

## AYURVEDIC MANAGEMENT OF TYMPANIC MEMBRANE PERFORATION: CLINICAL REPORT

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### ABSTRACT

Tympanic membrane (TM) perforation is a common otological condition that may lead to conductive hearing loss, recurrent infections, and chronic otitis media if inadequately managed. Classical Ayurvedic texts do not describe TM perforation as an independent disease entity; however, it can be interpreted within the spectrum of *Agantuja* ear disorders with predominant *Vata* involvement. Objective: To evaluate the clinical utility of an Ayurvedic therapeutic protocol incorporating *Nasya* and internal *Shamana* medications in the management of TM perforation. Methods: A 14-day treatment protocol was administered in two sequential cycles comprising *Nasya* with *Anu Taila* and *Panchendriyavardhan Taila*, along with oral formulations including *Laxmivilas Rasa*, *Sukshma Triphala Vati*, and *Sarivadi Vati*. Clinical monitoring included symptoms, otoscopic assessment, and evaluation of TM healing. Results: The intervention resulted in complete closure of the TM perforation, improvement in auditory acuity, and absence of recurrent otorrhea. No adverse events were recorded. Conclusion: The integrative Ayurvedic protocol demonstrated potential benefits in promoting TM healing. Larger controlled trials are required to validate these findings and establish standardized treatment guidelines.

### INTRODUCTION

Tympanic membrane perforations may result from pressure waves in the external auditory canal or from direct penetration. Approximately 50% of cases are caused by slap injuries or direct blows to the ear, while about 25% are due to self-inflicted penetrating injuries. In cases of traumatic perforation, patients commonly present with ear pain and reversible conductive hearing loss, which may be accompanied by tinnitus and vertigo. Large studies have shown that spontaneous healing occurs in most cases, with a mean healing time of approximately 1.5 months and the majority resolving within three months. Timely and appropriate management is important to minimize the risk of permanent hearing impairment <sup>[1]</sup>. Other reasons may be self-inflicted penetrating injuries account for about 25%, with 25% being due to causes

that include diving and aviation baro trauma, foreign bodies such as button batteries, other caustic substances, insects, welding debris, and blast injuries [2].

Ayurvedic literature, *Acharyas* have described detailed *Nidana* (etiological factors) of *Karna Roga* (ear diseases), one of which is *Mithyayoga of Shastra* (improper or contrary use of instruments). *Mithyayoga of Shastra* refers to trauma that may injure the wall of the external auditory canal or cause perforation of the tympanic membrane, or both. This condition can be correlated with *Agantuja Vrana* (wounds caused by external factors). *Agantuja Vrana* is primarily caused by external insults such as trauma, chemical exposure, or insect bites [3].

For current case study we did two cycles of *Nasya kriyakalp* here, first by *Anu tail* and second with *Panchedriyavardhan tail*. For oral medications *Laxmivilas ras*, *Sukshma Triphala vati* and *Sarivadi ghanvati*. Here for wound healing, these drugs worked wonder and helped in tympanic membrane perforation. Complete recovery of tympanic membrane perforation and pronged episode of cough and cold.

Case report-

A 25year old patient came to OPD complaining as mild hearing loss in left ear, recurrent cough and cold from last 15 days, pain in left ear since7 days. She had an history of recurrent cough and cold and the nose blowing habit. Local examination showed of ear showed retracted left ear and perforation in left ear. Nose showed DNS to left side with congested nasal mucosa. Throat showed posterior pharyngeal wall congestion with mild tonsillar enlargement.

Patient was clinical stable and there is no other comorbidity noted. Pure tone audiometry was done on the patient which showed the sensorineural hearing loss in left ear and normal hearing capacity in right ear.

Tympanic membrane perforation commonly occurs due to trauma, acute otitis media, iatrogenic injuries, or barotrauma. Clinical symptoms include otalgia, conductive hearing loss, tinnitus, and susceptibility to recurrent ear discharge. Although spontaneous healing is expected in many cases within 1.5–3 months, delayed repair may predispose patients to chronic suppurative otitis media, mastoiditis, or cholesteatoma formation.



