DOI: https://doi.org/10.53350/pjmhs20231709247

ORIGINAL ARTICLE

Hearing Improvement after Grommet Insertion Amongst Patients of Secretory Otitis Media

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ABSTRACT

Background: Since our ability to communicate is significantly reduced without hearing, it is possible that hearing is the most significant sense in human nature.

Objective: To determine the Hearing Improvement after Grommet Insertion amongst Patients of Secretory Otitis Media

Methodology: This Quasi- Experimental study was conducted at the Department of ENT, Bolan Medical College / Complex Hospital, Quetta from February 2023 to July 2023 after taking approval from the research committee of the institute. Totally 40 patients were included in this study. A non-probability sequential sampling strategy was used to examine 75 ears with secretory otitis media for grommet implantation. A microscope examination was performed on both ears. The patient had tympanometry and preoperative PTA. A 20–40 dB hearing loss was deemed substantial. A grommet was positioned in the anterior inferior quadrant of the tympanic membrane during the procedure, which was carried out under general anesthesia. Results were analyzed using SPSS version 23.

Results: Totally 40 patients were included in our study. The overall number of ears with secretory otitis media was 75. The male ears were 45 (60%) while female ears in our study were 30 (40%). In case of 15 (20%) ears, no hearing improvement was observed, improvement of 5-10 db was observed in 52 (69.33%) ears and improvement of 10-20 dB was observed in 8 (10.67%) ears.

Conclusion: Our study concludes that hearing improves significantly in patients with secretory otitis media after grommet implantation.

Keywords: Hearing; Grommet Insertion; Secretory Otitis Media

INTRODUCTION

Since our ability to communicate is significantly reduced without hearing, it is possible that hearing is the most significant sense in human nature. After all, what distinguishes humans from other animals is their higher capacity for communication[1]. Around the world, hearing loss is reportedly on the rise and is now the most common sensory disability in people. Pure tone audiometry is the "gold standard" for clinical hearing examination. The bulk of paediatric otolaryngology visits are related to otitis media, a common childhood issue. By the time they start primary school, up to 90% of kids are predicted to have had the illness[2]. Although less prevalent in adults, secretory otitis media is a common childhood condition[3]. The occurrence of middle ear effusion (MEE) without any obvious symptoms of infection is referred to as secretory otitis media, sometimes called otitis media with effusion (OME), serous otitis media, or "glue ear." OME often develops after an acute otitis media (AOM), whether diagnosed or not. It can also occur in conjunction with a blockage of the Eustachian tube without a previous clinical infection. The association between middle ear effusion and hearing impairment is well-established, however it is not always evident in younger children[4]. When hidden, it may manifest as learning, speech, or language issues, as well as sometimes as behavioural and academic issues. With myringotomy and grommet insertion, a child's hearing improves right away, his active learning process is unhindered, and he doesn't lose his pals. 3.1% of first-grade students and 1.5% of second-grade students were diagnosed with secretory otitis media[5]. OME is a problem that is crucial for the application of current evidence-based practice guidelines because of its higher prevalence, challenges in diagnosing and evaluating it, duration, and increased risk of conductive hearing loss, as well as its potential effects on language and cognition and notable variations in management practices[6]. Nowadays, the conventional surgical therapy for otitis media with effusion, sometimes known as "glue ear," involves inserting grommets into the tympanic membrane[7-9]. The purpose of the present research was to evaluate the improvement in hearing amongst patients with secretory otitis media in a tertiary care hospital after grommet insertion.

Received on 06-07-2023
Accepted on 26-08-2023

MATERIALS AND METHODS

This Quasi- Experimental study was conducted at the Department of ENT, Bolan Medical College / Complex Hospital, Quetta from February 2023 to July 2023 after taking approval from the research committee of the institute. Totally 40 patients were included in this study. A non-probability sequential sampling strategy was used to examine 75 ears with secretory otitis media for grommet implantation. The research included both sexes starting at age 5 who had a type B tympanogram and a clinical suspicion of secretory otitis media. The study excluded other concurrent ear conditions such acute suppurative otitis media and a history of ear surgery. The patient gave written and informed permission for the grommet insertion procedure and PTA. Every facet of the procedure was described. A thorough medical history was taken. A microscope examination was performed on both ears. Both ears' tympanic membranes were inspected for diseases, colour, and retraction. The patient had tympanometry and preoperative PTA. A 20–40 dB hearing loss was deemed substantial. A grommet was positioned in the anterior inferior quadrant of the tympanic membrane during the procedure, which was carried out under general anesthesia. Before the patient had been discharged from the hospital, postoperative PTA was performed once more. At 500, 1000, and 2000 Hz, the mean air conduction threshold was measured. The PTA was compared before and after the operation (the air bone gap was measured at 500, 1000, and 2000 Hz). Every piece of data was gathered using a pre-made survey. Results were analyzed using SPSS version 23. PTA before and after surgery were compared using the chi-square test. A P-value of less than 0.05 was considered statistically significant.

