ORIGINAL RESEARCH PAPER

Volume-9 | Issue-3 | March-2020 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

EFFECT OF SITE AND SIZE OF PERFORATION OF TYMPANIC MEMBRANE ON HEARING LEVEL

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KEYWORDS

Chronic suppurative otitis media occurs as a result of persistent and recurrent middle ear cleft infection. The most common characteristics being perforation and otorrhea. Commonly perforations are a sequel to chronic middle ear infections, grommet extrusion or trauma. Causes and pathogenesis of CSOM are acute otitis media, viral or bacterial infection, familial disposition and immunological factors.

In a study done by Susan V Woss et al, on How tympanic membrane perforation affects transformer mechanism of the ear, the relationship between perforation and hearing loss was studied which said that initially hearing is affected for low frequencies and increases as perforation size increases, does not depend on the size of the perforation. In a study done by Issam saliba et al.,Tympanic membrane perforation: site , size and hearing evaluation had mentioned that the posteroinferior quadrants have a higher impact on degree of hearing loss due to their close proximity to round window. It should also be noted that a large variation in hearing loss was not found between postero-inferior quadrant and antero-inferior.It was also found that in their study small perforations had nil to minimal impact on the effect of hearing because low frequency sounds and their wavelengths are smaller that their middle ear dimensions, so phase cancelation effect of round window has minimal effect.

In various studies previously done to find the relationship between site and size of perforation in mucosal type of Chronic suppurative otitis media with the associated hearing loss ,a majority of them were found to be favouring no direct relationship between site and size of perforation of tympanic membrane with hearing loss. While a few studies supported that size of the perforation did have a linear relationship with the degree of hearing loss.This discrepancy in these studies were due to many factors, whether endoscopic or microscopic tympanoplasty was undertaken, chronicity of infection which in turn leads to ossicular erosion and manipulation of ear by the patient.It was also seen that in all the studies central perforation, mostly posteroinferior quandrants were involved but of varying size. Therefore the site again did not show any relation to degree of hearing loss. In a study done by Sudhakar Vaidya et al. to study the outcomes in tympanoplasties in relation to site and size of perforation,gave a more precise data regarding the relationship between size of tympanic membrane perforation and hearing loss by measuring the size of the perforation intr-operatively, using a sheet in which a graph paper was printed 1x 1mm^2.This if implied in futhur studies in the same topic could yield to better accuracy of results.

Therefore to infer it can be noted that it was the size of the perforation rather than site of the perforation that plays a role in the degree of hearing loss.

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