

Achieving Success in the Treatment of Complete Denture in a Hearing-Impaired Patient during Covid-19 Pandemic Using Visual Aids – A Case Report

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INTRODUCTION

Ear nose and throat (ENT) disorders are one of the major concerns for which individuals seek treatment at primary health care centres in rural as well as urban sectors of the society. Amidst ENT, diseases of hearing impairment is the most common sensory disorder recognized in younger and older individuals.

Hearing impairment is a condition in which patients are fully or partially unable to detect some frequencies of sound that are perceived by normal population of patients.¹ It is seen commonly throughout the globe, and is predicted that 50 % of all deafness and hearing impairment is avertible. Although not being fatal, the implications of such impairment at personal, familial and communal level and the distortion it causes to the health and wellbeing of other lives is considerable. The out reaching implications of hearing loss in context to development of communication skills and also in terms of socio-economic consequences calls for an urgent demand to highlight magnitude and severity of the problem for such individuals. As per the report by World Health organization (WHO) dated, 1st march 2020; more than 5 % (466 million individuals) of the world's population have disabling hearing impairment problems and estimated that by 2050 one in every 10 individuals will suffer from disabling hearing impairment problems.²

The Indian rural population is also suffering from the rising number of ENT associated problems. Due to scarcity for provision of effective services and training in otolaryngology, audiology, and speech therapy which reflects the gap between healthcare services and high-income group regions and low-income regions with shortfall in services in such sectors.

Dental treatments of hearing-impaired individuals become difficult especially in the geriatric edentulous patients being treated for removable prosthesis; complicated more by the coronavirus disease 2019 (Covid-19) pandemic. Many methods are made available or being rendered for an effective communication between the operator and the patient. The dentist needs to be sensitive to the nonverbal mode of communication such as facial expressions and postural movements as a mode of conveying messages. Conversing with the patients in the current times wearing facemasks and protective shields over the personal protective equipment (PPE) kits pose a challenge and risk for transfer of infection. Hence use of a better aid in having a communication with the patient with hearing impairment becomes mandatory.³

This case report describes visual aid method in prosthetic rehabilitation of a hearing-impaired patient during Covid-19 outbreak. The challenge of communication with the patient in terms of execution of jaw and tongue movements during impression making was overcome using visual presentation aid which helped patient develop a positive approach towards the treatment and seek the treatment more effectively and efficiently.

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PRESENTATION OF CASE

A 69-year-old male patient reported to the department with a chief complaints of missing teeth in his maxillary and mandibular arch and inability to chew. Patient was a retired ex-serviceman (worked in the arms and ammunitions department). He is suffering from hearing loss since past 40 years and got treated with a hearing aid for the same; still unable to hear and only could understand and reciprocate by lip movements. Patient demanded complete dentures in the maxillary and mandibular arch. Medical history showed no relevant signs and symptoms and had habit of tobacco consumption sine past 22 years and consumes the same twice daily. No familial history or prevalence of hearing impairment. Intraoral examination showed completely edentulous high well-rounded maxillary and mandibular arches.

DISCUSSION OF MANAGEMENT

Since it was difficult to communicate with the patient, he was accompanied by his son for history taking and other relevant information regarding the patient and consent for taking photographs was obtained; consent was obtained from the patient and his son as well. He was then referred to the Department of Ear, Nose and Throat, Krishna Institute of Medical Sciences; for the examination of his hearing loss and current status of the same. Audiometric tests were carried out, in which pure tone audiometry (PTA) test was done. Results of the test described that the patient had severe to profound mixed hearing loss (Figure 1 – Pure tone audiometry test results).

A Microsoft Office PowerPoint presentation of pre-recorded videos was made which included all the necessary jaw movements required for all impression making, maxillomandibular relations, try in and post insertion procedures respectively (Figure 4). Microsoft Office PowerPoint Presentation.

