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Case Study

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MANAGEMENT OF SENSORY NEURAL HEARING LOSS (W.S.R TO BADHIRYA) THROUGH AYURVEDA – CASE STUDY

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ABSTRACT

Sensory neural hearing loss occurs when there is a problem in the sensory apparatus - cochlea (sensory) or in the pathways of conduction of nerve impulses to the brain. Sensory neural hearing loss can be Peripheral and Central (auditory pathway or cortex). It can be congenital or acquired. Hearing impairment which commonly occurs in old age patients called presbycusis includes inability to interpret speech sounds, attempt manage the often producing a reduced ability to communicate, delay in language acquisition, economic and educational disadvantage, social isolation and stigmatisation. Bhadhirya can be understood as hearing loss generally. Since SNHL and badhirya hare common clinical presentations these two can be understood together. Modern rehabilitation strategies like hearing aid etc. are partly effective but underused. In Ayurveda lots of medicines are suggested to treat hearing loss which is found to be effective for treatment and prevention of hearing loss. Here in this case, we have made an attempt to manage case of SNHL through ayurveda medicines and treatment procedures to increase the quality of audibility.

KEYWORDS: Prebycusis, Badhirya, Auditary pathway.

INTRODUCTION

Sense organs and their functions are the important events for living being. Any interruptions may generate hurdles in life. Hearing impairment is the most frequent sensory deficit in human populations, affecting more than 250 million people in the world. Consequences of hearing impairment include inability to interpret speech sounds, often producing a reduced ability to communicate, delay in language acquisition, economic and educational disadvantage, social isolation and stigmatisation. Hearing loss is a partial or complete inability to receive and interpret sound stimuli in one or both ears. Hearing loss is categorized in to Conductive, Sensorineural and Mixed hearing loss on the basis of pathogenesis. Hearing loss may be mild, moderate, severe, or profound. It can affect one ear or both ears, and leads to difficulty in hearing conversational speech or loud sounds. WHO definition, "A person who is not able to hear as well as someone with normal hearing – hearing thresholds of 25 dB or better in both ears – is said to have hearing loss". Hearing impairment is the most frequent sensory deficit in human populations, over 5% of the world"s population – 360 million people has disabling hearing loss (328 million adults and 32 million children).[1] Hearing impairment is one such condition that has not much treatment modality. In India itself, 63 million people (6.3%) suffer from significant hearing loss.[2]

According to WHO, the prevalence Over 5% of the world's population, or 466 million people – has disabling hearing loss (432 million adults and 34 million children). It is estimated that by 2050 over 900 million people – or one in every ten people – will have disabling hearing loss. 1.1 billion young people (aged between 12–35 years) are at risk of hearing loss due to exposure to noise in recreational settings. Unaddressed hearing loss poses an annual global cost of 750 billion international dollars.[3]

Causes of SNHL can be explained as follows. The primary classification of the SNHL is done as Acquired and Congenital. These two may originate from different causative factors. These are enumerated in below table.

Table No.1 Sensorineural Hearing Loss. (SNHL)[4]

ACQUIRED	CONGENITAL
Aging-Persbycusis	**Maternal infections during pregnancy**- TORCH, Syphilis,
Infections of Labyrinth-Viral or bacterial	Medications during Anti natal period- Particularly antibiotics such as Streptomycin, Gentamycin, Chloroquine.
Trauma to CN- VIII- Fracture of temporal bone, vestibulocochlear injury.	
Ototoxic drugs- Specifically, gentamycin, streptomycin	
Endolymphatic hydrops-Primary or idiopathic, secondary.	
Noise inducing hearing loss- can be caused by exposure to a one item loud noise such as explosion/gunfire sounds> 85 decibels over an extended time.	
Tumors – Acoustic neuroma	
Systemic disorders- Diabetes, Hypothyroidism, Renal diseases, Multiple Sclerosis etc.	

When the treatment approach considered, includes appropriated hearing aids, which is just a partial solution not the complete cure. Untreated SNHL may lead to social isolation due hearing disability, depression etc. People with hearing loss benefit from early identification, use of hearing aid, cochlear implants, other assistance devices, captioning and sign language. These may be partial solution but not complete one.

