

Effectiveness of surgical treatment of otitis media with effusion as a silent killer of hearing in children: in Aden

Saleh Mohammed Abubakr Al-Shuaibi

Department of Special Surgery, Faculty of Medicine, University of Aden

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Abstract

The aim of the study was to assess the effectiveness of surgical treatment for otitis media with effusion (OME). It was designed as retrospective study and conducted in Aden during a period of six years. 132 children were diagnosed with otitis media with effusion. Males were 59.8% and females 40.2% and the mean age was 9.9 ± 2.8 years. Most of the patients were from rural areas (78.8%). The mean duration from starting symptoms was 11.3 ± 4.2 months. The most common cause was adenoids (45.5%). All preoperative tympanograms for both ears were type B.

The postoperative tympanogram was in the right ear 88.7% type A, 3.0% type B and 8.3% type C. In the left ear were 87.9% type A, 1.5% type B and 10.6% type C. The surgical procedures were adenoidectomy with tympanostomy tube, adeno-tonsillectomy with tympanostomy tube, and myringotomy with tympanostomy tube. The most frequent complication was myringosclerosis 12(9.1%). The mean of preoperative hearing threshold of the right ear was $33.7 \text{ dB} \pm$ standard deviation (SD) 16 dB, also for the left ear was $33 \text{ dB} \pm \text{SD } 15.7 \text{ dB}$ ($p < 0.05$).

The mean of postoperative hearing threshold of the right ear was $22.5 \text{ dB} \pm \text{SD } 11.2 \text{ dB}$, and for the left ear was $21.8 \text{ dB} \pm \text{SD } 10.8 \text{ dB}$ ($p < 0.05$). The hearing gain was 11.2 dB, and was equal in both ears.

We concluded that surgical treatment of OME in the form of myringotomy and tympanostomy tubes with adenoidectomy is effective, safe and rapid, helping to restore the hearing of child immediately after operation.

Keywords: Otitis media with effusion, surgical treatment, effectiveness, Aden

Introduction:

Otitis media with effusion (OME) is an inflammatory disorder of the middle ear that is characterized by the presence of endotympanic fluid without any sign or symptom of acute ear infection (2,5,13,28). Symptoms usually involve hearing loss or aural fullness but typically do not involve pain or fever. In children, hearing loss is generally mild and is often detected only with an audiogram (24).

OME is the leading cause of hearing loss in children. This condition is associated with delayed language development in children younger than 10 years, and the loss is usually conductive, with an average air conduction threshold of 27.5 decibels (dB), but otitis media with effusion has also been associated with sensorineural hearing loss (5,15,31).

Surgical intervention significantly improves the clearance of the middle ear effusion in this population, but the benefits for speech and language development as well as quality of life remain controversial (8,31).

Objective:

- To assess the effectiveness of surgical treatment

Materials and method:

This study was designed as a retrospective study. It was conducted in the ENT wards of Algamhoria Teaching Hospital and 2 private hospitals in Aden, during a period of six years, from January 2011 to December 2016.

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A focused history and physical examination of each child with OME was done. This includes age, sex, residence, duration of hearing, loss and symptoms of nasal obstruction, discharge and snoring during sleep. We used otoscopy for diagnosis of the middle ear effusion or to detect signs of acute inflammation. Audiogram was done for all children above the age of seven years and hearing was calculated from speech frequencies (500,1000,2000HZ). All surgical procedures were done under general anesthesia; site of myringotomy incision was in anteroinferior quadrant of tympanic membrane and was radial. We used short term tympanostomy tube (Grommet tube) for all patients except two patients with cleft palate who were treated by using long term tube (T-tube). Follow up of patients was done for one to two years postoperative with regular visits for most of the patients. Audiogram and tympanogram were done one year postoperative.

Data were processed and analyzed by computer using SPSS program version 17. Percentage was calculated as summary measure for the qualitative variables. Mean and standard deviation were calculated for quantitative ones to identify any significant relationship between the study variables. A p-value of <0.05 was considered statistically significant.

Results:

In the study years 2011 to 2016, a total of 132 patients were diagnosed with otitis media with effusion according to their medical records. Table 1 revealed that male patients were 79(59.8%) and females 53(40.2%) with the ratio of male to female of 1.5:1.

The age of patients ranged from 2.5to 16 years. The mean age of the patients is 9.9±2.8 years. The age group 10 to 12 years represents the high percent patients 70(53.0%) and the lowest percent is the age group 6 to 7 years with 9(6.8%). Children aged between 8 to 12 years represent 93(70.4%). Most of the patients were from rural areas 104(78.8%). The mean duration from starting symptoms was 11.3±4.2 months. The most common cause of otitis media with effusion were adenoids 60(45.5%), followed by adeno-tonsillitis 49(37.1%), and allergic rhinitis 20(15.2%).

