

To Study The Efficacy Of Apamarga Kshar Taila Karnapoorana In The Management Of Karnanada W.S.R. To Tinnitus

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Abstract

According to Ayurveda Shrotrendriya originates from Akasha Mahabhoota, which is responsible for perception of sound. Acharya Madhava has clearly explained the situation of Shrotrendriya as the invisible part which is covered externally by auricle. Akasha and Vayu Mahabhootas are very important for Shrotrendriya to work properly. Thus, Vata Dosha is in charge of typical hearing processes. Acharya Sushruta has explained about Karnanada. In modern science it is being compared to Tinnitus. Tinnitus is a ringing, buzzing, whistling, hissing or other noise, heard in the ear during absence of environmental noise. Karna being one of the Adhithana of Vata Dosha, Snehana becomes important to control the localized increased Vata Dosha. Hence, Karnapoorana also gains importance in the management of the disease. Karnapoorana is a method of filling or dropping the medication into the external ear. The use of Sneha especially Taila helps to subside Vata Dosha and clears the Srotas of the Karna. Apamarga is possessing Vata-Kapha Shamaka properties due to its Madhura-Kashaya Rasa and Ushna Virya is taken as the drug of choice to be processed with Vata Shamaka Taila to control Tinnitus. Consequently, a clinical study has been designed to determine the effectiveness of Apamarga kshar taila and Gudanaganar kwath nasya in the management of Karnanada (Tinnitus) in order to fully understand the disease and determine the impact of Karnapoorana with Nasya.

Keywords: Tinnitus, Karnapoorana, Nasya, Shrotrendriya, Akasha Mahabhoota.

INTRODUCTION

In Ayurveda the branch which deals with the diseases manifesting above clavicle region is called Shalakya Tantra¹ (Urdhvaang). The foremost chapter of Uttartantra, which is a section of Sushruta Samhita, has a passage written by Rajrishi Nimi, who is credited as being the pioneer in the field of Shalakya².

The term Karna refers to organs which are responsible for the perception of the sound (includes external, middle and internal ear).

The term Nada or Ninada refers to that which produces rhythmic sounds in the ear.

Nidanans:

Karnanada: The following are the aetiological factors responsible for the causation of the clinical condition of Karnanada

1. Pratishyaya (Chronic recurrent rhinitis)
2. Avashyaya (Exposure to cold wind, currents)
3. Jalakreedha (Swimming)
4. Karna Kanduyana (Constant rubbing or irritating the ear with finger or any other instruments)
5. Mithya Yoga of the Shastra (Improper usage of instruments for diagnosis and treatment on the ear)
6. Atiyoga, Ayoga, Mithya Yoga of the Shabda (Incompletable correlations of sensation of sound (High, Low, Medium pitched sound) with the organ of hearing).

Vata Prakopa is attributed as the prime aetiological factor for the causation of Karnanada. The following factors are responsible for the pathogenesis of the Vata Vyadhis.

1. Excessive intake of Ruksha, Sheeta, Laghu -Aahara.
2. Consumption of Alpamatra Aahara
3. Ati Vyavaya (Excessive sexual indulgence)
4. Raatri Jagarana (Awakening in nights)
5. Dhatu Kshaya
6. Ati Shoka (Excessive grief)
7. Excessive usage of Lekhana drugs.

8. Vega Dharana (Suppression of physiological urges)
9. Abhighata (Trauma).

Poorvarupa:

No specific prodromal symptoms are found for diseases Karnanada in the classical literature. While explaining the general Poorvarupa of Vata Rogas,

Means unknown symptoms are Poorvarupa of Vata Vyadhi.

Symptoms with either less frequency or intensity in appearance are considered as the prodromal symptoms of the very disease.

Roopa:

Karnanada:

- Nanavidha Shabdan: Different type of sounds are being heard in Shabdavah Shrotas
- Vividha Shabda like Bheri, Mrudanga, Shankha, Bhrungaara, Kauncha, Mandoora, Tantri, Saamturyasvanam are being heard in Shabdavaha Srotas¹⁰⁵.

Samprapti:

- **Samprapti of Karna-Nada:** The vitiated Vayu gets lodged in the Shabdavaha Shrotas, thereby causing different types of sounds in the ear called as Karnanada.