Parallel to this Hearing loss, Badhirya is similar to this in Ayurveda. Badhirya- as word Badha‟ means obstruction. The obstruction to perception of hearing is called Badhirya in Ayurveda. This can be understood with hearing loss, specifically SNHL, since they share common clinical presentation. Acharya Sushrut has mentioned 28 Karna rogas and Bhadhirya is one of them.[5] This condition is mainly characterized by srotorodha due to predominance of vata or vata kapha dosha.[6] The vata dosha is predominant in old age, the definite cause of badhirya will be the habitualness of vata dosha.

The diagnosis can be done, while taking history it is important to know whether disease is congenital or acquired, stationary or progressive, associated with other syndromes or not. Various hearing assessment tests like Rinne's Test, Weber's Test, Air Bone Conduction Test etc. reveals the type of hearing loss.

Pure Tone Audiometry is the main test assessing the type of Hearing loss with degree (mild, moderate, severe, profound or total loss). Tympanogram, BERA test are other audiometric tests also. Beside this, various laboratory tests depending upon on the aetiology suspected, e.g. X-rays or CT scan of temporal bone for evidence of bone destruction (congenital cholesteatoma), middle ear malignancy etc.), blood counts (leukaemia), blood sugar (diabetes), thyroid functions (hypothyroidism), kidney function tests, etc.

Objectives

This paper presents a case study of Sensory neural hearing loss (w.s.r to Badhirya) managed through Ayurveda.

MATERALS AND METHODS

A single case study, qualitative analysis.

Diagnostic criteria

Rinne‟s test
Webber test

Assesment criteria

Audiogram before and after treatment.

Approach about the case

A 81 year old male patient from upper middle class family, a retired government employee from Bengaluru was admitted on 09/02/2020, SDM Institute of Ayurveda & Hospital (SDMIAH), bearing OPD Number OP-209919 and IPD Number IP-009506 got admitted with complaints of reduced hearing in both ears since 4-5 years associated with tinnitus. Patient is not a known case of diabetes or hypertension. Patient refused using hearing aids which were advised by the audiologists.

Patient was asymptomatic before 6years, gradually developed reduction in audibility in both years, visited to many ENT hospitals for the treatment of the same and does not have relief. The Audiologists suggested to use hearing aids which the patient was facing discomfort with and refused to use. Then the patient approached SDMIAH Bangalore on 21/01/2020, Department of Shalyakya tantra for the first time, started with initial line of management. Patient found some sort of relief and

wanted continue the treatment. The patient does not have any eventful past history of illness.

General examination

- Pallor- Nil Pulse- 78 bpm
- Icterus- - 18 episodes/ min
- Cyanosis- Nil
- B.P. – 126/88 mm/Hg
- Oedema- Nil
- Temperature – 98.6ºF
- Weight-72 Kgs

Systemic Examination

No Abnormality detected in any system.

Local examination

Bilateral Ears: On local examination of the ear the pinna, external auditory canal and tympanic membrane were normal. Does not show any abnormality.

Tuning Fork test

1. **Renni's Test-** Positive for bilateral ears- Air conduction and bone conduction reduced.
2. **Webbers Test-** Positive for Bilateral ears.

The case was diagnosed as bilateral moderately severe sensori-neural hearing loss, with hearing threshold level in both ears between 61-80 dB hearing losses. The patient was unable to hear and understand even on shouting loudly. Routine haematological (haemoglobin, total count, differential count and erythrocyte sedimentation rate) investigations were done. The percentage of haemoglobin was normal.

Intervension

Therapies performed from 19-11-2019 to 28-11-2019

The treatment stared with Sadyovirechana, which was followed by Marsha Nasya, Karna poorana and Shirodhara. For the period of 9 days.

Treatment Schedule

On 19-11-2020- Sadyovirechana with Trivruth Lehya-50gms with 200ml of warm milk as anupana at 8.30am.

From 20-11-2020 to 28-11-2020

- Nasya with KB 101 thaila 10drops in each nostril-7days
- Kapoorana with Ashwagandhabalakshadi taila-15drops for each ear-20min/day-9days
- Shirodhara with Bramhi taila and Ksheera bala Taila (Equal quantity)-30min/day-9days

Shamanoushadhi (Oral medications) from 20-11-2020 to 28-11-2020

- Tab Sukumara rasa 1-0-1 A/F
- Cap. Ashwagandha 2-0-2 A/F
- Balaguduchyadi Kashaya 15ml-15ml-15ml A/F (with equal quantity of water)
- Cap.Kheerabla 101 2-0-2 A/F

Advise on discharge

At the time of discharge certain Shamanaoushadhis were prescribed along with Pathayahara and Vihara. Follow up visit was advised after one and half months. The patient is advised to take the below mentioned medicines for the period of one half month. And again Oral medication continued up to 4month.