Primary impressions were made and a primary cast was obtained on to which a special tray was fabricated with self-cure acrylic resin onto which border molding was done and final impressions were made and a master cast was obtained. Record bases were made and rims were constructed for Maxillomandibular relations and the patient was guided accordingly maintaining all the precautionary measures. Teeth arrangement was done in Class I occlusion and was called for the try-in appointment with his relative for evaluation of the future definitive prosthesis. Both maxillary and mandibular dentures were fabricated using heat cure acrylic resin and denture insertion was done. All of the above procedures were carried out using the visual aid (Figure 4 - visual aid used in patient education and communication).

During insertion appointment, the pre-typed questions in the language comfortably spoken by the patient regarding the comfort and fit of the complete dentures were displayed on the laptop screen and patient was asked accordingly to respond (Figure 2 – patient evaluation using visual aid). Pressure indicating paste (PIP) was used to check for any intaglio surface irregularities and any pressure points and were corrected accordingly. Patient was satisfied with the adaptation and function of his complete dentures (Figure 5 -

Smile photograph post complete denture insertion). Recalls and follow up visits revealed no discomfort with the complete dentures in terms of comfort and function.



Figure 1.
*Visual Aid Used
in Patient
Education and
Communication*



Figure 2.
*Patient Evaluation
Using Visual Aid*

DISCUSSION

Deaf patients are at significant risk of having difficulties due to inability to being educated by the dental personnel. According to the data provided by World Health Organization (WHO), the prevalence of hearing loss amongst individuals in India is around 6.3 % (63 million individuals suffering from significant hearing loss). The prevalence of adult-onset deafness in India is 7.6 % and childhood onset is about 2 %. This has a primary effect on having a coordinated way of communication between the patient and the dentist. Many of the geriatric patients rely exclusively and / or partially on lip reading while some also depend on sign language and finger spelling. With the recent outbreak of COVID-19 pandemic, communication using the lip-reading technique requires removal of mask of the dental operator while coming in close contact with the patient can significantly increase the risk of transmission of the virus from the dentist to the patient and vice versa and treating geriatric patients for complete dentures after wearing protective equipment, communication with gets difficult.

Previous studies indicated use of lip-reading, sign language, hearing aids and writing; but none of them have used visual methods as an aid in treatment of geriatric patients.^{1,4,5} According to a study conducted by Garbin and collaborators⁶ the commonly used communication method was accompanying of a mediator who acted like an interpreter being a friend or a relative. But in order to follow guidelines prescribed for COVID-19, in the present case patients' relative was asked to wait in the waiting area.⁷

In this case to overcome all the shortcomings encountered in the previous studies, help of visual aid was taken to train the patient and explain him the movements related to tongue and jaw in context of fabricating a complete denture and by not infringing any safety precautions.

