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# Efficacy of Yogic Practices in Patient with Conductive Deafness and Secretory Otitis Media : A Case Study

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## ABSTRACT

Otitis Media characterized by a non-purulent effusion in the middle ear, commonly follows Eustachian tube obstruction, where majority of cases associated with upper respiratory tract infection or allergic rhinitis. Having sense of fullness or numbness in head and deafness as primary symptoms. As in this case, patient had gradual hearing loss, sense of fullness and pressure feeling in his both ears, which started after a rhinitis infection in early days of January 2019. After having a few courses of medications and bilateral Myringotomy done, patient opted Individual *Yoga* therapy session at Morarji Desai National Institute of Yoga (MDNIY) for a possible healing. The *Yoga* protocol designed for the patient has given a great emphasis on improving the functioning of ears and nose. Indian traditional practices of *Yogic Sukshama Vyayama*, *Yogasana* and *Pranayama* on hearing loss is found to be effective, as patient recovered from hearing loss and sense of fullness. There are *Yogic Sukshama Vyayama*, *Yogasana* and *Pranayama* which enhance the functioning of upper respiratory tract and ear significantly. The effects of these practices can be studied scientifically.

**Key words:** Deafness, Hearing loss, OM chanting, Pranayama, Yoga

## INTRODUCTION

Secretory Otitis Media, also known as Serous Otitis Media, Mucoid otitis Media and Glue ear, it is an insidious condition characterized by accumulation on non-purulent effusion in the middle ear cleft. Often the effusion is thick and viscid but sometimes it may be thin and serous. The fluid is nearly sterile, with symptoms like hearing loss, defective speech, mild earache and feeling of fullness.<sup>[1]</sup> The degree of

deafness depends largely on the amount of exudation and it may be subject to great variations. Tinnitus is also generally present and may continue after the other symptoms have subsided but its persistence is usually an unfavorable sign.<sup>[2]</sup> Its common causes are chronic rhinitis, sinusitis, chronic tonsillitis, seasonal allergy, viral infection and unresolved otitis media.

## CASE REPORT

A 46 years old man came with chief complaint of gradual hearing loss since January 2017, after an acute infection of rhinitis. He also complained of fullness of ear and disturbed sense of balance. Patient unaware of this hearing loss, family noticed certain changes, like patient being lost in middle of some conversation, patient making repeated efforts to listen and asking many a times to repeat words.

Patient had taken allopathic treatment and undergone bi-lateral Myringotomy in July 2019 with grommet insertion, which were removed within four months. The Patient had some symptomatic relief and had been using hearing aids since September 2019. There was no

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previous history of any such infection or external injury to the nose or ears. Patient presents with no family history of any such infections. He also complains of poor appetite, and occasional disturbed sleep. He also presents with normal bowel movements and no addictions of any kind. Patient had consulted the doctors at MDNIY on 25<sup>th</sup> February 2021 and started his Yoga therapy sessions from 3<sup>rd</sup> March onwards for three weeks.

### Timeline

Patient was instructed to follow the complete guidelines during whole course of Yoga Therapy Sessions, from the first day of Yoga Therapy itself. He was treated with a 3 weeks Yoga Protocol at MDNIY and was instructed to update condition through phone on weekly basis.

The timeline of the *Yoga* protocol is given below in Table-1.

**Table 1: Yoga protocol**

SN	Week	Time Period	Yoga Therapy Introduced
1.	First	02-03-2021 to 08-03-2021	Focused on selective <i>Yogic Sukshma Vyayama</i> , Breath with Awareness
2.	Second	09-03-2021 to 15-03-2021	Sense of awareness on Specific <i>Asanas</i> and <i>Pranayama</i> with more holding time
3.	Third	16-03-2021 to 22-03-2021	OM Chanting was practiced with more awareness on throat

### Yogic management

The Individual *Yoga* Protocol session of 60 minutes duration was designed for the patient with the following practice under the supervision of Therapist and Physician, which are as follows in Table-2:

**Table 2: Daily Yoga Protocol for Secretory Otitis Media (60 minutes)**

SN	Practice Title	Practice Name	Time Period / Repetition
1.	Purificatory Processes	<i>Sutra Neti</i>	Daily 10 min (one round each)
		<i>Jal Neti</i>	