- Tablet Sukumara Rasa 1-0-0 empty stomach with honey
- Cap.Ashwagandha 1-1-1 A/F
- Balaguduchyadi Kashaya 10ml-10ml-10ml A/F
- Cap. Ksheerabala 101 2-0-2 A/F

RESULTS

The regular oral medications continued for 4 months with regular follow up visits.

The audiogram was done before and after flow up treatments. Reports are displayed. His audibility increased. Complaint of tinnitus reduced completely.

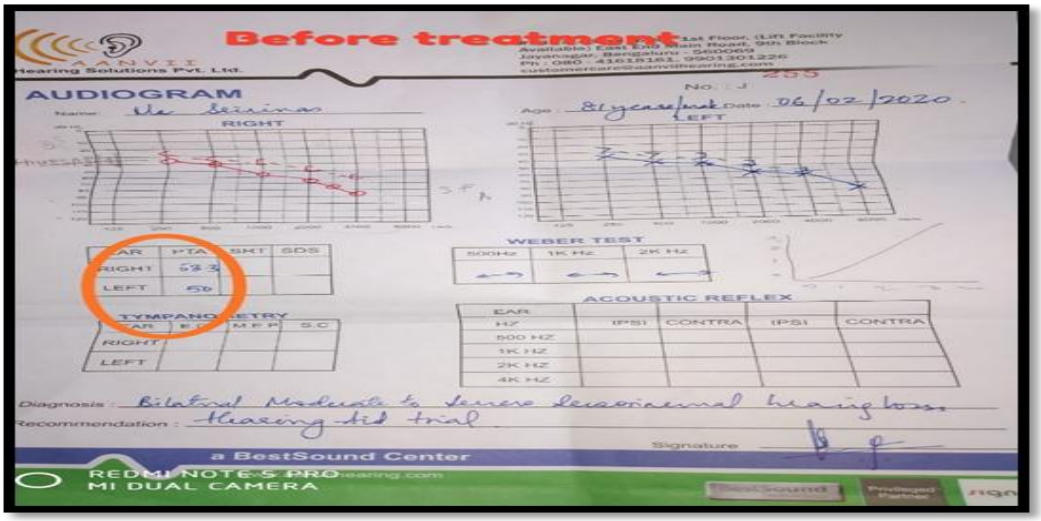

Figure 1.

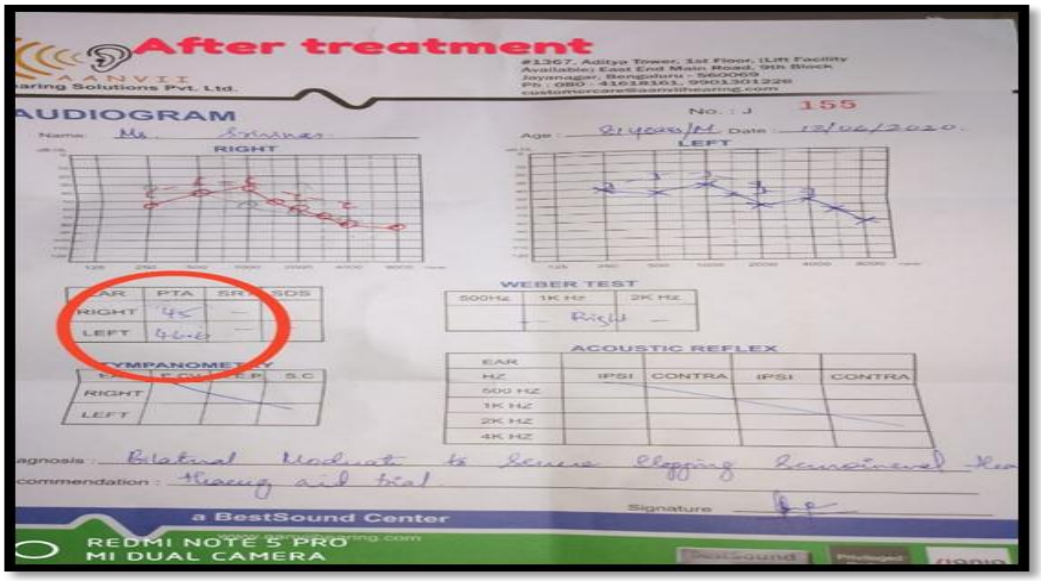

Figure 2.