The vitiated Vata dosha either entering into other channels or encircled by Kapha Dosha in Shabdavaha Shrotas produces different types of sounds like Bheri, Mrudanga, Shankha etc. in the ears is known as Karnanada

Thus, Sushruta Samhita is the foremost available text of Ayurveda which explains the ophthalmology, ENT and dentistry in a systemic manner. According to Ayurveda Shrotendriya originates from Akasha Mahabhoota³, which is responsible for perception of sound. Acharya Madhava has clearly explained the situation of Shrotendriya as the invisible part which is covered externally by auricle⁴. Akasha and Vayu Mahabhootas are very important for Shrotendriya to work properly. Thus, Vata Dosha is in charge of typical hearing processes. Twenty eight forms of Karna Rogas⁵ have been explained by Acharya Sushruta and twenty-five types⁶ have been described by Acharya Vagbhata. Acharya Charaka has only described four types in Trimarmiya Chikitsa⁷. While describing Karna Rogas, Acharya Sushruta has explained about Karnanada⁸.

Vitiated Vata Dosha either entering into other channels by Vimarga Gamana or encircled by Kaphaadi Doshas (Sangam) in Shabdavaha Shrotas (Auditory canal / Acoustic canal), produces various types of sounds in the ear like that of Bheri (cattle drum sound), Mrudanga (roaring sensation), Shankha (ringing sensation) etc. is known as Karnanada⁹.

Common etiological factors for Karna Rogas have been documented by Acharya Yogaratnakara¹⁰ and Vagbhata¹¹, including swimming, picking or probing the external auditory canal, using inappropriate instruments during the examination and therapy, hearing loud, high-frequency noises, and head injuries. One of the most frequent and widespread conditions we treat on a daily basis as doctors is tinnitus. It has an impact on humans from early childhood to old age. Approximately 10% of individuals have been reported to have tinnitus on a regular basis¹². Unlike someone with an ear condition, whose handicap is not visible, a blind or lame person is easily perceived as having a disability and is therefore sympathised with.

The Latin term "tinnire," which meaning to ring or tinkle like a bell, is where the word "tinnitus" originates. It is the ability of the human ear to perceive sound when there is no comparable outside sound¹³.

Tinnitus is a ringing, buzzing, whistling, hissing or other noise, heard in the ear during absence of environmental noise. Tinnitus is characterized by annoying ear noises which can be soft as a whistle or loud enough to be completely debilitating. It is not a condition itself; it is a sign/symptoms of an underlying circumstances such as age related hearing loss, ear injury or a circulatory system disorder. Tinnitus can seem to be continuous or intermittent with silence between the episodes¹⁴.

The origin of this condition is a malfunction in the method whereby auditory signals are processed. The causes of tinnitus include aging or prolonged exposure to loud noise

Tinnitus is also due to diabetes, hypertension, high cholesterol, ear wax, Meniere's disease. In old age, it is due to the natural degenerative changes in the body, where the hearing is impaired is termed as

Presbycusis.

Karnanada's clinical characteristics are very similar to those of tinnitus. The

According to modern medical science, tinnitus is challenging to identify and manage. For some people, tinnitus "maskers" are useful. When activated, this gadget functions similarly to a hearing aid and plays noises at a specific frequency, which dampens out unwanted noise, or tinnitus.

In contrast, Ayurveda has a systematic line of treatment in the management of Karnanada. Vata dominant Tridosha along with Rakta presents as the chief pathological factors in the disease. The treatment in Ayurveda for four diseases viz. Karnashoola, Pranada, Badhira, and Karnakshweda are similar¹⁷. Taila, possessing the second-highest degree of "Samskarasya Anuvartanatva"¹⁸ qualities, becomes the most effective treatment for Karnanada when combined with Vatashamaka medicines and nashleshmaabhi vardhan Guna. Therefore, Apamarga kshar taila was selected.

Up to now, no researcher has studied this illness at the Govt. Ayurvedic College & Hospital in Patna. Consequently, a clinical study has been designed to determine the effectiveness of Apamarga kshar taila²⁰ and Gudnagar kwath nasya²¹ in the management of Karnanada (Tinnitus) in order to fully understand the disease and determine the impact of Karnapoorana with Nasya.

MATERIAL AND METHOD

Hypothesis:

Since Karnanada (tinnitus) is a Vata dosha dominating disorder, the pathology of Karnanada (tinnitus) will be modified by Apamarga kshar taila karnapoorana, which has a marutaghna action, and Gudnagar kwath nasya, which is a Vata-Kappa Shamaka.

Aims and Objective:

The present study has been planned to accomplish the following aims and objectives:

- To study the efficacy of Apamarga Kshar Taila Karnapoorana in the management of Karnanada wsr to Tinnitus.
- To make a standard preparation of Apamarga Kshar Tail.
- To study the literature of Karnanada and It's correlation with Tinnitus.

