

Beyond Stapes Fixation – Ayurvedic Management of Vata Kapha Bhadriya (Otosclerosis) A Case Study

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Abstract:

Ayurveda considers *Karna* as an important *Jnanendriya* essential for perception of *Shabda*, and impairment of hearing is described under *Karnagata rogas*, particularly *Badhriya*. According to classical texts, vitiation of *Vata* either independently or in association with Kapha leads to obstruction and dysfunction of *Shabdavaha srotas*, resulting in diminished hearing and tinnitus. Otosclerosis is a disorder characterized by abnormal bone remodeling of the otic capsule, producing stapes fixation and cochlear involvement, which clinically manifests as conductive or mixed hearing loss with tinnitus. These features closely resemble *Vata-Kapha Badhriya* described in Ayurveda.

This case report presents a 53-year-old male patient with bilateral progressive hearing loss and tinnitus, more pronounced in the left ear for six months, with a long-standing history of hearing aid use in the right ear.

The underlying pathology involves *Rasavaha* and *Asthivaha srotodushti* with associated *Dhatwagni Mandya*. The patient was managed with a Ayurvedic treatment protocol consisting of *Shodhana* therapies, *Sthanika chikitsa* and *Shamanaushadis*. Post-treatment assessment showed significant improvement in tinnitus severity, as evidenced by reduction in Tinnitus Handicap Inventory score, along with measurable improvement in hearing thresholds.

This case highlights the potential role of Ayurveda in the management of otosclerosis by addressing systemic inflammation, correcting *Agni*, restoring *Dosha Samya*, and modulating bone metabolism, thereby improving functional outcomes and quality of life.

Keywords: *Vata-Kapha Badhriya*, Otosclerosis, *Karnagata Roga*, *Shabdavaha Srotas*, *Shodhana chikitsa*.

INTRODUCTION:

Otosclerosis is a condition involving abnormal bone remodeling in the ear, where “oto” refers to the ear and “sclerosis” indicates abnormal hardening. It was initially noted by Antonio Maria Valsalva in 1735

and later described in detail by Adam Politzer in 1839⁽¹⁾. In this disorder, the normally dense bone of the otic capsule surrounding the inner ear is gradually replaced by irregular, spongy bone. Over time, this newly formed bone becomes hardened, leading to fixation of the stapes footplate and impairment of sound transmission⁽²⁾.

Clinically, otosclerosis commonly presents as conductive hearing loss, often with a normal-appearing tympanic membrane. In some cases, a reddish hue known as Schwartz sign may be visible over the promontory through a transparent tympanic membrane. When the disease process extends into the cochlea, it can also result in sensorineural hearing loss. Due to the absence of obvious findings on ear examination despite noticeable hearing impairment, this condition is often described by clinicians as a situation where there are minimal visible signs, yet significant hearing difficulty experienced by the patient⁽³⁾.

Etiology: The exact cause of otosclerosis is still not fully understood, but two major theories have been proposed: genetic predisposition and viral involvement. The condition is commonly inherited in an autosomal dominant pattern, though the expression of the disease varies among individuals⁽⁴⁾. It is believed that genetic susceptibility becomes clinically evident through interaction with environmental influences. Research has shown significant genetic diversity, with multiple chromosomal loci identified, along with some rare single-gene forms⁽⁵⁾.

Several environmental factors have been suggested to contribute to the development of otosclerosis, including hormonal influences such as oestrogen, exposure to fluoride, and viral infections like measles⁽⁶⁾. Evidence of measles virus RNA has been detected in stapes footplate specimens in some cases, although not all patients with stapes fixation show this association. This suggests that otosclerosis may arise through multiple mechanisms, where different genetic and environmental factors ultimately lead to a similar pathological outcome⁽⁷⁾.

pidemiology: Histological evidence of otosclerosis is found in approximately 2.5% of the population⁽⁸⁾; however, only a small proportion, around 0.3%, develop noticeable clinical symptoms. The incidence of the disease appears to be decreasing, likely due to widespread measles vaccination programs that have reduced the prevalence of measles infection. For example, studies in Germany have reported a decline in hospital cases of otosclerosis following the introduction of routine measles immunization^(9,10).

