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Case Study

AYURVEDIC MANAGEMENT OF OTOMYCOSIS

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ABSTRACT

Otomycosis is a fungal infection of the external auditory canal (EAC) characterized by ear itching, otalgia, and fungal debris. The present case describes Ayurvedic management of otomycosis, correlated with *Karnapaka*, using local and internal medications. Materials and methods: A 19-year-old female presented with left sided earache, itching, and ear blockage. Otoscopic examination revealed white fungal debris in the external auditory canal and a small central tympanic membrane (TM) perforation. Treatment included *Karnapramarjana* followed by *Karnapichu* with *Rasakriya* made with *Triphala Churna*, *Shuddha Tankana*, and *Shuddha Gandhaka*, along with internal administration of *Guggulu Tikthakam Kwatha*, *Triphala Guggulu*, and *Gandhaka Rasayana*. Results: Earache and discharge reduced by the second day, and progressive tympanic membrane healing was observed by the fourth day. Symptoms resolved completely by the twelfth day. No recurrence was observed during follow-up on days 20 and 30. Conclusion: The observed clinical improvement suggests that Ayurvedic management using *Karnapramarjana*, *Karnapichu* with *Rasakriya*, and internal medications are effective in otomycosis.

INTRODUCTION

Otomycosis is a fungal infection of the external auditory canal (EAC) that often occurs due to Aspergillus niger, Apergillus fumigatus, or Candida albicans. It is commonly seen in hot and humid tropical and subtropical climates. Secondary fungal growth is also seen in patients using topical antibiotics for treatment of otitis externa or middle ear suppuration. It is characterized by intense itching, discomfort or pain, watery discharge with a musty odour, and ear blockage. Fungal infections may appear white, brown, or black, or like a wet piece of filter paper[1]. Otitis externa accounts for 5 to 20% of ear-related visits to ENTs, most of which are caused by bacteria, and from the latter, 9 to 25% are caused by fungi[2]. Treatment consists of thorough ear toilet to remove all discharge and epithelial debris, which are conducive to fungal growth.

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This can be done by syringing, suction, or mopping. Specific anti-fungal agents can also be applied[1]. This condition can be correlated with *Karnapaka*. It is a *Pitta* predominant *Tridoshaja Karnaroga* explained by *Acharya Susrutha*, characterized by suppuration and discharge from the ear[3]. Acharya advised *Pitta visarpa chikitsa* for this disease. Some scholars have correlated otomycosis with *Karnakandu* because itching in the ear is a symptom in both conditions. However, in this study, it was correlated with *Karnapaka* because otitis externa is an infection of the ear canal, which is covered with skin. *Visarpa* is a *Roga* that affects the *Vedhini* layer of the *Twak*. As *Visarpa chikitsa* is advised in the treatment of *Karnapaka*, it will be more accurate[4].

There is no specific local treatment for *Karnapaka* available in Ayurvedic classical text books. By considering these facts, there is need to explore the treatment protocol which is effective and easy for administration. *Karnapramarjana* followed by *Karnapichu* with antifungal *Rasakriya* and internal administration of *Guggulu thikthakam kwata*, *Triphala guggulu* tablet and *Gandhaka rasyasana* tablet was considered for this study.

MATERIALS AND METHODS

Case History

A 19-year-old female patient presented to the Shalakyatantra Outpatient Department (OPD) of RK University Ayurvedic College and Hospital with complaints of left sided ear ache associated with itching and a sensation of ear blockage for 2 days.

Family History

No relevant family history was reported.

History of Present Illness

The patient initially developed mild itching in the left ear 2 days before presentation, followed by earache and a sensation of mild ear blockage.

History of Past illness

Nothing relevant

General Examination

The patient's pulse rate was 72 beats/min, respiratory rate was 18 breaths/min, and blood pressure was 116/70 mmHg. Systemic examination revealed no abnormalities.

Dasavidha Pareeksha

Parameter	Assessment
Prakriti	*Kapha-Vata*
Sara	*Asthisara*
Satva	*Avara Satva*
Samhanana	*Madhyama*
Akruti	*Madhyama*
Vyayamashakti	*Madhyama*
Pramana	*Madhyama*
Satmya	*Madhyama*

Ashtavidha Pareeksha

The findings of *Ashtavidha Pareeksha* were as follows:

- *Nadi: Kaphaja*
- *Mutra: Anavila*
- *Sabda: Spashta*
- *Mala: Abadha*
- *Jihva: Alipta*
- *Sparsha: Anushnasheetha*
- *Akruti: Madhyama*
- *Drik: Prakrita*

Ear Examination

Examination Parameter	Right Ear	Left Ear
Preauricular region	Normal	Normal
Auricle and pinna	Normal	Normal
Postauricular region	Normal	Normal
External auditory canal (EAC)	Normal	Occluded by a white coloured fungal debris with hyphae
EAC skin following aural toileting	Normal	Congested
Tympanic membrane (TM)	Intact	Central perforation measuring approximately 2mm in the posteroinferior quadrant
Cone of light	Visible	Absent

Diagnostic Criteria

The diagnosis was based on the presence of a white-coloured fungal mass in the left EAC and a small central perforation of the left tympanic membrane.