Patient selection:

The patients suffering from Karnanada was randomly selected from our ENT (Shalakya) O.P.D., Govt. Ayurvedic College & Hospital, Patna and OPD of E.N.T., Nalanda Medical College and Hospital, Patna.

Informed consent was taken from all the registered patients for the trial.

Inclusion criteria:

- Patients were selected on the basis of signs and symptoms of Karnanada- tinnitus described as per Ayurvedic and modern literature.

Exclusion Criteria:

1. Patients below the age of 20 years.
2. Patients suffering from chronic suppurative otitis media.
3. Karna nada due to abhigata (injury).
4. Perforated ear drum.
5. Tinnitus associated with other diseases like vascular tumor of middle ear, aneurysms of carotid artery, palatal myoclonus and meningitis.

Investigations:

To evaluate the patient's condition and rule out any other abnormalities, the following laboratory tests and investigations were performed.

- (a) Urine analysis: Routine & microscopic.
- (b) Haematology: CBC(TLC,DLC,Hb%), ESR.
- (c) Otoscopy.
- (d) Tuning fork test.
- (e) Audiometry.

All the selected patients fulfilling the criteria were randomly divided into two groups.

Group -A: will be treated with Karnapoorana using Apamarga kshar taila for 7 days with a gap of 7 days for three sittings of about 35 days.

Group -B: will be treated by Apamarga kshar taila karnapoorana along with Gudnagar kwath Nasya 7 days with a gap of 7 days for three sittings of about 35 days.

- **Dose:** 5 - 8 drops in each ear= 100 matra (approx. 5mints) Karnapurana.
4 - 6 drops - Gudnagar kwath Nasya.

- **Aushadhasevana Kala:** Morning- Evening (Karnapoorana) and Evening (Nasya).

Duration: Duration shall be fixed for 60 days in all the 2 groups after treatment for observing the possible outcome.

Follow –up: One month.

Criteria for assessment of results:

The clinical trial was assessed for its efficacy on the basis of following subjective and objective criteria.

Subjective:

Relief in signs and symptoms in terms of intensity, frequency and duration obtained in the patients were considered for the assessment.

Objective:

➤ **Audiometry**

1. Subjective symptoms were assessed with the help of following scoring pattern:

1) **Karnanada:**

0- No noise in the ear

1- Occasionally negligible noise in the ear

2- Noise affecting routine work and sleep

3- Noise affecting at resting hours

2) **Badhirya:**

0-No impaired hearing (0 – 30db)

1-30 to 45db loss

2-45 to 65db loss

3-65db and above loss

2. **Objective parameter:**

➤ Pure tone Audiometry

➤ Normal – 0 to 30db

➤ Mild – 30 to 45db loss

➤ Moderate – 45 to 65db loss

➤ Severe – loss of 65db and above

Statistical analysis:

Students' paired "t" test is used to compare the subjective parameter scores acquired before and after treatment in order to evaluate the effect of therapy in both groups. The results were interpreted at $p < 0.05$, $p < 0.01$ and $p < 0.001$ significance levels. The obtained results were interpreted as:

- Insignificant $P > 0.05$
- Significant $P < 0.05$
- Significant $P < 0.01$
- Highly Significant $P < 0.001$

DISCUSSION

➤ **Apamarga** is Kaphavataghna, Sothahara, Vedanasthapana and having nutritive action and Tila Taila has Balya and Vatashamaka properties.

➤ Apamarga protects against genotoxicity which may be due to inhibition of free radicals and increased antioxidant status.

➤ Apamarga improves microcirculation of any sense organ.

2) **Tila Taila:**

➤ Sesame oil used for Abhyanga and Karnapoorana contains magnesium, copper, calcium, iron, zinc, and vitamin B6.

➤ As Magnesium and zinc supplements can help restore stability to inner ear. It may be absorbed by

Abhyanga and Karnapoorana. Thus Karnapoorana is conducive to the nutrition of the skin and the softness of the muscles. It penetrates into the skin quickly and enters the blood stream, through the capillaries and supply nutrition to nerves. It has a unique quality of getting absorbed easily by the pores in the skin and thereby acts as a catalyst.