Modern line of management includes: Calcium Fluoride was in use, now Sodium Fluoride is the preferred compound. Fluoride ions will suppress the rapid progression of the disease. Surgical Management includes Stapedectomy which has their own limitations⁽¹¹⁾.

Acharya Sushruta has described 28 varieties of *Karna Roga*⁽¹²⁾, among which *Badhirya* is included. Similarly, Acharya Vagbhata has described 25 disorders of the ear⁽¹⁴⁾.

As explained by Acharya Sushruta, aggravation of Vata Dosha, particularly in association with Kapha Dosha, affects the Shabdavaha Sira and subsequently interferes with the normal perception of sound. If appropriate management is not undertaken, this pathological process may eventually result in *Badhirya*⁽¹²⁾. Various Nidanas of *Karna Roga* have been described in the classical texts, including exposure to cold/dew, bathing or playing in contaminated water, repeated scratching or manipulation of the ear canal, and other factors capable of aggravating Vata Dosha⁽¹²⁾. The general management principles for *Karna Roga* described by Acharya Sushruta include Snehana, Swedana, Rasayana and administration of Ghrita⁽¹³⁾.

METHODOLOGY:

Case presentation: A fifty three year old male patient bearing the OPD NO- 376605 attended outpatient department in the month of August 2025 presented with complaints of reduced hearing, ringing sound in left ear from past 6 months (which was on and off and increased in quiet surroundings). Patient also had an history of reduced hearing, ringing sound in right ear and also was on hearing aid for right ear since 8 years. Patient was not a known case of DM/HTN/Thyroid. A positive family history was elicited, with maternal uncle having similar complaints.

Personal history patient had a good appetite, bowel was regular, Addiction were occasional-smoking(2-3 packs per month) and alcoholic (6-8 times a month), sleep was disturbed.

Asta vidha pareeksha:

Nadi	Kapha	Shabdha	Prakrutha
Mala	once/day	Sparsha	Anushnasheetha
Mootra	4-6 times a day	Drik	Prakrutha
Jihva	Alipta	Akruthi	Madhyama

Dasha vidha pareeksha:

Prakruthi	Kapha,Pittaja	Sathwa	Prakrutha
Vikruthi	Kapha	Sathmya	Sarva rasa sathmya
Saara	Madhyama	Vaya	Madhyama
Samhanana	Madhyama	Aharashakthi	Madhyama
Pramana	Madhyama	Vyayamashakthi	Madhyama

CLINICAL FINDINGS:

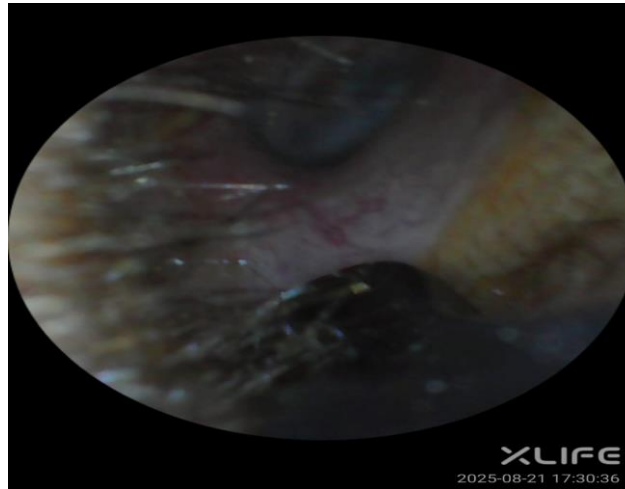
General examination:

BUILT	Moderate	OEDEMA	Absent
NOURISHMENT	Well nourished	CYANOSIS	Absent
PALLOR	Absent	RESPIRATORY RATE	21cpm
ICTERUS	Absent	WEIGHT	85kgs
CLUBBING	Absent	HEIGHT	5.5 ft
LYMPHODENOPATHY	Absent	NAIL	Normal
TEMPERATURE	Afebrile	BLOOD PRESSURE	130/90 mm of hg

LOCAL EXAMINATION –

Vestibular function –Spontaneously nystagmus – positional

OTOSCOPY- Schwartze sign (reddish hue)



EXAMINATION	RIGHT EAR	LEFT EAR
EXTERNAL EAR	Normal	Normal
EXTERNAL AUDITORY CANAL	Normal	Normal
TYMPANIC MEMBRANE	cone of light-Dull	cone of light-Dull

Traditional tests and Tuning Fork test were performed on both ears, results as follows

	Right ear	Left ear
FINGER FRICTION TEST	Negative	Weaker than normal
WATCH TEST	Negative	Positive, but diminished
VOICE TEST (WHISPER)	Not heard	Not heard clearly at normal distance, perceived when spoken close
RINNE'S TEST	BC>AC	AC>BC
WEBER TEST	Lateralized to left ear	Lateralized to left ear
BING TEST	No change	No change
GELLE'S TEST	No change	No change
ABC TEST (ABSOLUTE BONE CONDUCTION TEST)	Same as examiner	Same as examiner

INVESTIGATIONS: CT -Left Temporal Bone(13/01/2025) shows severe round window stenosis ,Bilateral fenestral otosclerosis.

ROGA PAREEKSHA:

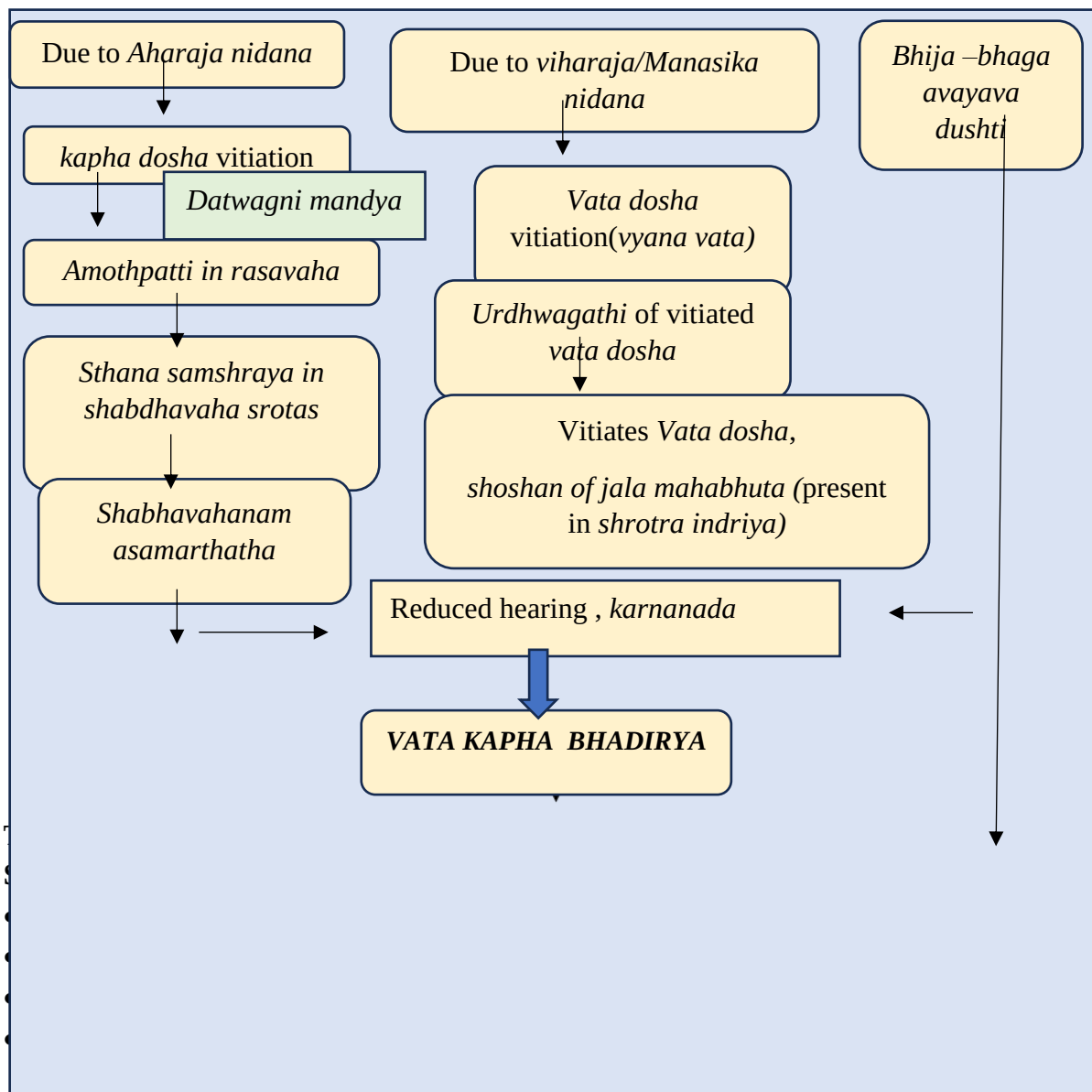
AAHARAJA NIDANA: *Madhura, guru aaharas* (sweets, coffee with more sugar) *abhishyanda aaharas*, fast foods, excessive salt (pickles).