**Day 1: Left ear TM perforation.**



**Day 8: after 7 days of *Nasya Kriyakalpa***



**Day 15: after 2<sup>nd</sup> cycle of *Nasya Kriyakalpa*.**

**Timeline:**

No.	Duration	Medications	Procedure
1.	3/11/2025	Local examination and oral medications	
2.	4/11/2025	Oral medication	<i>Nasya with Anu tail</i>
3.	12/11/2025	Oral medication	
4.	14/11/2025	Oral medications	<i>Nasya with Panchendriyavardhan tail</i>

In Ayurveda, conditions involving external injury and structural disruption are classified under *Āgantuka Vyādhi*. Such conditions often lead to functional deterioration of the ear, which is commonly associated with *Vāta* vitiation. Hence, the line of treatment emphasizes pacifying aggravated *Vāta*, restoring tissue integrity (*Ropana*), and strengthening the sensory organs (*Indriya Bālyā*).

Based on these principles, the present study reports a clinical case managed using an Ayurvedic treatment protocol that integrates *Nasya Karma* along with appropriate internal medications.

## Materials and Methods

### Study Design

A single-case interventional study evaluating the response of TM perforation to an Ayurvedic treatment regimen over 14 days.

### Patient Profile

A clinically diagnosed case of Left ear tympanic membrane perforation confirmed by otoscopic examination.

### Intervention Protocol

#### Cycle 1 (Days 1–7)

*Nasya: Anu Taila*, 8 drops per nostril daily

Oral medications:

*Laxmivilas Rasa* – 250 mg, twice daily

*Sukshma Triphala Vati* – 250 mg, twice daily

*Sarivadi Vati* – 250 mg, twice daily

#### Cycle 2 (Days 8–14)

*Nasya: Panchendriyavardhan Taila*, 8 drops per nostril

Oral medications:

*Laxmivilas Rasa* – 250 mg, twice daily

*Sarivadi Vati* – 250 mg, twice daily

### Outcome Measures

Otoscopic evaluation of TM integrity

Change in symptoms: otalgia, tinnitus, hearing difficulty

Absence of otorrhea

Patient-reported improvement

No concurrent antimicrobial or surgical therapy was administered.

### Observation:

In current case study was evaluated after two cycles of *Nasya kriyakalpa* (first with *Anu tail* and second with *Panchendriyavardhan tail*) and oral medication like *Laxmivilas ras*, *Sukshma triphala vati* and *Sarivadi vati*. Significant results were observed in hearing loss, recurrent cough and cold and left ear tympanic membrane perforation. Complete recovery of tympanic membrane was observed after two cycles of *Nasya* with oral medications. This study suggest that the outcome was medically good. No any adverse reaction was noted during the study.

### Pharmacological Rationale

#### *Anu Taila*

*Anu taila* is explained in *Charak chikisa sthan* under “*Tri marma chikitsa adhyaya*” for *Nasya* [4].

Possesses *Snigdha*, *Mridu*, *Sukshma*, and *Vyavayi* qualities aiding *Vata* pacification, reduction of inflammation (*Shothahara*), and enhancement of tissue healing (*Ropana*).

#### *Laxmivilas Rasa*

The wide range of action as many of the drugs are *Ushna Virya* so its main action on *Kapha Vataj* disease compare to *Pitta* vitiated disease the main *Rogadhikar* of *Laxmivilas Rasa* is *Dushta Pratishay* (allergic rhinitis), *Jwar* (fever), *Kasa* (cough),

*Shwasa* (respiratory distress) [5] *Rajayakshma* (tuberculosis). It also acts as *Deepan* (stimulate digestive fire), *Pachan* (digestion) thus used in *Prameha*, *Kustha*, *Stoulyta* and *Amaj Atisaar* and also if we go through the content of the *Kalpa* and its action it mainly works on *Rasavaha*<sup>[6]</sup> and *Pranavaha Srotas Vyadhi* (disease) different indications in different classical text give us a brief idea it has been used in various *Roga* depending upon few changes in ingredients.

