



## Review Article

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### A COMPREHENSIVE REVIEW OF KARNA ROGA NIDANA AND THEIR IMPACT ON PATHOGENESIS OF EAR DISORDERS

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#### ABSTRACT

Ear disorders have a wide range of sharing in a load of global illnesses, and their incidences with a continuous hike and difficulty can be contributed to the obscure understanding of the causative agents, including their action mechanisms in the generation of ear pathology. Karnaroga has been well theorized in all the authoritative textbooks. Nidana is the first component of 'Trisutra' and is not only the triggering factor but also the initial diagnostic tool, which help learn the course of disease progression. Relevant content of the selected topic was obtained from classics, journals and online search portals for a judicious review. The Acharya in Shalaky Tantra has provided an ample account of Karnaroga nidana, including their count, causative factors and pathogenesis, which can be compared with their recent counterparts and interpreted in modern ways for a clearer perspective of ear disorders.

**Keywords:** Karnaroga nidana, Karnarogashweda, Ear disorders, Shalaky Tantra

#### INTRODUCTION

The rising prevalence of ear disorders worldwide can be contributed to the current stress-prone lifestyle, pollution and issues like hygiene, ignorance, and poor infrastructure further add to the woes of developing countries. Otitis Media related hearing impairment has a prevalence of 30.82 per ten-thousand<sup>1</sup>. By 2050, nearly 2.5 billion people are projected to have some degree of hearing loss<sup>2</sup>. It is estimated that there are more than 500,000 people affected by Meniere's disease in India<sup>3</sup>. Ear Polyps, Tinnitus, Benign Paroxysmal Positional Vertigo, etc., are some other major disorders that gradually turn into hearing and neurological disabilities. Despite expensive diagnostic and medical advancements, the exact triggering factors and aetiology have not been determined yet. Hence thorough research can be conducted linking the time-tested concepts of Karnaroga with their contemporary ear disorders.

#### ANALYSIS OF KARNA ROGA NIDANA

Classical texts have stated Samanya Nidana for all the Karnaroga along with some specific Nidana for Karnarogashweda roga.

##### Samanya Nidana<sup>4</sup>

##### Avshyaya

As perceived by Pratyaksha pramana, Avshyaya is Sheeta and Apya dravya so it causes vitiation of Vata-Kapha and stops the release of Ushma, thus producing Roga via Dosha imbalance. It is one of the Rogatpadaka hetu of Shiroroga<sup>5</sup> and Karnaroga is included under Shiroroga by Acharya Charaka<sup>6</sup>.

Avshyaya is generally considered as humidity. High levels of humidity cause trapping of pollutants within moisture for longer periods worsening air pollution<sup>7</sup>. This Dooshita Vata can produce a variety of disorders; high humidity is thought to trigger chemical and electrical changes in the brain and irritate nerves<sup>8</sup>.

In a recent study, high humidity was found to be positively associated with aural fullness, hearing loss, and increased odds of episodes of Meniere's disease<sup>9</sup>.

##### Jalakrida

Shira is a seat of Shleshma<sup>10</sup>, this Tarpaka kapha does Anugraha on Indriyas to perform their natural functions and protect them. Jaliya Dravya and Shleshma have common Gunas like Snigdha, Sheeta, Picchila<sup>11,12</sup> whereas Jaliya dravya and Vata have Sheeta guna in common<sup>13</sup> also Jaliya Dravya and Pitta have Drava guna in common<sup>14</sup>, this Guna samanyatva results in Dosha vriddhi and Rogotpatti.

If one swims in dirty water it may lead to external and middle ear infections, whereas barotrauma during diving may perpetuate internal ear injury and this damaged vestibulocochlear system produces vertigo, hearing loss, and tinnitus<sup>15</sup>.

##### Karnakandu

When Ati-sanchaya of Kapha occurs in Karnarogashweda, it causes Kandu<sup>16</sup>; since Kapha has Sthira and Manda Guna, the Khamala piles up causing Vata avrodha and roga. A non-diligent procedure of aural toileting and excess cleaning of ears creates a vicious cycle of increased cerumen production causing ear-fullness, swelling, and tinnitus. Untreated otitis externa progresses into malignant otitis externa, osteomyelitis of temporal bone<sup>17</sup> involving cranial nerves<sup>18</sup> and several other neurological complications<sup>19</sup>.

##### Shastra Mithya Yoga

Shastra mithya yoga often results in Abhighata which is one of the Hetus for Rakta dushti<sup>20</sup> now if the Stambhana of Dushta rakta occurs it causes Buddhi-Indriya Uprodha<sup>21</sup> and Indriyagata Vyadhi. In the case of Rakta kshaya all other Dhatus also undergo Kshaya and due to lack of nourishment Vyadhi develops along with Vata kopana<sup>22</sup>. To prevent the chances of Abhighata the Acharya have mentioned ear-specific instruments like Tala

yantra<sup>23</sup>, Prakshalanartha shalaka, and Karna-shodhana yantra<sup>24</sup> and before usage, they must be Agni-Tapta<sup>25</sup>, checked for 12 Yantra Doshas and possess Lakshana of Prashasta yantra<sup>26</sup> only then the procedure can be carried out by a skilled surgeon. For example, a wrongly performed tympanoplasty or the improper healing of tissue graft perpetrates tinnitus, and post-operative tinnitus after vestibular schwannoma surgery is also common.