MANASIKA NIDANA: *Shoka, Chintha*.

VIHARAJA NIDANA: Sleep was disturbed, exposure to loud noises, smoking, alcohol.

BEEJA –BHAGA AVAYAVA DUSHTI: Candidate genes: COL1A1, RELN, TGF- β 1, BMP2, BMP4

SAMPRAPTHI:



Procedure:

- Nasya with Anu Taila 10drops /10 drops to each nostrils for 7 days

- Karnapoorana with kshara taila approximately 1ml /ear for 7 days
- Sadhyovirechana -40 gms Trivrut Leha with hot water on 2 nd day of treatment
- Lekhana Basti course



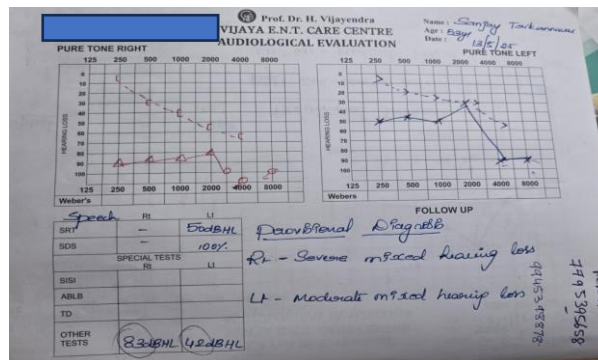
Anuvasana basti with Brihat Saindhava
Taila 35ml)+Triphala Taila (35ml)-8 days

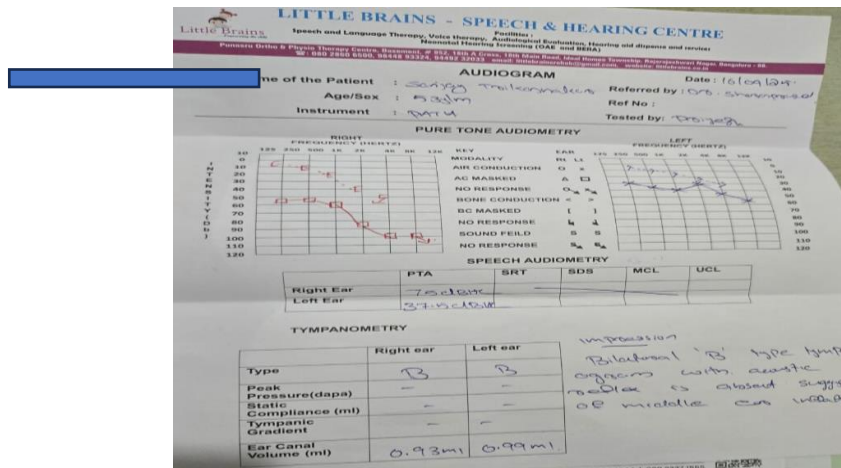
SAMPRAPATHI GATAKA:

Dosha	Vata, Kapha
Dushya	Rasa, Asthi
Agni	Jataragni and Dhatvagni Maandhya
Srotas	Rasavaha, Asthivaha
Sroto Dusti	Sangha
Udhhbhava Sthana	Pakwashaya
Vyaktha Sthana	Karna, Asthi
Sanchara Sthana	Karna
Adhistana	Karna
Rogamarga	Madhyama
Sadhyaasadhyata	Kruchra Sadhya

RESULTS: Improvement has been assessed in Audiometry report and THI Score. Shown as below

AUDIOMETRY	BEFORE TREATMENT 13/05/2025	AFTER TREATMENT 16/09/2025
RIGHT EAR	83 dBHL	75 dBHL
LEFT EAR	42 dBHL	37.5 dBHL





TINNITUS HANDICAP INVENTORY SCORE (THI - SCORE)	BEFORE TREATMENT	AFTER TREATMENT
	SCORE -42 , Grade:3	SCORE -42 , Grade:2

DISCUSSION:

In Ayurveda, hearing loss is described as *Badhira*, resulting from obstruction of *Shabdavaha sira* by vitiated *Vata* and *Kapha dosha*.

In the present case, the observed *Ahara*, *Vihara* and *Manasika Nidanas* may have acted together with genetic susceptibility in contributing to disease manifestation. Frequent intake of *Madhura* and *Guru Ahara*, excess *Lavana* and processed foods may promote metabolic imbalance, low-grade inflammation and oxidative stress. Excessive salt intake may additionally influence fluid and electrolyte homeostasis, potentially affecting the inner-ear microenvironment and bone-remodelling processes. Disturbed sleep, exposure to loud noise, smoking and alcohol may further increase oxidative stress and inflammatory mediators, thereby contributing to tissue damage and disease progression. *Shoka* and *Chinta* may aggravate *Dosha* imbalance through prolonged psychological stress, while disturbed sleep can further impair physiological homeostasis. The identified genetic associations, particularly involving COL1A1, RELN and TGF- β 1, may influence collagen integrity, tissue remodelling and inflammatory pathways, thereby increasing individual susceptibility.

Vata kaphahara and *Asthiposhaka chikitsa* are the line of treatment adopted along with the mode of action given below.

- **Role of *Sadhyovirechana*:** Reduces systemic inflammatory mediators that worsen bone remodeling, endotoxin load & systemic inflammation and improves gut–bone axis.
- **Role of *karnapoorana*:** Reduces *vata* vitiation, Improve middle ear microcirculation and may reduce stiffness around the stapes. Stabilize nerve endings and reduces tinnitus.

- **Role of Nasya:** *Nasa hi Śiraso Dvāram*. Nose is the gateway to the head. Nasal route provides direct drug delivery to brain and cranial nerves (olfactory and trigeminal pathways). Influence vestibulocochlear nerve function and middle ear circulation.
- **Role of Lekhana Basti:** Reduces *Meda* and *Kapha* accumulation. Influences gut microbiome and calcium–bone metabolism. Improves circulation, reduces oxidative stress, and modulates bone remodeling pathways involved in stapes fixation.

