapti^[13]

Vrana Shopha if left untreated or improperly treated in *Pakvaavastha*



Finds its *Gati* into deeper tissue at the affected site because of vitiated *Vata*



Further *Pakwatha* due to vitiated *Pitta*



Pus/*Puya* formation due to vitiated *Kapha*



Due to provocation of infection development of **Nadi-Vrana (Sinus)**.

Classification

SN	Sushruta Samhita ^[14]	Ashtanga Hridaya ^[15]	Bhavaprakasha ^[16]	Madhava Nidana ^[17]	Yogaratanakara ^[18]
1.	Vataja	Vataja	Vataja	Vataja	Vataja
2.	Pittaja	Pittaja	Pittaja	Pittaja	Pittaja
3.	Kaphaja	Kaphaja	Kaphaja	Kaphaja	Kaphaja
4.	Vata-Pittaja	Sannipataja	Sannipataja	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*, *Yogaratanakara* 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*, *Yogaratanakara* 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*, *Yogaratanakara* 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 - Phenanuvridha (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), Bhiru (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 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

1. 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]

2. 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, non-mobile.
- 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,
- Karydakis 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]

1. Abscess formation

2. Recurrent inflammation

3. Recurrence of sinus formation

4. 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.

CONCLUSION

Nadi-Vrana is a tubular structure which contains pus and which enters the underlying structures making a track. In classics, *Acharyas* have mentioned the pathogenesis of *Nadi-Vrana*, when the *Pakva Shotha* is not treated it traverses into the deeper tissues creating the tract which is called as *Nadi-Vrana*, this shows that *Nadi-Vrana* is a complication of *Pakva Shotha* or *Vidradhi*. *Nadi-Vrana* is correlated to sinuses of the modern science as it has same clinical features. *Acharyas* have mentioned various types of *Nadi-Vrana* based on the aetiology, the similar aetiological classification is also there in modern science as that of Sinuses. If the underlying disease in the tissue is not treated at proper time it leads to formation of hollow tubular structure which contains pus/unhealthy granulation tissues in it. The same pathogenesis holds good for Sinus and *Nadi-Vrana*, hence it can be correlated to each other. In contemporary science, medical management to treat the underlying disease and surgical management for sinus proper has been stated. In *Ayurveda*, *Acharyas* have mentioned various treatment modalities, such as *Aushadha Prayoga* (Medical management), *Kshara Prayoga*, *Agnikarma* and *Shashtra Karma* (Surgical approach), that which provides a holistic approach in the management of the *Nadi-Vrana*, in turn which restrains to be good in present era by providing relief and preventing from recurrence of the condition.

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