Table 1: Distribution of means and variables frequency of study patients (no=132)

Items	Mean	No	%
Sex:			
Males		79	59.8
Females		53	40.2
Age (Range 2.6-16 years):			
Mean age of patients (years)	9.9±2.8		
Age groups (years):			
< 5		15	11.4
6-7		9	6.8
8-9		23	17.4
10-12		70	53.0
> 13		15	11.4
Residency:			
Urban		28	21.2
Rural		104	78.8
Duration from starting symptoms:			
Mean (months)	11.3±4.2		
Causes:			
Adenoids		60	45.5
Adeno-tonsillitis		49	37.1
Allergic rhinitis		20	15.2
Cleft		2	1.5
Sinusitis		1	0.7

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In Table 2, all preoperative tympanogram results for both ears were with type B tympanograms. On the other hand, the results of postoperative tympanogram were distributed between types A, B and C.

Table 2 and Figure 1 exhibited in the right ear 117(88.7%) postoperative tympanogram type A, 4(3.0%) type B and 11(8.3%) type C, while in the left ear the postoperativetympanogram were 116(87.9%) type A, 2(1.5%) type B and 14(10.6%) type C.

Table 2: Characteristics of tympanogram for both ears of the study patients (n=132)

Variables	No	%
Tympanogram:		
Preoperativetympanogram right ear		
B	132	100
Preoperativetympanogram left ear		
B	132	100
Posttympanogram right ear		
A	117	88.7
B	4	3.0
C	11	8.3
Posttympanogram left ear		
A	116	87.9
B	2	1.5
C	14	10.6

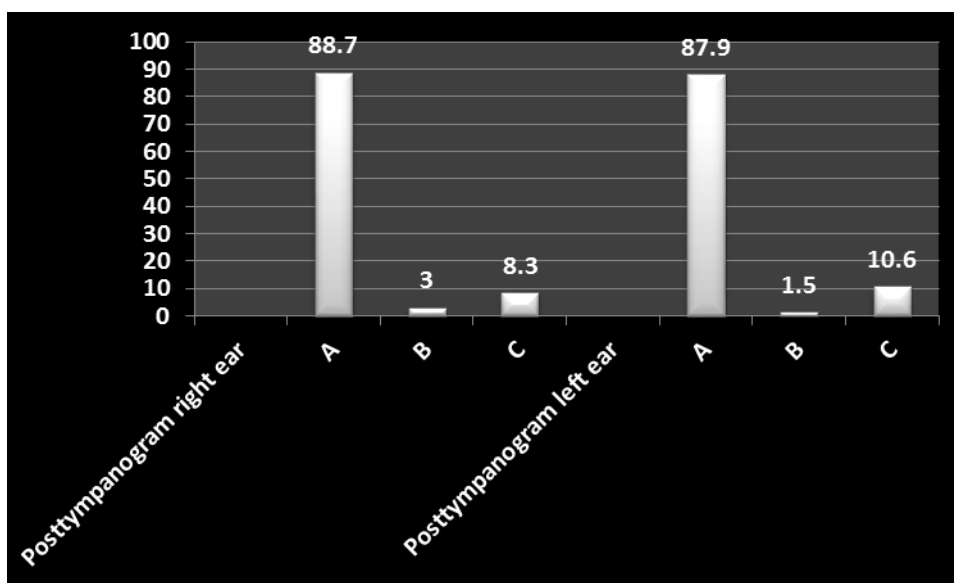


Figure 1: Proportions of postoperative tympanogram for both ears of the study patients

Tables 3 reveals that during the study period we performed the following surgical procedures adenoidectomy with tympanostomy tube 59(44.7%), adeno-tonsillectomy with tympanostomy tube 50(37.9%) and myringotomy with tympanostomy tube 23(17.4%).

The table also, reveals that 19(14.7%) of the cases were associated with complications. The most frequent, complication of otitis media with effusion was myringosclerosis 12(9.1%), post ventilation otorrhea both ears 4(3.2%), persistent tympanic membrane perforation 2(1.6%) and blocked tube with 1(0.8%).