RESULTS

Totally 40 patients were included in our study. The overall number of ears with secretory otitis media was 75. The male ears were 45 (60%) while female ears in our study were 30 (40%). (Figure1) In our study, bilateral ear was involved in 35 (87.5%) while in only 5 (12.5%) patients, unilateral ear was involved. (Figure2) The involvement of right ear was observed in 41 (54.67%) cases while in 34 (45.33%) left ear was involved. (Figure3) The mean age (SD) of the patients was 15.8 (±6.81) years with minimum age of 8 and maximum age of 58 years. Ears in most patients 45(60%) were <12 years. Type B tympanogram and otoscopic findings were used

to diagnose the patients for secretory otitis media. Both the ears were evaluated for hearing and audiograms of pure tone were acquired. Mild (20-40 dB), moderate (40-60 dB) and severe (60-80 dB) degree hearing loss before surgery was observed in 7 (9.33%) ears, 67(89.33%) ears and 2(2.67%) ears respectively. Re-evaluation was done for all the patients and audiograms of pure tone were acquired after insertion of grommet. Mild (20-40 dB), moderate (40-60 dB) and severe (60-80 dB) degree hearing loss after surgery was observed in 60 (80%) ears, 15(20%) ears and 0(00%) ears respectively. (Figure4) In case of 15 (20%) ears, no hearing improvement was observed, improvement of 5-10 db was observed in 52 (69.33%) ears and improvement of 10-20 dB was observed in 8 (10.67%) ears.