Diagnostic Method

Otoscopy was performed to assess the EAC and TM.

Therapeutic Intervention

The patient was administered the following treatment:

Internal medication:

- *Guggulu Tikthakam Kwatha*: 45 mL orally twice daily.
- *Triphala Guggulu*: Two tablets orally twice daily with warm water.
- *Gandhaka rasayasan* Tab: 1 tablet orally twice daily with warm water.

Local treatment

Karnapramarjana (dry mopping) was performed, followed by the application of *Karnapichu* prepared by coating sterile cotton with *Rasakriya*, which was intended to provide antifungal action. The *Karnapichu* was retained for 4 hours in left EAC.

Table 1: Treatment Protocol

Duration	Name of medicine	Dose	Result
1st day to 7th day	*Guggulu thikthakam kwath*	45 ml BD BF	Ear ache and ear discharge reduced. Tympanic membrane perforation healed.
	Triphala guggulu tab	2-0-2 AF with warm water	
	Karnapramarjan followed by *Karnapichu*	Once daily for 4 hours	
8th to 14th day	*Gandhak rasayan* tab	1-0-1 AF with milk	Congestion of EAC canal wall cured.

OBSERVATION AND RESULTS

On the first day of consultation, the left EAC was filled with white fungal debris and fungal hyphae and a small TM perforation (Fig. 1). Following initiation of treatment, progressive improvement in clinical symptoms and otoscopic findings was observed.



Fig. 1

By the second day of treatment, considerable reduction in otalgia and otorrhea was noted (Fig. 2).

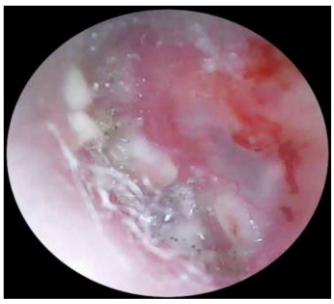


Fig. 2

On the fourth day, otoscopic examination revealed progressive healing of the TM, accompanied by complete cessation of purulent discharge (Fig. 3).



Fig. 3

By the sixth day, the patient reported marked reductions in ear pain and itching. On the twelfth day of treatment, the presenting symptoms had completely resolved. However, congestion of the left EAC persisted, along with some residual *Rasakriya* material. Otoscopic examination revealed complete healing of the tympanic membrane (Fig. 4).



Fig. 4

Follow up assessments were conducted on the twentieth and thirtieth days. No recurrence of symptoms or clinical signs of infection was observed during the follow up period, and the patient remained clinically asymptomatic. On the twentieth day, otoscopic examination revealed tympanosclerotic changes at the site of the previously perforated tympanic membrane (Fig. 5).



Fig. 5



Fig. 6

Method of Preparation of *Rasakriya*

Ingredients

Ingredient	Quantity
Triphala Churna	30 g
Suddha Tankana	10 g
Suddha Gandhaka	10 g
Water	480 ml

Preparation

Thirty grams of *Triphala Churna* was added to 480ml of water and subjected to boiling until the volume was reduced to one-ninth (54ml). The resulting decoction was filtered to obtain the filtrate. Subsequently, 10gm each of *Tankana* and *Gandhaka* were added to the filtrate and heated with continuous stirring until a thick consistency was obtained. The prepared formulation was allowed to cool and was stored appropriately until use (Fig. 6).

Method of Application of *Karnapichu*

After *Karna Pramarjana* (dry mopping of the external auditory canal), a sterile cotton piece was soaked in the prepared *Rasakriya* and gently placed in the EAC of the left ear. The *Karnapichu* was retained in situ for 4 hours, after which it was removed and the external auditory canal was thoroughly mopped. The procedure was performed once daily for 7 consecutive days.

DISCUSSION

Among the 28 *Karnarogas* described by *Acharya Sushruta*, *Karnapaka* is characterized by suppurative pathology involving the ear. *Karnapaka* is associated with the predominance of *Pitta* along with the involvement of other *Doshas*. The clinical features of otomycosis, including otalgia, pruritus, and the presence of fungal debris within EAC, may be interpreted in the context of *Karnapaka*. Furthermore, *Visarpa* is described as a disease involving *Vedini* layer of *Twak*. As *Visarpa Chikitsa* is indicated in the management of *Karnapaka*, this therapeutic reference provides an additional rationale for considering *Karnapaka* as an Ayurvedic correlate of the present clinical condition because EAC is lined by skin. However, this correlation should be regarded as a conceptual interpretation rather than a direct equivalence between the two conditions. Some scholars have correlated otomycosis with *Karnakandu* because itching in the ear is a symptom in both conditions.