Here it exhibits anti-inflammatory, antimicrobial (*Krimighna*), analgesic (*Vedanasthapana*), and tissue-regenerative actions.

### ***Sukshma Triphala Vati***

Known for its *Rasayana*, antibacterial, and anti-inflammatory effects, supporting epithelial regeneration. It is particularly known for its antibacterial, anti-inflammatory, and wound healing and tissue regeneration properties [7].

### ***Sarivadi Vati***

*Sarivadi vati* is one such formulation explained in *Bhaishjya Ratnawali*. It is said to be used in *Karna Roga* (Ear disease), *Rakta Pitta* (Bleeding disorders), *Jeerna Jwara* (Relapsing fever), *Hridaya Roga* (heart disease) and *Apasmara* (Hysteria) etc. *Karnanada* is among 28 *Karnarogas* explained by Acharya *Sushruta*, mainly *Vata* dominant *Roga*. All the contents of *Sarivadi Vati* have *Vata-Kaphahar* properties [8]. Traditionally used for ear disorders with actions including *Shothahara*, *Krimighna*, and *Ropana*.

### ***Panchendriyavardhan Taila***

It contains *Shirovirechan gana* drugs like *Vacha* (acorus calomus), or *Shigru* (moringa oleifera), *Madanphal* (randia spinosa). *Nasya* increases local circulation, due to this nourish-ment of organ is increased and disease willsubside. *Nasya dravya* having *Katu*, *Ushna* and *Teekshna guna*. These *gunas* produce *Draveekaran* and *Chhedan* of vitiated *doshas*. This helps to reduce inflammation and increase strength of organ. The oral combination is of *Tribhuvankirti rasa*, *Sutshekhar ras* and *Talisadi churna*. All these drugs contain *tikta*, *katu rasa* and *ushna guna*. These *gunas* produce *draveekaran* and *chhedan* of vitiated *doshas*. This helps to reduce inflammation and gives strength to the organ [9].

Acts as *Vata-Kapha Shamana*, promotes sensory organ strengthening, reduces otalgia, and supports TM structural repair.

## **RESULTS**

Following the 14-day intervention:

- Complete closure of tympanic membrane perforation confirmed via otoscopy
- Improvement in auditory function subjectively reported
- Absence of recurrent otorrhea during and after treatment
- No adverse drug reactions observed
- The healing pattern was consistent with reduction in *Vata* aggravation and enhanced reparative response.

## **DISCUSSION**

Histopathological study of a newly formed perforation shows proliferation of squamous epithelium within 12 hours at the edge of the perforation and granulation formation within 18 hours, whereas the inner mucosa of the tympanic membrane takes

several days to regenerate.<sup>[10]</sup> Studies have shown that moisture balance is important during wound healing and a moist environment facilitates cellular growth and collagen proliferation within a healthy noncellular matrix, thereby hastening the healing of both acute and chronic wounds and promoting the growth of new tissue.<sup>[11,12]</sup>

The therapeutic outcome observed in this case aligns with core Ayurvedic principles of *Vāta Samāpana*, *Ropana*, and *Indriya Bālyā*. The combined administration of *Nasya Karma* and internal *Śamana Auṣadhi* appears to facilitate both anatomical and functional recovery of the tympanic membrane (TM). *Nasya* enables effective drug delivery to structures above the clavicle, thereby influencing the vascular, neural, and mucosal components of the ear. Concurrently, internal medications may help modulate inflammation, reduce microbial load, and promote epithelial regeneration.

Although spontaneous healing of TM perforations is well documented, the relatively rapid closure observed in this case suggests a possible synergistic effect of the integrative Ayurvedic protocol. However, the findings are limited by the single-case design and the absence of objective auditory assessments such as pure tone audiometry (PTA).

## CONCLUSION

The integrative Ayurvedic protocol incorporating *Nasya Karma* and internal medications demonstrated promising results in promoting tympanic membrane repair and improving auditory function. Controlled clinical trials with larger sample sizes and standardized assessment tools are required to establish definitive efficacy.

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