		<i>Kapalbhati</i>	Daily 10 min (5 rounds x 50 stokes each)
2.	<i>Sukshma Vyayama</i>	<i>Uccharan Sthal tatha Vishudhi Chakra ki Shudhi</i>	Daily (15 min) (2 times each with awareness on breathing)
		<i>Buddhi tatha Dhriti Shakti Vikasaka</i>	
		<i>Medha Shakti Vikasaka</i>	
		<i>Karna Shakti Vikasak</i>	
		<i>Kapol Shakti Vikasak</i>	
		<i>Griva Shakti Vikasaka - 1,2 &amp; 3</i>	
3.	<i>Asanas</i>	<i>Tadasana</i>	Daily (10 min) (2 times each with awareness on breathing)
		<i>Ardha Chakrsana</i>	
		<i>Padahasthasana</i>	
		<i>Shavasana</i>	
4.	<i>Pranayama</i>	<i>Anuloma Viloma</i>	Daily (5 min) 10 cycles
		<i>Bhramari</i>	Daily (5 min) 20 Times
5.	Meditation & Relaxation	OM Chanting – “AA”, “OO” and “MAAA”	Daily (5 min) 15 times

### Dietary & Life Style Modifications followed from day One itself

1. Drinking warm water empty stomach soon after getting off the bed.
2. Avoiding water intake while having food and soon after food.
3. Drinking warm water after one hour of every meal.
4. Avoiding all cold food articles like ice creams, curd, cold water etc.
5. Keeping diet light, especially at night.

**Follow up and outcomes**

- Patient visited Yoga OPD daily at MDNIY for three weeks for regular follow ups.
- He had been regularly updating his status through phone too.

**Management**

The protocol introduced to the patient was mainly focused on head & neck, i.e., Ear, Nose and Throat. *Jal Neti* and *Sutra Neti* were primarily the main practices for clearing nasal passage and improving breathing followed by few simple *Yogic Sukhsma Vyayama* like *Uccharan Sthal Tatha Vishudh Chakra Shudhi*, *Buddhi Tatha Dhriti Shakti Vikasaka*, *Medha Shakti Vikasaka*, *Kapol Shakti Vikasak*, *Karna Shakti Vikasak* and *Griva Shakti Vikasaka 1, 2 & 3*. *Asanas*, like *Ardhachakrasana* and *Padahasthasana* were specific too for improving blood circulation to head and neck. This was further followed by the *Anuloma - Viloma* and *Bhramari Pranayama* for ten minutes each with slow pace. OM chanting was introduced in split letters as "Aaaaa" "Uuuu" and "Maaaa" in deep, prolonged and repeated manner for five minutes. The patient was instructed to continue the same at home during the weekends, so that there is no break in the practice. Patient was also given certain guidelines regarding his daily routine and dietary habits like avoiding cold and spicy food stuff and regular gargle with saline warm water.

**RESULTS**

The *Yoga* protocol was entirely focused on head and neck. Simple practices like *Jal Neti* and *Sutra Neti* had helped cleansing the nasal passage, followed by *Kapalabhati*, which further improved breathing. Patient experienced clear breathing and lightness on head.

Patient responded well to the practice and had slightly felt improved sense of balance and reduced sense of fullness after one week of therapy sessions. The end of second week brought some improvement in his hearing capacity and reduced pressure from the ears. Results are shown in Table 3.

The second week practice had shown more progressive changes by reducing sense of fullness, and better hearing capacity. The results are shown in Table.4

The third week practice has shown a stable recovery from the symptoms, he could hear sounds better. Patient had also been a part of group discussion in his family without being lost in the middle of conversation. The results are shown in Table.5

A graphical representation of symptoms and the effect of *Yoga* Therapy are illustrated in Graph 1 and Graph 2.

Patient had also reported better subjective feeling and had improved quality of sleep.