In the present case, the presence of TM perforation necessitated careful selection of the topical medication, as certain conventional ear drops may pose a risk of ototoxicity when they enter the middle ear. Therefore, a medicated *Rasakriya* formulation with potential antifungal activity was selected for local application. *Karnapichu* was employed to facilitate prolonged contact between the medication and the affected skin of the EAC. This approach may enhance local exposure to the formulation and potentially support the management of residual fungal infection.

Karnapramarjana refers to the cleaning of the external auditory canal using sterile cotton, whereas *Karnapichu* involves the placement of a medicated wick within the EAC. Cleaning the canal before application of medication facilitates the removal of fungal debris and enables better contact between the formulation and the affected surface. Compared with conventional ear drops, a medicated wick may provide prolonged contact time and localized delivery of the *Rasakriya*.

The selection of the formulation was further supported by the reported antimicrobial properties of its constituent ingredients. *Amalaki* (*Emblica officinalis* Gaertn.) has demonstrated antimicrobial activity in previous studies, which has been attributed to the presence of flavonoids, ascorbic acid, gallic acid, alkaloids, and hydrolysable tannins[5]. These constituents may contribute to its observed biological activity.

An aqueous extract of the dried fruits of *Haritaki* (*Terminalia chebula* Retz.) has demonstrated anti-inflammatory activity, reportedly through the inhibition of inducible nitric oxide synthesis[6]. In addition, crude ethyl acetate and ether extracts of *Terminalia chebula* have exhibited antimicrobial activity against several pathogenic microorganisms, including Staphylococcus aureus, Proteus vulgaris, and Escherichia coli, as well as fungal strains such as Aspergillus niger and Candida albicans[7]. Previous investigations have also reported antifungal activity of its aqueous extract against various dermatophytes and yeasts, including Candida albicans[8].

Similarly, aqueous extracts of the fruits of *Vibhitaki* (*Terminalia bellirica* Roxb.) have demonstrated antimicrobial activity against several bacterial pathogens. Antifungal activity has also been reported against fungal isolates such as Aspergillus niger, Aspergillus fumigatus, Aspergillus flavus, Mucor species, and Rhizopus species[9]. These findings suggest that *Vibhitaki* may contribute to the overall antimicrobial potential of the formulation.

Gandhaka, or elemental sulfur, has been used in dermatological preparations for centuries. Sulfur is reported to possess antibacterial, antifungal, antiviral, and keratolytic properties, in addition to other biological activities[10].

Tankana, identified as borax, is traditionally used in Ayurvedic formulations. Studies have reported the potential usefulness of *Shuddha Tankana* in dermatological conditions associated with fungal infections[11]. This traditional application may support its inclusion in the formulation.

Collectively, the reported biological activities of the individual ingredients may provide potential antifungal properties to the *Rasakriya* formulation. The use of *Karnapichu* may additionally offer the practical advantage of prolonged local contact.

CONCLUSION

Thus, it can be concluded that antifungal *Karnapichu* may be considered an effective and cost-effective external treatment modality in the management of otomycosis, based on the clinical improvement observed in the present study. The use of an appropriate topical Ayurvedic antifungal treatment may also reduce the need for unnecessary or prolonged use of conventional topical antifungal and antibiotic-steroid ear preparations, thereby potentially minimizing concerns associated with ototoxicity and antimicrobial resistance, particularly with inappropriate use.

Nidana Parivarjana plays an important role in the management and prevention of recurrence of otomycosis. Patients should be advised to avoid *Jalakrida* (water exposure to the ear), including swimming, allowing water to enter the external auditory canal during bathing, and prolonged exposure to rain. Such exposure increases moisture within the EAC, and the resultant warm and humid environment may favour fungal growth. Therefore, patients should be advised to keep the ear dry and, when bathing, a small piece of cotton coated with petroleum jelly may be placed gently at the external meatus to prevent water entry. Similarly, *Karna Kanduyanam* (scratching or manipulation of the ear) should be avoided. Scratching the ear with objects such as keys, safety pins, pencils, or other inappropriate materials may cause mechanical trauma to the skin of the EAC and compromise its protective barrier, thereby predisposing to infection. Moreover, the use of contaminated objects may facilitate the introduction of fungal organisms into the ear canal.

Therefore, successful management of otomycosis requires a comprehensive approach involving appropriate local treatment, systemic treatment when clinically indicated, and *Nidana Parivarjana*. Maintaining the dryness and integrity of the external auditory canal and avoiding unnecessary manipulation are important measures for achieving clinical resolution and reducing recurrence.

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