### Vishesha Nidana (for Karna kshweda)

#### Shrama

Shrama is a Nidana for Pitta kopa<sup>27</sup>, Pitta when increases abnormally cause Indriya Daurbalya<sup>28</sup>. Overworking, human bodies may result in harmful fatigue both mental and physical kinds. Intense exercises damage the antioxidant defence system

against free radicals which harm cellular proteins, membranes, and genes creating a state of chronic systemic inflammation leading to degenerative conditions<sup>29</sup>. It may result in hormonal imbalance as glands start to produce more hormones for combating this state of physical stress, including chronic fatigue and sleeplessness<sup>30</sup>. Both sports training and excessive cognitive work affect the same region of the brain<sup>31</sup>; hence, musicians become prone to tinnitus.

#### Kshaya (Dhatu kshaya)

Acharya Chakrapani has referred to Dhatu kshaya as a Sara kshaya. Acharya Charaka has provided Samanya hetu for kshaya<sup>33</sup> which can be compared with the below-mentioned modern factors.<sup>32</sup>

Table 1: Samanya kshaya hetu

Hetu	Modern etiological factors
Vyayama	Exertion
Anshana	Unnecessary fasting
Chinta	Worry and/or stress
Ruksha-Pramitashana	Malnutrition
Vata-Atapa Sevana	Exposure to the windy atmosphere and harsh sun
Bhaya	Living in some fear or under threat
Shoka	Mourning
Ruksha (Madira)Pana	Intake of liquor with a high alcohol concentration
Ratri- Jagarana	Insomnia or staying up late due to other reasons and lifestyle
Ati-Pravartana of Kapha- Shonita-Shukra-Mala	Loss of nutrients and/or electrolytes, anaemia or blood loss due to other conditions, Shukra Kshaya is a type of Pratiloma Kshaya as seen in Yakshma <sup>34</sup> hence immune-deficiency disorders, diseases with features like fever, diarrhoea, dysentery, polyuria, vomiting etc.
Kala (Vridhdawastha and or Adana Kala)	Ageing and or seasons with extreme heat or rains.
Bhuto-Upghata	Infections

According to Acharya Charaka, all these Hetu cause Dosha asamyawastha further producing below mentioned 18 types of Kshayas<sup>35</sup>.

Vata-pitta-kapha kshaya  
Rasadi sapta dhatu kshaya  
Sapta mala kshaya  
Ojasa kshaya

#### Ruksha-Bhojana

Ruksha Bhojana is a Nidana for Rukshadi kupita vataja udavarta causing Mana and Shravana Vibhrama<sup>36</sup>; hence, it can produce Kamakshweda. Ruksha Bhojana means non-intake of Sneha dravya in Ahara or intake of Katu-tikta-kashaya Rasa Pradhana Ahara dravya. The continuous Sevana of Ruksha anna-pana is a nidana for Rasa kshaya<sup>37</sup>.

The Karma of Katu Rasa is Sphutikarana of Indriyas i.e., exciting Gyanendriyas to do their Karya, and as a result, Ati Sevana of Katu Rasa may over-excite the Indriyas explaining why without an actual stimuli sound is falsely perceived and tinnitus is produced as a response. Karna being a hollow organ is Akasha mahabhoota pradhana and when Tikta rasa sevana is done in Ati matra, it produces Kharatva and Shoshana of the Sapta Dhatu<sup>38</sup>.

Fat-soluble vitamins, such as A, D, E, K play an important role in the maintenance of wear and tear in the human body on a cellular level, without any Sneha dravya in the diet; the absorption and assimilation of fat-soluble vitamins are adversely affected. Vitamin A is speculated to have a pivotal role in the regulation of the macronutrient metabolism<sup>39</sup>; hence, its deficiency may disrupt the Dhatu poshana krama leading to Kshaya and produce disorders.

Vitamin D deficiency is associated with cochlear deafness, most likely pathogenesis is localized demineralization of the cochlea which results in secondary morphological changes<sup>40</sup>, and it is crucially important as sensorineural deafness has been associated with tinnitus.

The  $\alpha$ -tocopherol group of Vitamin E is required for the elimination of reactive oxygen species (ROS), which cause cell destruction and have been suggested to have a protective role against neurological disorders<sup>41</sup>.

Most nutritious foods have a balanced combination of macronutrients and other vitamin groups like B complex when one does not consume such edibles deficiencies occur. In a recent survey, a relationship has been found between the reduced intake of vitamin B2, vitamin B3, water, and protein, associated with tinnitus-related annoyance<sup>42</sup>.