Table 3: Distribution of types of surgical treatment and complications (n=132)

	No	%
Type of surgical treatment:		
Adenoidectomy with tympanostomy tube	59	44.7
Adeno-tonsillectomy with tympanostomy tube	50	37.9
Myringotomy with tympanostomy tube	23	17.4
Complications:		
No complications	113	85.3
Myringosclerosis	12	9.1
Post ventilation otorrhea both ears	4	3.2
Persistent tympanic membrane perforation	2	1.6
Blocked tube	1	0.8

Table 4 shows the means distribution of preoperative and postoperative threshold of hearing. The preoperative hearing threshold of the right ear varied from 30 dB to 55 dB with a mean of 33.7 dB ± standard deviation (SD) 16 dB, also the preoperative hearing threshold of left ear was between 30 dB to 50 dB with a mean of 33 dB ± SD 15.7 dB. The difference between values is statistically significant (p<0.05).

The postoperative hearing threshold of the right ear ranged from 20 dB to 45 dB, with a mean of 22.5 dB ± SD 11.2 dB. Also, for the left ear the hearing threshold ranged from 20 dB to 40 dB with a mean 21.8 dB ± SD 10.8 dB. There is association between values, (p<0.05).

Table 4: Distribution of pre- and postoperative hearing threshold in both ears

Variables	Mean ± SD (dB)	p-value
Preoperative threshold of hearing:		
Right ear	33.7 ± 16	P < 0.05
Left ear	33 ± 15.7	
Postoperative threshold of hearing:		
Right ear	22.5 ± 11.2	P < 0.05
Left ear	21.8 ± 10.8	

Table 5 describes the hearing gain in the right ear by subtracting the mean of postoperative hearing threshold from preoperative hearing threshold, and the result is 11.2 dB. Also, in the left ear the mean of preoperative hearing threshold was subtracted of postoperative hearing threshold and the result is 11.2 dB. The result was equal in both ears.

Table 5: Mean of hearing gain in the right and left ear of the study patients

Ear	Hearing threshold	Mean	Hearing Gain (dB)
Right ear	PreHRT* – postHRT***	33.7 – 22.5	11.2
Left ear	PreHLT** - postHLT****	33 – 21.8	11.2

* PreHRT = preoperative hearing threshold right ear; ** PreHLT = preoperative hearing threshold left ear; *** postHRT = postoperative hearing threshold right ear; postHLT = **** post operative hearing threshold left ear

Discussion:

OME is an important and common condition in pediatric age group. Other terms commonly used to refer to the same process include secretory otitis media, non suppurative otitis media, serous otitis media and glue ear. Following a discussion at an international symposium the terms OME and middle ear effusion (MEE) were adopted by consensus (22).

OME is the most common cause of hearing loss in childhood; it occurs more often during the period of language development and can affect it (14).

OME is defined as fluid in the middle ear without signs or symptoms of acute ear infection (28). Two thirds of children have had at least one episode of OME by the age of 3 years and in one third of them it is asymptomatic and the incidence varies according to geographical and race variation (7).

In the present study, we found a total of 132 patients were diagnosed with otitis media with effusion according to their medical records.

Males were significantly more affected than females; they were 79(59.8%) males and 53(40.2%) females with the ratio of males to females 1.5:1.

However, in studies that were conducted in Croatia (15), in India (29) and in Saudi Arabia (1) reported that males were more affected with OME.

In our study, the age of patients ranged from 2.6 years to 16 years and the mean age of the patients is 9.9 ± 2.8 years.

The age group 10 to 12 years represents the high percent of patients 70(53.0%) and the lowest percent is the age group 6 to 7 years, with 9(6.8%). Children aged between 8 to 12 years represent 93(70.4%).

Our results are inconsistent to those reported by Al-Humaid et al (1) from Saudi Arabia. They found that the mean age of children with OME was $8.1 + 3.8$ year and OME is significantly higher in 6-7years old children, compared to older (8-12 years) children. Our children were relatively older than the Saudi children.

Also, our results were not in agreement with the fact which Zielhuis et al (34) reported about it. They concluded that there are two peaks for the disease OME: one around 2 years and the other around 5 years, while OME generally decreases after the age of five, it continues to be seen in a significant proportion of school age children.

These differences of patients' ages could be related to the fact that most of our study patients were from rural areas. Also, it is related to the long period of the mean duration from starting symptoms was 11.3 ± 4.2 months.

In the current study, we found that most of the patients are from rural areas 104(78.8%). Similarly, Al-Humaid et al (1) found OME was more prevalent in rural district schools than in urban district schools. This can be explained by low socioeconomic status and less access to healthcare facilities.

Socio-economic factors that cause crowding, poor hygiene, poor education, inadequate nutrition, poor medical services and poor accommodation seem to increase the incidence and severity of the disease (3).

In the current study, the most common causes of otitis media with effusion were adenoids 60(45.5%) followed by adeno-tonsillitis 49(37.1%), and allergic rhinitis 20(15.2%).