ROLE OF SHAMANUSHADIS:

- *Lakshadi Guggulu: Rasayana* (directly promotes osteoblast activity and fracture healing)
- *Shivagulika: Sroto shodhana*, *Deepana, pachana, kapha vata shamana*
- *Balaguduchyadi Kashaya: Sroto shodhana, kapha vata shamana*
- *Sukumara rasa: Vata anulomana, Sroto shodhana, Deepana, pachana*

CONCLUSION:

Otosclerosis when understood as *Vata-Kapha Badhira*, can be effectively managed by a holistic ayurvedic approach that corrects *Agni*, pacifies vitiated *doshas*, address *Shabdavaha Srotodusti*. Combined *Shodana, Sthanika chikitsa* and *Shamaushadis* resulted in significant reduction of tinnitus and improvement in hearing slowing disease progression and improving quality of life in patients with otosclerosis.

REFERENCES:

1. Makarem AO, Hoang TA, Lo WW, Linthicum FH, Fayad JN. Cavitating otosclerosis: clinical, radiologic, and histopathologic correlations. *Otol Neurotol*. 2010 Apr;31(3):381-4. [PMC free article] [PubMed]
2. Rudic M, Keogh I, Wagner R, Wilkinson E, Kiros N, Ferrary E, Sterkers O, Bozorg Grayeli A, Zarkovic K, Zarkovic N. The pathophysiology of otosclerosis: Review of current research. *Hear Res*. 2015 Dec;330(Pt A):51-6. [PubMed]
3. Koenen L, Gupta G. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): Sep 4, 2023. Schwartz Sign(Archived) [PubMed]
4. Karosi T, Konya J, Petko M, et al; Two subgroups of stapes fixation: otosclerosis and pseudo-otosclerosis. *Laryngoscope*. 2005 Nov; 115(11): 1968-73.
5. Declau F, van Spaendonck M, Timmermans JP, et al; Prevalence of histologic otosclerosis: an unbiased temporal bone study in Caucasians. *Adv Otorhinolaryngol*. 2007; 65: 6-16.
6. Arnold W, Busch R, Arnold A, et al; The influence of measles vaccination on the incidence of otosclerosis in Germany. *Eur Arch Otorhinolaryngol*. 2007 Jul; 264(7): 7418. Epub 2007 Feb 13.
7. Niedermeyer HP, Arnold W; Otosclerosis and measles virus - association or causation? *ORL J Otorhinolaryngol Relat Spec*. 2008;70(1):63-9; discussion 69-70. Epub 2008.
8. De Souza, Christopher; Glasscock, Michael (2003). *Otosclerosis and Stapedectomy: Diagnosis, Management & Complications*. New York, NY:Thieme. ISBN 1-58890-169-6.
9. Lippy WH, Berenholz LP, Schuring AG, Burkey JM (October 2005). "Does pregnancy affect otosclerosis?". *Laryngoscope*. 115(10): 1833–6.



10. Vicente Ade O, Yamashita HK, Albernaz PL, et al; Computed tomography in the diagnosis of otosclerosis. Otolaryngol Head Neck Surg. 2006 Apr; 134(4): 685-92.
11. Polizzotto MN, Cousins Polizzotto & Schwarer AP, Bisphosphonate-associated osteonecrosis of the auditory canal, British Journal of Haematology, 2005; 132(1): 114.
12. Ambikadatt Shastri, Sushruta Samhita of Sushruta with Ayurveda Tatva Sandipika Hindi Commentary, Uttartantra, Reprint Edition, 2014 Chapter 24, Varana Chaukhambha Sanskrit Sansthana, 2014
13. Kaviraja Ambikadutta Shastri; Sushruta Samhita of Maharsi Susruta with the Ayurveda tattva Sandipika Hindi Commentary; Chaukhambha Sanskrit Sansthan Varanasi, reprint 2013; Uttartantra 20
14. Brahmanand tripathi; astanga hrdayam of srimadvagbhata with the nirmala hindi commentary; Chaukhambha Sanskrit pratishthan delhi, reprint 2014; Uttartantra 17/9