#### Kashaya-Bhojana

According to Acharya Sushruta, Kashaya rasa is Uttama-laghu so it causes Vata Vridhhi it is also Vikasi<sup>43</sup>, therefore it easily passes inside the Srotasa, disrupting it with Khara guna causing Vata avgrahana. Due to Margavrodha Vata gets Kupita and produces Vikara. Intake of only one Rasa will be Viprita to the properties of Tridosha and Dhatus causing Sroto-dushti<sup>44</sup>. According to modern view, bitter and astringent tasting edibles like cocoa, wine, tea, coffee, yams, peas, etc.<sup>45</sup> are Kashaya Rasa Pradhana, and when consumed in excess quantity, they adversely affect the absorption of necessary nutrients.

#### Sheeta Jala Sevana after Shirovirechana

Acharya Charaka mentions that after Nasya-dana, Ushna-Jala<sup>46</sup> should be consumed, so it is obvious that Sheeta Jala Sevana is a contraindication. If Rogi still does Sevana of Dosha Prakopaka hetu after Shirovirechana then the Dosha gets Prakupita and

travels in the body producing Nasya-Vibhrama, Shitadasha, Pootinasya, and Shiroroga.

According to Acharya Sushruta, it can give rise to Doshakshayajaya roga and Doshauklesha<sup>47</sup>. After Shirovirechana prayoga, the Swedana of Shira is indicated to remove Kapha along with Sneha<sup>48</sup> instead if Sheetal Jala Sewana is done then Kapha and Sneha get lodged as both Kapha and Sneha are Samandharmi, causing Kapha prakopaka roga. Mithya-Prayoga of Shirovirechana causes Yugpada tridosha prakopa<sup>49</sup>.

### Any Nidana

Below mentioned is the Nidana which led to the development of Indriya roga including Karna roga.

Adharniya Vega Dharana is a unanimous and universal contraindication for both healthy and diseased persons in any given situation as they give rise to several Vyadhi.

Acharya Sushruta has mentioned the Utpatti of Udavarta from Jrimbha vega avrodha, which causes Shrotra-vilochana teevra vikara<sup>50</sup>. According to Madhava-Nidana, Jrimbha avrodhaja udavarta directly precipitates Karna roga<sup>51</sup>. Adharniya Vega of Kshwathu causes Indriya Daurbalyam and Vatajanya Upadrava<sup>52</sup>.

### DISCUSSION

Shravanendriya is one of the important six Gyanendriyas and any Vikara hampering its function can adversely affect Sukhayu. Due to continuous wear and tear, there is impairment of physiological functioning and structural distortion of the involved Indriya and its site causing Roga-Utpatti.

Some Hetus like Shastra Mithya Yoga, Dooshita Jala Krida, and Adharniya Vega Dharana are avoidable, other Hetus like Karna Kandu should be assessed and managed to stop further Doshadushya Sammurchana. The Atiyoga and Mithyayoga of Avshyaya are discouraged as excess dew inhalation and exposure to very humid air trapped with pollutants may result in Updrava like Pratishyaya and Agantuja kshwathu along with Karna roga.

Karna kshweda is a Vata pradhana and Anya dosha samshrishta roga whereas Karna nada is purely a Vataja roga. Excessive Shrama causes Vriddhi and Kopana of Vata Dosha which via Ashaya-Apkarshana pathway involves the other Dosha with itself, and when all the Dosha are involved, the Roga becomes difficult to treat with.

Hetus like Kshaya includes an array of elements that cause Rogotpatti, while Jara is inevitable efforts can be made to slow down its effects. Mansika Dosha plays an important role in maintaining the clinical equivalence of Sharirika Dosha and vice-versa, this is one reason, why Mansika Vega like Krodha, etc., are considered as Dharniya; therefore, Raja and Tama should be kept balanced with Satva consistently on the higher side. Bodily ailments should be treated efficiently to prevent grievous loss in the functionality of Indriya thus avoiding the precipitation of Kshayajaya roga.

Continuous intake of Ruksha and Kashaya bhojana results in nutritional deficiencies, adversely affecting the metabolic activities; hence, a nourishing Shada Rasa platter of food items in adequate quantity, served according to the digestive capacity and division of Koshtha, must be consumed to maintain a healthy status.

Nasya is not only an important Shodhana procedure but has been given utmost priority in the Chikitsa of Urdhwanga. Shirovirechana is a Tikshna form of Nasya possessing strong potent action, its indications and contraindications must be followed religiously to avoid any Nasya Vyapada.

Some Adharniya Vega is also capable of producing Karna roga. Some Nidana affects the Guna component of the Dosha while others cause their Vriddhi or Kopana leading to reduction or abnormal increase of their Karma.

### CONCLUSION

From the Vedic Kala to the present era, all the Ashtanga of Ayurveda has undergone subsequent evolution to maintain the scientific grounds of validity. It is imperative to curb this widespread and expanding prevalence of ear diseases which is possible only if their etiological factors and mode of actions are understood substantially. Therefore, it is crucial to include and review our classics to obtain unified information regarding the Indriya and Roga in the above-concerned context.

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