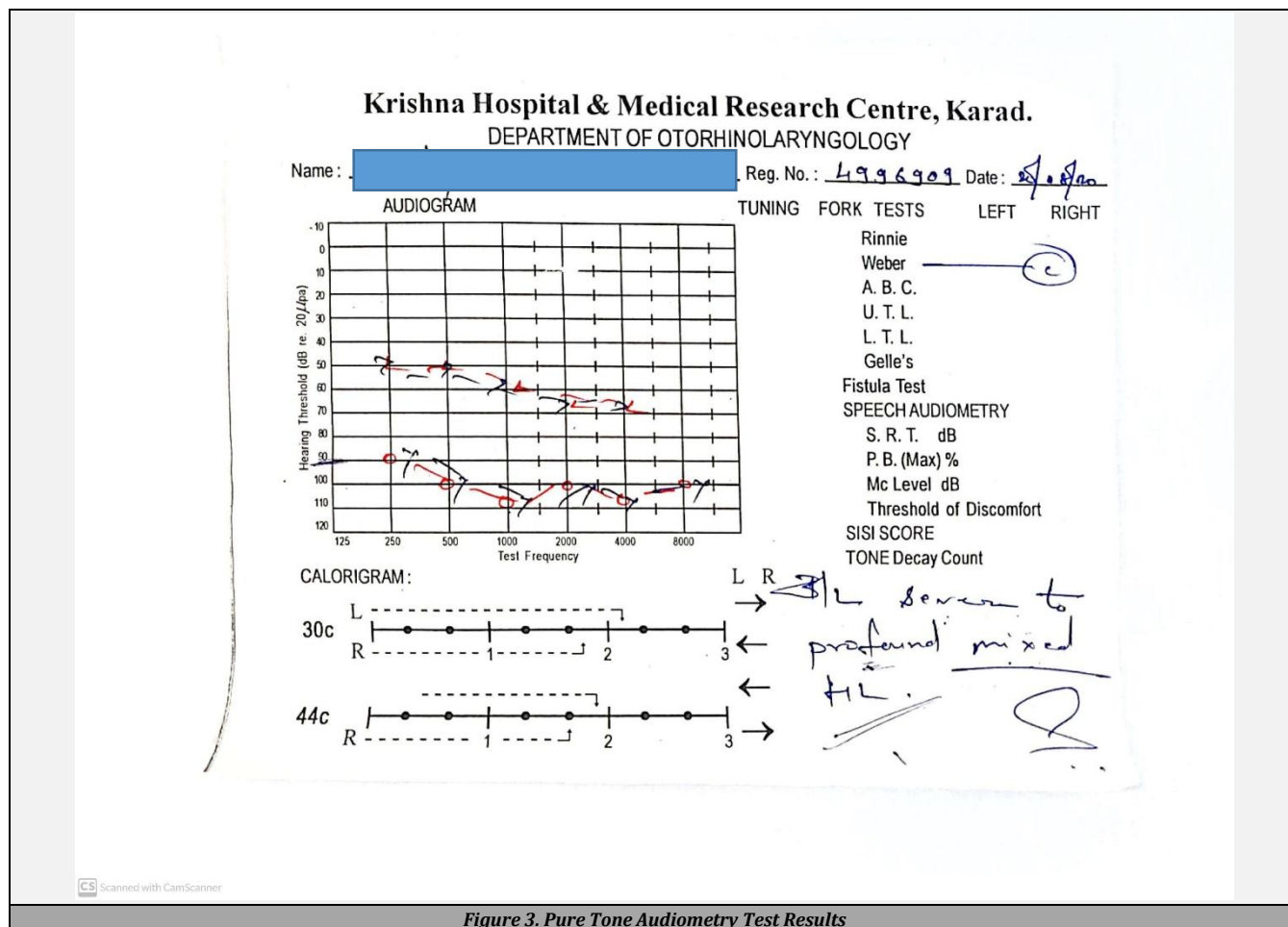
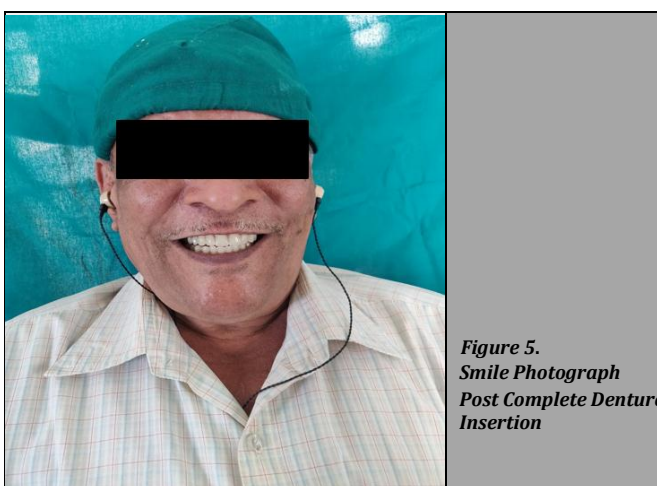


Figure 3. Pure Tone Audiometry Test Results



Figure 4. Movements to Be Performed



CONCLUSIONS

It is the prosthodontist who benefits from developing different strategies to manage and treat geriatric patients with hearing impairment seeking complete denture treatments that ensure effective consultation without modifying conventional methods. Hence, this case of complete denture was executed with the help of visual aid which influenced a better understanding of the treatment between the patient and the operator.

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