DISCUSSION

Badhirya (SNHL) is one of the most common ENT disorder and it is one of the challenging problems of all ENT surgeon's, the disease look simples but it doesn't bring satisfactory relief to the patients after repeated visiting the ENT clinic. Thus, the treatment adopted for Badhirya in modern system of medicine has not been satisfactory. Surgical intervention (cochlea implant) is rare in these cases and performed only when presented with complications. As karna (ear) is the sthana of vata, any disturbance in the habitualness and normal circadian starts producing the abnormality. In treatment protocol vata has to be addressed, the "Vata Vyadhi Chikitsa" sootra can be implemented as a management of Badhirya. This case study is a representation of outstanding efficacy of Ayurvedic treatment management. As general management bhadhirya is concerned Ayurveda also offers different kind of treatment modality in the management of Badhirya. E.g. Ghritapana, Rasayanasevana, Nasya, Snehana, Swedana, Snehavirechana, Sirobasti, Karnapurana, Jalaukavacharana etc, kaviraj atridev gupta, with Chaukhambha krishnadas academy, Vagbhatta, " Aśtang Samgraha", with hindi commentary, Varanasi, reprint 2005, uttaratamtra.[8] Amongst all the treatment measures, the Nasya, Karna poorana and shirodhara given importance. Shiras (head) is considered as uttamanga which is the hosts all sensory neural, motor and all the voluntary and involuntary functions of the body. And this is seat of vata. Any vitiation of vata, has to be addressed through uttamanga. Along with this the sthanika chikitsa (localised treatement) for the indriya (sense organ) to be implemented for better result.

As mentioned earlier that the signs and symptoms of Hearing loss can be correlated with Badhirya in Ayurveda. Badhirya is due to vitiation of Vata and Kapha Dosha.[9] Here in this context the treatment receiving subject is old age male where vata dosha is the predominant and involvement of kapha is negligible. So the treatment protocol and medicines selected for treatment procedures are Vatahara, Rasayana and Brimhana.

Nasya with Ksheerbala oil which is avarthitha (fortified) does the vata shamana and brimhana by reliving the srothorodha caused due to the deranged vata dosha. The Nasya karma probably stimulates the auditory area in the brain there by aids the improvement in audibility. Improves the function of indriyas (karnaindriya) also. Karna poorana with Ashwagandha bala lakshadi taila cures the localised derangement of vata and does vata shamana. The drugs Ashwagnadha, Bala and Laaksha have proven their efficacy as Nervine tonics and improves the motor and sensory functions. Shirodhara with Ksheera bala and Brahmi taila also aids the vata shamana, and brimhana actions. Along with that this acts as sthanika chikitsa for vata sthana. As Shringataka marma in shira is the junction of all sense organs like eye, ear, nose and any medicine applied over this area targets the vitiated doshas related to all sense organs and helps in nourishment of nerves connecting to these areas.

The oral medications advised such as Sukumara rasa which is having swarna bhasma, rajatha bhasma and vatashmaka drugs acts as rasayana and also improves sensory neural function. The fortified ksheerabala capsules along with Balaguducyadi Kashaya also acts as vata shamana in uttamanga. These all treatment started with sadyovirechana which helps alleviating morbid doshas instantly and increases the absorption of the medications which advised in later stages.

CONCLUSION

Hearing loss may produce derivation of quality life of a human being. In old age the life of the person becomes miserable with diseased condition. Badhirya can be easily understood with Sensory neural hearing loss.

Exclusion from communication can have a significant impact on person‟s life, they may suffer from social stigmatization, feeling of loneliness, frustation and isolation as a result of hearing impairment. Ayruveda gives promising results in such cases. Here in this case we have got promising result and increased audibility after treat and regular follow up more 4months duration. This has eased the patient's life.

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