The results are shown in Table 3-5 with reference scale of symptoms.\*

**Table 3: Results showing improvement in Secretory Otitis Media condition after one week of Yoga Therapy session**

Complaints	Before Yoga Therapy	After one Week of Yoga Therapy
Hearing Loss	+++++	++++
Feeling of Fullness	++++	++
Pressure Feeling	++++	+++
Sense of Balance	+	++

**Table 4: Results showing improvement in Secretory Otitis Media condition after two weeks of Yoga therapy session**

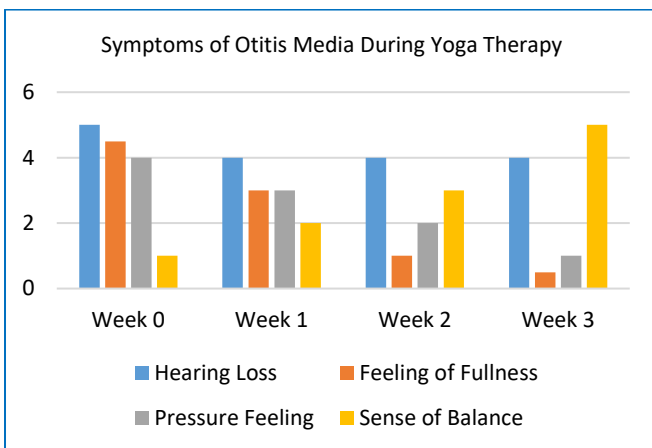
Complaints	After 1 <sup>st</sup> week of Yoga Therapy	After 2 <sup>nd</sup> week of Yoga Therapy
Hearing Loss	+++	++++
Feeling of Fullness	++	+
Pressure Feeling	+++	++
Sense of Balance	++	+++

**Table 5: Results showing improvement in Secretory Otitis Media condition after three weeks of Yoga Therapy session**

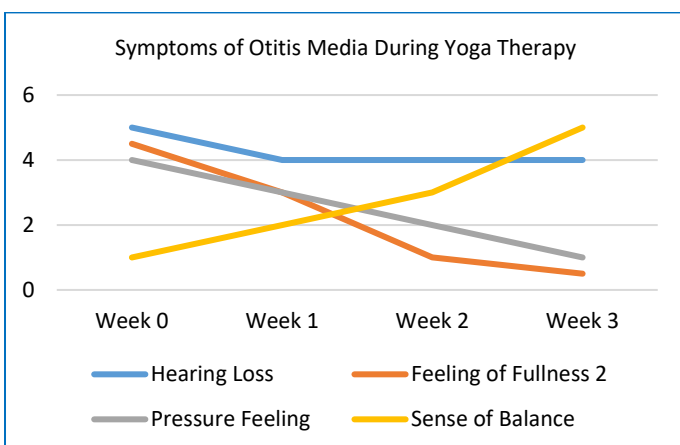
Complaints	After 2 <sup>nd</sup> week of Yoga Therapy	After 3 <sup>rd</sup> week of Yoga Therapy
Hearing Loss	++	+++
Feeling of Fullness	+	+
Pressure Feeling	++	+
Sense of Balance	+++	+++++

\*Reference scale: - Clear, + Minimal, ++ Mild, +++ Moderate, +++++ Severe

**Graph 1: Effect of Yoga Therapy on Secretory Otitis Media (From 02-03-2021 till 22-03-2021)**



**Graph 2: Effect of Yoga Therapy on Secretory Otitis Media (From 02-03-2021 till 22-03-2021)**



**DISCUSSION**

Yoga protocol was focused on head and neck with its specific practices for enhancing functioning of Ear, Nose and throat and awareness on breath. *Jal Neti* and *Sutra Neti* help in cleansing the nasal cavity, they also alleviate anxiety, heaviness from head & nasal passage and therefore ensuring the cleansing of the frontal, ethmoid, maxillary, and sphenoid sinuses.<sup>[3]</sup> As these sinuses are porous in nature and they retain air in them. However, retention of water in the sinuses causes many complications such as sinusitis. *Kapalabhati* is an effective practice to remove such retained water and clear nasal cavity.

