

# Resolution of Fluid and Normalised Hearing Sensitivity in Otitis Media with Effusion by Ayurveda Management

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## ABSTRACT

The current treatment modality for otitis media with effusion is surgical intervention but recurrence is common. This case report discusses the Ayurvedic treatment of a case diagnosed as otitis media with effusion, which was posted for myringotomy with grommet insertion. A five-year-old boy on antihistamines and antibiotics for 3 months presented with constant hearing loss and difficulty with speech discrimination. The features suggestive of otitis media with effusion were diagnosed by pure tone audiometry and tympanogram. Ayurveda medication was started and surgery was deferred because the patient responded positively. The 45 dB and 30 dB conductive hearing loss detected by audiometry improved to 15 dB and 11.6 dB, which is within normal limits. The patient became asymptomatic and recovered his sense of hearing. Till date, there has been no recurrence. Non-surgical intervention of otitis media with effusion demonstrated normalised hearing sensitivity and relief from symptoms. Validation should be further conducted using larger studies.

**Keywords:** Audiometry, Badhrya, Glue Ear

## CASE REPORT

A five-year-old boy presented with a 3-month history of hearing loss in both ears. He was diagnosed with otitis media with effusion on 28/11/2016. The patient was administered anti-histamines and antibiotics for 3 months but did not improve, so his parents approached us for Ayurveda treatment. Family history was non-significant. On general examination, all vital signs were within normal limits.

Pure tone audiometry showed 45 dB and 30 dB hearing loss in right and left ear respectively, which is suggestive of moderate conductive hearing loss. Tympanometry of the right ear demonstrated a Type B graph (suggestive of middle ear involvement from fluid), while the left ear demonstrated a type C graph (suggestive of Eustachian tube dysfunction often before or after effusion).

Local examination of both external ears showed normal pinnae. Otoscope examination revealed a normal external auditory canal and skin with no sign of inflammation, wax, foreign body, or growth. Tympanic membrane revealed a pearly grey colour and distortion of cone of light. Siegal's speculum demonstrated hampered mobility of the tympanic membrane in both ears. The fluid level was appreciated in the tympanic membranes of both ears. Rinne's test showed that bone conduction was greater than air conduction in both ears, while Weber's test was lateralised to the right ear [1]. The patient underwent medical management

with a variety of anti-histamines and antibiotics for three months but did not get any relief. As the disease was not controllable he was advised for myringotomy with grommet insertion. Routine haematological investigation was found to be within normal limits. The patient's father was not willing for surgery, so he switched to a contemporary management.

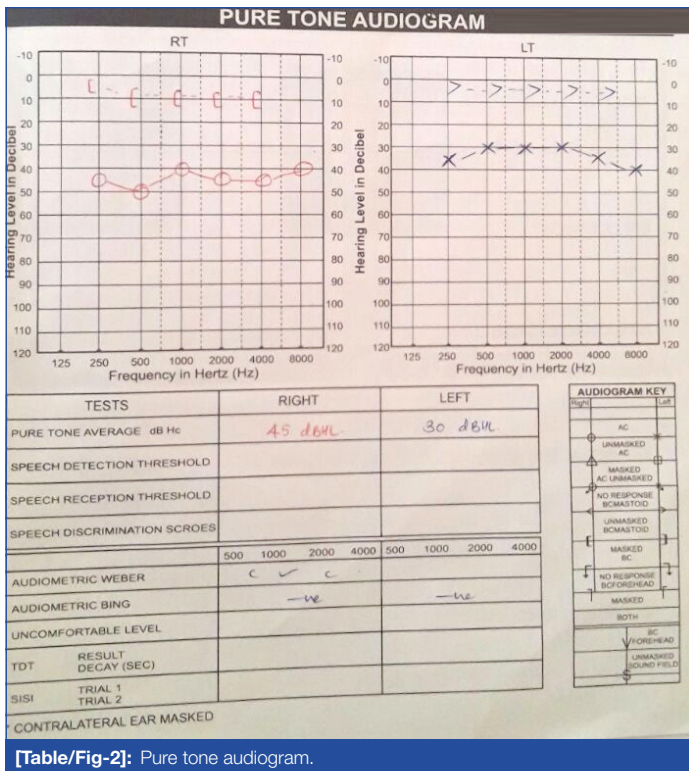
Various Ayurvedic interventions were adapted to treat this patient. On the first visit (11/2/2017) *Gorochanadivati* 125 mg was started orally twice a day, *Dasamoolarishtam* 10 mL thrice a day, *Guggulu panchapala choorna* 5 gm twice a day, *Anu taila* 2 drops in each nostril were prescribed for three months. On 2<sup>nd</sup> month follow up (18/3/2017) *Haridra khanda* 5 gm twice a day with Luke warm milk was added. On 3<sup>rd</sup> visit (8/4/2017) *Sarivativati* 375 mg twice a day was given [Table/Fig-1] [2-7].

