Sensorineural Hearing Loss and its Management through Ayurveda – A Case Study

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ABSTRACT:
Hearing is one of the primary modes of communication. Hearing loss is one of the most common sensory deficit and it comprises a broad spectrum of clinical presentations. Impairment of hearing occurs when there is inability for sounds to be transmitted through or interpreted by our brain. Disorders of internal ear and auditory nerve will lead to sensorineural hearing loss (SNHL). The management of the SNHL is conventionally with rehabilitation with hearing aids and cochlear implants, and the option for pharmacologically treating the hearing impairment is limited. Hence there is need to lookback to our classical methods as told by our Acharyas for treating SNHL. In Ayurveda, hearing loss can be correlated to badhira, wherein many therapeutic procedures, formulations have been told by our acharyas for the successful management of badhira. So in the present case an attempt is made to treat a case of SNHL through ayurveda treatment strategy. Keywords: Badhira, sensorineural hearing loss, karnapoorna, hearing aids.

INTRODUCTION
Impairment of hearing can begin at birth(congenital) or it can occur over period of time (acquired) Noise induced hearing loss (NHL) can be through headphones, Tv, videogames. Acquired loss can be sudden or progressive. 360million people around worldwide have disabling hearing loss. Hearing loss can be of conductive hearing loss and sensorineural hearing loss, and mixed hearing loss. Disorders of external and middle ear result in conductive hearing loss, whilst the pathology of inner ear and auditory nerve, lesions of cochlea and auditory pathway will lead to sensorineural hearing loss. The cochlear diseases (sensory type) and cranial nerve (CN)eight and its central connections (neural type) results in SNHL.1 Lesions of eighth cranial nerve, and central auditory connections is referred to as retrocochlear hearing loss. Sensorineural hearing loss is caused by degeneration of cochlea, a sensory organ for hearing2. Among various types of cochlear cells, hair cells which convert sound stimuli to neural signals is the therapeutic target for developing therapeutics. Approximately one among three people between the age group of 60 and 74 has hearing loss3. In India as the conventional methods employed for the
treatment of SNHL are hearing aids and cochlear implants which are not easily convenient to the common people, hence ayurvedic methods of management of badhirya serves as the cost effective and easier mode of administration. In Ayurveda, due to negligence of karnanada, the vitiated vata dosha along with kapha dosha blocks the various sound carrying channels (shabdavaha srotas) in the initial days gradually it may lead to badhirya. In badhirya the treatment measures told for vataja karnashoola can be adopted. In shleshmaanubandha conditions (kapha associated as a secondary dosha) it has to be eliminated through vamana then followed by nasya, tikshna dhumapana. As per the involvement of the dosha, snehana, svedana, nasya, shirobasti, and basti treatments can be adopted. Samanya cikitsa of all the karna rogas as per acharya sushruta is ghritatpana and intake of rasayana. Karnapoorana with bilvadi taila, ajadugdhasiddha taila etc, is told by acharya sushruta as the specific line of management of badhirya.

MATERIAL & METHODS

Case study:
A 37-year-old male patient, with the complaints of reducing hearing in both ears associated with ringing sound since 2 months, approached to shalakya opd at SJIIM, Bengaluru.

History of present illness
Patient was apparently normal 5 months back, gradually he developed reduced hearing sensation in both the ears associated with ringing sound in ears (tinnitus) for which he consulted in the nearby ent hospital and was suggested to get the pure tone audiometry test. For further treatment the patient approached ayurveda hospital.

History of past illness
Patient is not a known case of DM/HTN. Family history: Nothing significant.
Personal history:
Appetite - loss of appetite
Sleep - sound
Bowel - regular
Micturition - 5-6 times/day

General examination
Ashtasthanapareeksha
• Nadi: 72/min
• Mutra: 5-6 times/day
• Mala: prakruti (1t/d)

• Jihwa: Alipta
• Shabda: vikruta.
• Sparsha: prakruti
• Druk: prakruti
• Akruthi: Madhyama

Vitals
• Pulse rate:- 72/min
• Respiratory rate:- 24/min
• BP:- 110/80 mmHg

Systemic Examination
Respiratory system, Cardiovascular system, Central nervous system and musculoskeletal system has shown no abnormality.

Assessment of hearing: It was done through pure tone audiometric tests.

Examination:
On otoscopic examination: Table 1
Tuning fork test: Table 2
Diagnosis:

PTA before treatment in Rt.ear: 25db, Lt. ear: 31.2db. PTA after treatment Rt.ear: 17.5db, Lt.ear: 11.25db

RESULTS

After 5 months of the treatment procedure, there was quite good improvement in the symptoms of hearing loss and tinnitus also reduced. Audiometric test reports before and after the treatment are depicted in figure a,b respectively. PTA before treatment in Rt.ear :25db, Lt. ear:31db. PTA after treatment Rt.ear: 17.5db, Lt.ear:11.25db Fig.1. PTA report: Before treatment Fig.2. PTA report: After treatment

DISCUSSION

Nasya with anuta taila helps in clearing the obstruction to the channels (srotorodha) and thereby helps in improving the function of karnendriya. In Astanga sangraha it is
explained that nasa is gateway to shiras(head) hence the
drug of nasya administered through the nose reaches
shringhataka marma and spreads to ear, eye. Hence Nasya
is the best method to eliminate the vitiated doshas from
uttamanga. Karnapooran is the best remedy for karna
rogas. The oil that is used for karnapoorana here is bīlwa
taila which cleanses ear canal and reduces hearing loss and
tinnitus. Daily Practice of Pratimarsha nasya with
anutaila keeps the sensory organs healthy and prevents
deafness. Shiro pichu is a procedure which is one among
murdhini taila, and it’s a form of bahya snehana which can
be followed to control vata dosha which is affected in the
badhirya. Shiropichu has indriya tarpana and balya action.
Cap.kbt101 is nervine tonic. Ashwagandha lehya is balya
and rasayana. Rasmadashamoola Kashaya helps in
reducing the vitiated vata dosha.

CONCLUSION
Impairment in hearing is the most common cause of
disability worldwide. Although in the conventional system
of medicine the management of snhl goes with hearing
aids, and cochlear implants, the exploration for the novel
pharmacotherapeutic measures remains the key challenge.
ayurveda has got unique methods to deal with snhl that is
through adopting treatments like nasya, karnapoorana,
shirodhara, talam, shiropichu etc. Through these
therapeutical procedures one can control the progress of
hearing loss and can maintain a good healthy hearing.

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Table 1 Otoscopy examination:

<table>
<thead>
<tr>
<th>Examination</th>
<th>Rt. Ear</th>
<th>Lt. Ear</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAC</td>
<td>Clear</td>
<td>Clear</td>
</tr>
<tr>
<td>TM</td>
<td>Visible Intact</td>
<td>Visible Intact</td>
</tr>
<tr>
<td>Cone of light</td>
<td>Seen</td>
<td>Seen</td>
</tr>
</tbody>
</table>

Table 2 Tuning fork test:

<table>
<thead>
<tr>
<th></th>
<th>Rt. Ear</th>
<th>Lt. Ear</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rinne’s test</td>
<td>Positive (AC&gt;BC)</td>
<td>Positive (AC&gt;BC)</td>
</tr>
<tr>
<td>Weber’s test</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Fig.1. PTA report: Before treatment
Fig. 2. PTA report: After treatment