Simple Yogic *Sukshma Vyayama* practices like *Ucharan Sthal tatha Vishudh Chakra Shudhi*, which improves blood supply around throat and removes the excess of phlegm from there. *Buddhi Tatha Dhriti Shakti Vikasaka* in sequence with *Medha & Smaran Shakti Vikasaka* had been found effective in improving concentration, breath awareness and in removing the excess of phlegm from the throat and clear nasal passage. *Kapol Shakti Vikasak* and *Karna Shakti Vikasak* do help in relieving the congestion and pressure from nasal cavity and ears. The neck movements exercises i.e., *Griva Shakti Vikasaka* - 1,2 & 3 make the neck muscles flexible, strong and well-conditioned by improving blood circulation and improved nerve functioning.<sup>[4]</sup>

Asanas, like *Ardhachakrasana*, *Padahastasana* were specific in improving blood circulation to head and neck. *Anuloma Viloima* and *Bhramari Pranayama* were probably helpful in bringing back sense of balance. A research says that we can augment hearing by preventing and regenerating (apoptosis) atrophy of auditory nerve and cerebral cortex by modified *Greeva*, *Skandh Chalan*, *Bhramari*, *Kumbhaka* along with mindful relaxation technique.<sup>[5]</sup>

The effect of *OM* chanting were quite encouraging in this patient, as found in a previous study about of Voice therapy which stated that *OM* Chanting provides a number of benefits, due to the vibrations /resonance produced by chanting, the nervous supply to the throat area is improved. In the same study it was also showed



that "OM" chanting strengthens the lung capacity, removes the stress. It may be one of the reasons which probably have helped the patient respond well to the practices and feel better.<sup>[6]</sup> Some other study tried to assess the identification in the early hearing loss in infants and elderly people by using Brainstem Evoked Response Audiometry (BERA). It is seen that if such technique is employed to diagnose before giving any *Yoga* intervention, would be very effective to modify practices accordingly to suit the patients who are not cooperative in nature.<sup>[7]</sup> There is another which by Taneja in which it is reported that sensory neural hearing loss is often seen in the people who are more exposed to the industrial hazards. It is also need of the time to make awareness in the society towards risk factors involved in the both conductive and sensory neural disorders in any age group people.<sup>[5]</sup> It was reported that if *Pranayama* practiced with *Kumbhaka* it helps to generate nitric oxide which helps in deafness. *Bhramari Pranayama* induces nitric oxide like other *yogic* practices. It also helps in improving immunity and senile degeneration including hearing loss due to aging processes in elderly people.<sup>[8]</sup>

Recently a study reported that there is more vulnerability to have deafness due to complication of respiratory virus infection. The study reported in the context of Covid-19 patients and suggested that suitable care, lifestyle modification and some *yogic Pranayama* practices need to be recommended to overcome and avoid such hazards. The patients with respiratory virus infection may be taken due care avoid to come hearing disorders, depression and neurological degeneration as reported in the study.<sup>[9]</sup> There are other factors which may be the cause of hearing loss and *Yoga* practices are very useful to cope up such problems. Due to noise auditory and non-auditory hearing disorders are occurring. Noise in non-auditory health induces stress plays vital role to disturb the physiological and behavioral aspects which creates a lot safety concern in patients. In auditory health issues, noise creates hearing impairments. It becomes more dangerous where people are more exposed to different types of industrial and occupation noise pollution.<sup>[10]</sup>

*Yogic* practices are supposed to induce parasympathetic dominance which helps to counter stress and mental tiredness. The integrated approach of *Yoga* therapy which encompasses *Shodhan Kriya* (cleansing practices), *Asanas*, *Pranayama*, dietary modifications and needed life style modification probably help treating secretory otitis media and also in conductive deafness in a progressive manner.

## CONCLUSION

Patient had been slightly relieved from his hearing loss and showed recovery from sense of fullness and pressure feeling in his first three week of *Yoga* Therapy sessions. Patient's sense of balance was improved. He showed a significant improvement in hearing loss after 6 weeks of *Yoga* practice and further stopped using his hearing aid machine. It is needed to explore further with scientific approach the impact and the extent of *Yogic* practices in overcoming hearing disorders in different age group patients and report the conclusion precisely.

## LIMITATIONS OF THE STUDY

The current case report is prepared only on one patient and researchers were not having full control over the routine of patient. Moreover, most of the self-reported data is included in this case as reported by patient.

## PATIENTS WRITTEN CONSENT

The written consent had been taken from the patient before intervention of all *Yogic* practices and the treatment procedures.

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