(A) Probable mode of action of Gudnagar Kwath:

Table -2

Pharmaco – therapeutic properties of various Ingredients of Gudnagar Kwath

Sr. No.	Dravyas	Rasa	Guna	Veerya	Vipaka	Doshgnta
1.	Nagar/Shunthi	Katu	Guru, Ruksha, Tikshna	Ushna	Madhura	Kapha-Vata Shamaka
2.	Gud	Madhura	Snigdha, Isat, kshariya	Natisita	Madhura	Svadukara, Rakta sodhaka,

1) Nagar/Shunthi :

- Nagar/Shunthi has Rasayana, Balya and Brumhana properties thus it can prevent age related degenerative changes in the inner ear.
- Nagar/Shunthi is used as an adaptogen, a substance said to increase the ability to withstand the stress of all types. Like other adaptogens Nagar/Shunthi is supposed to improve the strength of a particular organ (cochlea and the hearing capacity), overall health, strengthen the immunity and normalizes the cholesterol levels. All these properties help in improving the blood supply of the inner ear and reduce the acuity of the tinnitus felt by the patient.
- Habituation and retraining therapy is a new concept put forward by the modern physicians in treating tinnitus. It says that if the patient gets habituated to the noise in the ear he will not feel the stress produced by tinnitus.
- Nagar/Shunthi has an anti anxiety action and produces a sound sleep which are very essential to a person suffering from tinnitus. Anxiety caused due to tinnitus increases the tinnitus and worsens the condition. Nagar/Shunthi plays an important role here and helps to reduce the tinnitus.
- It has been proved that noise exposure is one of the commonest cause for tinnitus and it is called as early degenerative tinnitus. Nagar/Shunthi has promising results in reducing the stress caused by noise and also improves the hearing capacity of the individual. Stress is not a direct cause of tinnitus but it will generally make an already existing case worse. Nagar/Shunthi is known for its antistress activity.
- The serotonin content of Nagar/Shunthi helps in reducing the stress and pain caused by tinnitus which is a major help for the patient.

2) Gud (Jaggery):

- Guda is the product obtained by concentrating juice expressed from the stems of *Saccharum officinarum* L. (Fam. Poaceae) with or without prior purification of the juice, followed by cooling.
- Guda is effective in subsiding Vataja disorders and Balya, Vrishya, it improves Dhatus and is overall booster for improving Ojas.
- Guda having Vataghna, Balya, Brimhana, and Medhya effect which can be explained can be explained by two ways.
- Digestion, absorption and delivery to the target organ is made easy when any drug is processed with Taila due to its lipophilic action. Anti-oxidant effect of Taila is due to its Vitamin-A and E content.

• Gudnagar Kwath Nasya:

Oral administration of Gudnagar Kwath Nasya acts on the nervous system. It enhances the normal hearing.

The protective effect of Nagar/Shunthi is conceived to be at both the levels:

1) At Hair Cell

2) At CNS (Cochlear nerve)

➤ On CNS it can be through its GABAergic modulation (an important neurotransmitter) as well as its role to increase in acetylcholine receptor activity and stimulating the growth of axons and dendrites of nerve cells.

➤ On hair cell level it may affect by its active constituents like Saponin-A&B and Aglycone-ABC&D

which are reported to have an anti-oxidant activity by reducing lipid peroxidation.

- This suggests that Apamarga Kshar Taila helps in lowering down the degenerative changes occurring at cellular level and empowering the function of sensory organs (may enhance the normal hearing).
- Moreover, Taila due to its second most Sansakaranuvartana quality easily imbibes the properties of other drugs processed with it without leaving its own properties.
- Acharya Charaka in Sutrasthana Snehadhyaya explained that, “**Snehoanilam Hanti**” which means that Snehana is the supreme treatment for Vata Dosha.
- The vitiation of Vata is the major factor in the development of the disease. In the management of Karnanada, Vatashamaka and Shrotoshodhaka Dravyas are generally advised.

- **Apamarga Kshar Taila** and **Gudnagar Kwath Nasya** both have Vatashamaka and na shleshmavibhi vardhana properties. Thus both these drugs pacify Vata Dosha which is mainly responsible for the disease Karnanada.

Apamarga Kshar Taila Karnapoorana with Nasal administration of Gudnagar Kwath Nasya enhances the nutritional values in the body and also improves blood circulation of the internal ear. Thus, the overall effect of the compound drug is Vata Shamaka.

- In the present clinical study both the drugs showed highly significant relief in Karnanada, this indicates towards the Vata- Kapha Shamaka and na shleshmavibhi vardhana properties of the selected drugs. Hence it disintegrates the pathology of the disease Karnanada.