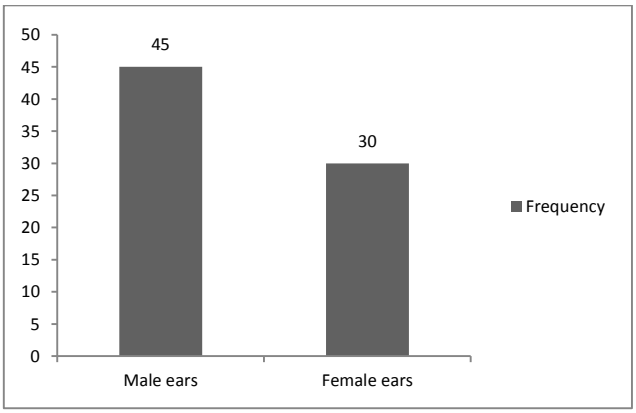

Figure 1: gender wise distribution of ears

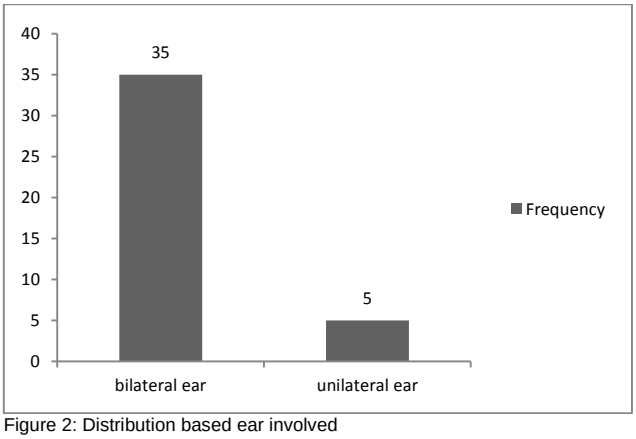

Figure 2: Distribution based ear involved

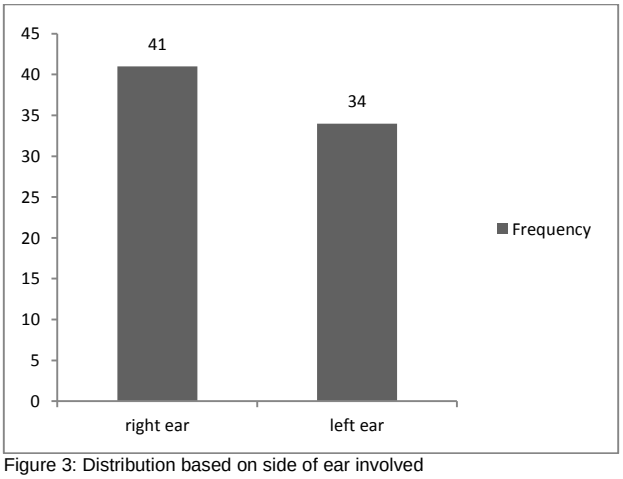

Figure 3: Distribution based on side of ear involved

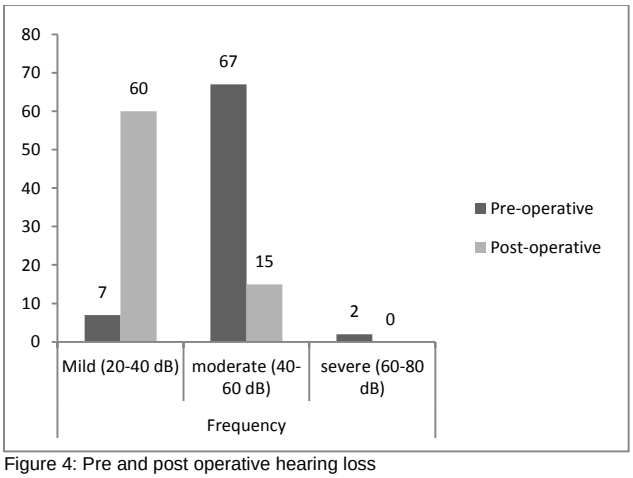

Figure 4: Pre and post operative hearing loss

DISCUSSION

The occurrence of middle ear effusion without any immediate infection-related symptoms is known as otitis media with effusion. OME may develop after an acute otitis media episode, whether it is known or not. Conductive hearing loss (median 25 dB) is associated with MEE. OME's functional consequence is conductive hearing loss, which has been linked to cognitive development, speech, and language problems[8,9]. OME during early childhood may have a deleterious impact on language development later on, according to prospective cohort studies[10,11], although other research did not uncover this correlation[12,13]. These results raise the possibility that OME is not a harmless illness that needs to be ignored. OME is a natural phenomenon, and its existence at some point throughout infancy is a typical finding, according to the high incidence and high rate of spontaneous resolution. In most cases, OME resolves on its own without the need for medical intervention[14,15]. Despite this, some children with OME can get chronic otitis media with behavioural issues, linguistic difficulties, and structural alterations (tympanic membrane retraction pockets, cholesteatoma, and erosion of parts of the ossicular chain). Pharmacologic treatment, surgery, and cautious waiting are among the management possibilities. The existence or danger of speech, language, or learning difficulties, as well as the degree of concomitant hearing loss, determine which approach is used and when.

In our study, Mild (20-40 dB), moderate (40-60 dB) and severe (60-80 dB) degree hearing loss before surgery was observed in 7 (9.33%) ears, 67(89.33%) ears and 2(2.67%) ears respectively. Re-evaluation was done for all the patients and audiograms of pure tone were acquired after insertion of grommet. Mild (20-40 dB), moderate (40-60 dB) and severe (60-80 dB) degree hearing loss after surgery was observed in 60 (80%) ears, 15(20%) ears and 0(00%) ears respectively.

The most often used medicinal treatments are steroids, decongestants, mucolytics, antibiotics, and antihistamines. There is no proof that these treatments are effective. Adenoidectomy, grommet (ventilation or tympanostomy tube) insertion, or both are surgical therapy options. Over the last 20 years, a number of prospective randomized clinical studies have shown the effectiveness of surgical therapy, namely VTs (Ventilation Tubes), often known as grommets. Surgery is now indicated when conservative therapy of OME fails[16]. Although a myringotomy (eardrum incision) will heal on its own in 72 hours, it takes time to reverse the middle ear pathophysiology[17,18]. Grommet placement keeps the myringotomy open and prevents it from closing too soon (temporary)[19]. There were certain restrictions on our investigation. The findings would have been more genuine had a bigger sample size been used. In terms of doing tonsillectomy and adenoidectomy on every patient, we did not standardize the process. However, as an end metric, hearing level is very

accurate. We did not investigate the long-term impacts; instead, we focused on the short-term hearing result. On the other hand, negative consequences such tympanosclerosis, atrophy, and retraction may result after tube implantation[20,21].

CONCLUSION

Our study concludes that hearing improves significantly in patients with secretory otitis media after grommet implantation.

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This article may be cited as: Khan AM, Masoom A: Hearing Improvement after Grommet Insertion Amongst Patients of Secretory Otitis Media. Pak J Med Health Sci, 2023;18(9): 247-249.