The patient was advised monthly follow-up for three months, after which Pure Tone Audiometry was administered. Before treatment, Pure Tone Audiometry (28/1/2017) showed 45 dB and 30 dB hearing loss in right and left ear respectively [Table/Fig-2]. Tympanometry showed Type B graph in right ear and type C graph in left ear [Table/Fig-3].

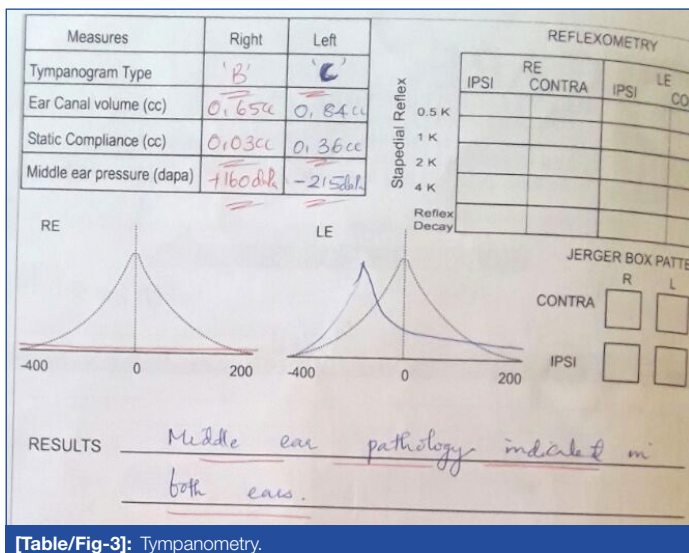
After three months of medication, as per the patient there was improvement in hearing and speech. Pure tone Audiometry (repeated on 11/5/2017) showed improvement to 15 dB in right ear and 11.6 dB in left ear, which is within normal limits [Table/Fig-4].

Name of the drug used orally	Composition	Dose	Anupana	Days of treatment
<i>Gorochanadivati</i> [2]	Gorochana, trikatu, triphala, nagabhasama, lasuna, mrgasrng and other 40 herbs	125 mg twice a day	Hot water	From 11/2/17-9/5/17
<i>Dasamoolarishtam</i> [3]	Fermented extract of Dasamoola and 60 other herbs	10 mL thrice a day	Warm water	11/2/17-9/5/17
<i>HaridraKhanda</i> [4]	Haridra, trikatu, ela, dalicini, Vidanga, trivrit, triphala, nagakesera Musta, lauhabhasma, ghritha, cow's milk	5 gm twice a day	Warm milk	18/3/17-9/5/17
<i>Sarivativati</i> [5]	Sariva, kustha, triphala, nagakesera, Loha, Abhrakabhasma, guduchi, patra, Ela	375 mg twice a day	Warm water	8/4/17-9/5/17
<i>Guggulu panchapala choorna</i> [6]	Guggulu, magadhika, triphala Twak, truti	5 gm twice a day	Honey	11/2/17-9/5/17
<i>Anu taila</i> [7]	Jivanti, jala, devadaru, twak, darvi, madhuka, aguru, bala, kamala, tilathaila, rain water	2 drops in each nostril		11/2/17-9/5/17

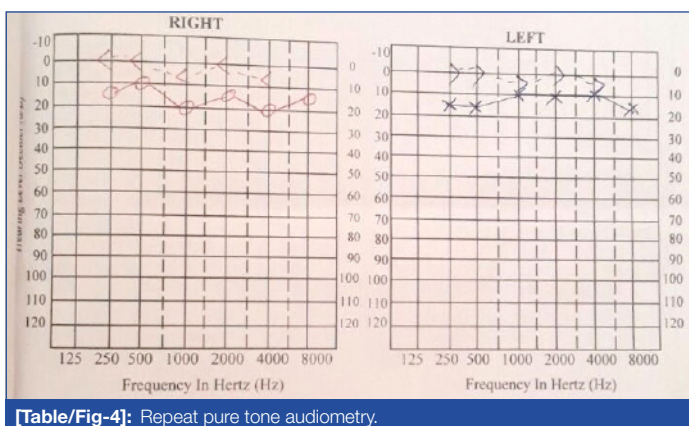
[Table/Fig-1]: Ayurveda treatment details [2-7].



[Table/Fig-2]: Pure tone audiogram.



[Table/Fig-3]: Tymanometry.