(B) Probable mode of action of Karnapoorana:

The disease Karnanada is Vata dominant and so compound drug employed should also have Vatashamaka qualities, so that it can counteract vitiated Doshas to disintegrate the pathology of the disease.

❖ Probable mode of action of Poorva Karma before Karnapoorana:

1) Abhayanga:

- Before Karnapoorana, **Abhyanga** is specifically done in Murdha Pradesha which causes vasodilatation in the skin and muscles by stimulating receptors of the sympathetic nervous system. Vasodilatation increases blood flow and helps to remove the toxic products.
- Dalhana has explained in detail about absorption of Sneha. The Abhyang is done for sufficient time; the oil reaches to the different Dhātu. Hence it is clear that potency of drug used in oil is absorbed into the skin. Dalhana also mention that when Snehana reaches to the particular Dhātu it subsides the disease of that particular Dhātu.
- Acharya Charaka has described that Vayu dominates in the Sparshnendriya and its site is Tvaka. The Abhyang is exceedingly beneficial to the skin. So it is useful in the disease Karnanada which caused by vitiated Vata.

2) Swedana:

- Acharya Charaka has described mechanism of **Swedana Karma** as given below:

- It helps to dissolve Shleshma.
- It makes the channels soft, by which Vata Doshas and other contents can flow through in their normal directions.
- It increases the secretion of vitiated Shleshma thorough the channel.
- So, due to Ushna Guna of Swedana, Kapha Dosha gets liquefied. When lukewarm oil enters into the Shabdavaha Srotas, network of Srotas carry the Taila towards the desired sites and cleanses the channel. By its Shodhana property of its ingredients, probably it removes the Ama at the cellular level and pacifies the vitiated Vata and Kapha Dosha.
- Due to Stroto Shodhana and Vata Kapha Shamana, Avarana and Sanga of Vata & Kapha Dosha is removed and nutrition is brought to the respective sites.
- So, after breaking Aavarna and Sanga by Abhyang and Swedana, Karnapoorana has been carried out in Karnanada –tinnitus, patients in the present study.
- **Apamarga Kshar Taila Karnapoorana:**
- It is hypothesized that Apamarga Kshar Taila helps in the absorption through epithelial tissue of external ear canal and tympanic membrane that can maintain normal function of hearing and equilibrium.

- Spread of the drug in to the deeper tissues through (Rasa & Rakta) Shabdavaha Sira.
- According to Kedarikulya Nyaya' Karnapoorana will improve the bloodsupply of ear first.
- As the result of Karnapoorana, Kapha and Vata- Shamana takes place which will Corrects the microcirculation, then maintains the normal function of hearing and relieve sounds from the ear (Karnanada).

CONCLUSION

- In Ayurvedic texts, Karnanada is described in great length and with practical application .
- Tinnitus, in modern medical literature is a similar condition of Karnanada.
- Tinnitus is more common disorder in the world, tinnitus can affect people of any age and gender, although it usually affects those who are older and have sensory-neural deafness.
- Those with tinnitus may find it to be very upsetting. Many times, it's just a minor annoyance that will eventually go away rather than a major issue.
- There are situations when the noise level is so high that it becomes difficult to focus or perceive real sounds, which can also negatively impact one's quality of life.
- Tinnitus may be present all the time, or it may come and go.
- People with Vata-Kapha Prakriti are more susceptible to this illness.
- It is thought that stress, whether it be internal or external, exacerbates tinnitus and worsens anxiety or depression. When under constant stress, noises in the ears become more audible than when at ease.
- Maintaining control over our stress and tension levels is essential for managing tinnitus and its eventual deterioration. Therefore, methods such as meditation and somniferous yoga exercise, along with relaxation techniques like biofeedback, can be helpful for these patients.
- For Karnapoorana, Taila should be prepared till the stage of Kharapaaka.
- In Karnagata Roga, Karnapoorana is an efficacious local treatment procedure.
- Apamarga Kshar Taila and Gudnagar Kwatha Nasya have not shown any side effect so it should be used.
- Karnanada was reduced by 64.63 % which is statistically highly significant($p < 0.001$) in group A. Karnanada was reduced by 49.39% which is statistically highly significant($p < 0.001$) in group B. In associated symptoms, Badhirya was relieved by 27.65%, which is statistically slightly significant ($p < 0.01$) in group A.
- In associated symptoms, Badhirya was relieved by 33.71%, which is statistically highly significant ($p < 0.001$) in group B.
- The Hb% was increased by 2.44%; the result was statistically slightly significant ($p < 0.05$) in group A.

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