[Table/Fig-4]: Repeat pure tone audiometry.

Tympanometry (repeated on 11/5/2017) shows graph Type 'C' in both ears. Patient was symptom free with no evidence of otitis media with effusion.

**DISCUSSION**

Otitis Media with Effusion (OME) is characterised by a non-purulent effusion of the middle ear which includes hearing loss, delayed and

defective speech [8]. Eighty percent of children have at least one episode of Otitis media with effusion by the age of 10 years [9].

Functionally, the middle ear is closely related to the nasopharynx through the Eustachian tubes. The tensor veli palatini muscle opens the Eustachian tube and facilitates both ventilation of the middle ear and drainage of secretions from it. The Eustachian tube also protects the middle ear from excessive sound pressure and secretions from the nasopharynx. Dysfunction of the Eustachian tube has an important role in the manifestation of middle ear diseases [10]. The loss is usually conductive, with an average air conduction threshold of 27.5 decibels (dB). Management includes decongestants, anti-histamines, steroids and antibiotics. It's to be employed for removal of fluid and prevention of occurrences but is of no assistance in the presence of thickened fluid. Thickened fluid must be surgically removed. Although surgical intervention significantly improves the clearance of middle ear effusion, the benefits for speech and language development as well as quality of life remain controversial [11].

As per Ayurveda, *Badhira* is of two types, viz., *Vataja* and *Vata-Kaphaja*. *Acharya Vagbhata* stresses the importance of *Pratishyaya Chikitsa* in the context of *Badhira Chikitsa* [12]. This case was diagnosed as *Vata-Kaphaja Badhira*. *Kapha* in the form of fluid obstructs the passage of *Vata* (sound waves) in the *Karna Srotas*. Normalising *Kapha Dosha* (absorption/resolution of the fluid in the middle ear) can automatically channelize the *Vata Dosha* and ensure proper conduction of sound waves. Thus, the treatment protocol was planned to pacify *Kapha* so as to regulate movement of *Vata* and re-establish hearing.

Eustachian tubes connect the nasopharynx and the middle ear; hence proper functioning of the tube is needed for drainage of secretions from the middle ear. Reflex secretions from the nasopharynx into the middle ear are prevented by this tube. Reflex of the secretions occurs if the tube is wide and short. Upper respiratory tract infections are one of the cause for the malfunctioning of the Eustachian tube. Hence, *Pratishyaya Chikitsa* is important in the management of *Badhira*. *Vata* and *kapha* are involved in both *Badhira* and *Pratishyaya*.

In terms of dhatu, increase in *rasa dhatu* will have the features of *Kapha vridhi*. In *Kapha vridhi*, the features mentioned as *Swasa* and *Kasa* which again signifies the respiratory tract involvement which is an important factor in middle ear diseases [13]. Hence, increase of *Kapha dosha* in the form of *Rasa dhatu* will cause *Avarana* (occlusion) to *Vatadosha*. Thereby leading to *vata vridhi* and also can directly causes *Kasa* and *Swasa* which is one of the important factors in the manifestation of *Karna Roga*.

Internal medications were selected from *Badhira* and *Pratishyaya Chikitsa*. *Guggulu Panchaphala Choorna* is indicated in *Nadi Vrana* was given considering the *Karna* as *Srotas* and the middle ear lesion as *Vrana*. The same medication also relieves *Kapha Avruta Vata* (*Kapha* blocking the movement of *vata*). *Gorochanadi Gutika* administered in *Sravana Lopa* (hearing impairment) rectifies hearing loss. *Dasamoolaristam* pacifies *Kapha* and equilibrizes *Vata Dosha*. *Sarivadi Vati* normalises and regulates movement of *Vata* and helps to regain hearing. *Haridra Khanda* was to counteract allergies. *Anutaila* was nasally to counter *Pratishyaya* and to strengthen *Indriyas* [14].

**CONCLUSION**

Serous otitis media can be considered as *Vata-Kaphaja Badhira*. *Kapha* in the form of fluid restricts the movements (*vata*) of sound waves. Normalising *kapha* and channelizing *vata* will restore the sense of hearing. *Pratishyaya Chikitsa* should also be adopted. On this principle, studies should be conducted to validate the management of this condition. Further studies are needed to assess the sustained results.

**Patient Consent:** The patient's father has provided written consent and gives permission to publication. This has been documented.

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Date of Submission: **May 25, 2018**

Date of Peer Review: **Jul 10, 2018**

Date of Acceptance: **Aug 22, 2018**

Date of Publishing: **Nov 01, 2018**

**FINANCIAL OR OTHER COMPETING INTERESTS:** None.