Capaccio et al (6) reported in their published study that adenoidal hypertrophy and the closeness of the adenoids to the ostium of the Eustachian tube seem to be the most important factors in the pathogenesis of OME: they have recently found that adenoidal bacterial biofilms (recognized causes of OME) are significantly more prevalent near the ostium, thus suggesting that the adenoids are a reservoir for biofilm-producing bacteria that can spread through the Eustachian tube to colonise the middle ear (32).

Jeans et al (17) showed the growth of the adenoids outstrips that of the nasopharynx between the age of 3 and 5 years of life with a reduction in the nasopharyngeal airway. The nasopharynx beyond 5 years starts to grow faster, while the adenoid size remains relatively unchanged.

Mucociliary dysfunction can occur due to infection (nose, sinus, postnasal space, tonsils, and pharynx), allergy, immunological factors, surfactant deficiency, ultrastructural changes in cilia, fibrocystic disease, and hormonal factors among other factors (25).

Data from the literature show that allergy is a risk factor for OME (12) and those atopic children are more prone to OME recurrence after medical therapy (19).

In a published study by Passali et al (27) it was reported that children with persistent OME and nasal allergy were found to have tympanograms positive for Eustachian tube dysfunction, and there is a significant association between OME and persistent allergic rhinitis.

In our results, we found that all preoperative tympanogram for the right and left ear were with type B tympanograms. On the other hand, the results of postoperative tympanogram were distributed between types A, B and C.

As it appeared in Table 2 and Figure 1, that in the right ear 117 (88.7%) postoperative tympanogram were type A, 4(3.0%) were type B and 11(8.3%) were type C, while in the left ear the postoperative tympanogram 116(87.9%) were type A, 2(1.5%) were type B and 14(10.6%) were type C. Our explanation to the occurrence of type B is due to the finding of 2 patients with persistent tympanic membrane perforation and 2 patients (4 ears) were with patent T-tube of cleft palate patients, also for the type C it can be due to retracted tympanic membrane or Eustachian tube dysfunction and mostly were with allergic children.

When otoscopy suggests otitis media with effusion and is associated with a type B tympanogram, the combined sensitivity is 98 percent and when otoscopy suggests no otitis media with effusion and is associated with a type A tympanogram, the combined sensitivity is 98 percent (10).

During the study period, we performed the following surgical procedures: adenoidectomy with tympanostomy tube 59(44.7%), adeno-tonsillectomy with tympanostomy tube 50(37.9%) and myringotomy with tympanostomy tube 23(17.4%).

Surgical treatment in the form of myringotomy, adenoidectomy and ventilation tubes insertion are the commonest surgical procedures performed during childhood (30). Adenoidectomy is being increasingly used for the treatment of otitis media with effusion because many studies confirmed its effectiveness (26).

Tympanostomy is performed in case of highly viscous fluid in the middle ear that is difficult to aspirate to facilitate fluid elimination and improve hearing. At present, tympanostomy is rarely performed alone but is often followed by insertion of tympanostomy tubes (20).

Mandel et al (21) showed that myringotomy alone offered no advantage over, no surgery in terms of duration of middle-ear effusion, number of acute otitis media episodes, and number of subsequent surgical procedures. Tympanostomy tube insertion is the most frequently performed operation in children with OME all over the world.

The present study found the most frequent complication of otitis media with effusion is myringosclerosis 12(9.1%), post ventilation otorrhea both ears 4(3.2%), persistent tympanic membrane perforation 2(1.6%) and blocked tube with 1(0.8%).

The most frequent long term complication of grommet insertion is tympanosclerosis. A study by Tos et al (33) demonstrated tympanosclerosis in 59% on the side of grommet insertion compared to 13% on only myringotomy side. But hearing was not significantly deteriorated by tympanosclerosis. So, it should not be a strong argument against the insertion of grommet in OME patients. Myringosclerosis signifies an increase in collagen fibrils in the lamina propria, with hyaline degeneration and calcification and is a frequent complication of tympanostomy tube insertion (18).

Otorrhea usually has a trivial health impact and is easy treat. In our study, postventilation tube otorrhea was 3.2 percent and was early and is treated by local antibiotic-steroid drops, although Herzon (16) reported a 3.5 percent of persistent otorrhea. The frequency of persistent tympanic membrane perforation varies with the type of tube, and duration in situ is low with grommet tube and high with T-tube. Curley (9) reported the rate of 1-3 percent, in our study, the rate was 2 percent (two cases) one case heal spontaneously and the other case was treated with fat myringoplasty.

In our study, we found the preoperative hearing threshold of the right ear varies from 30 dB to 55 dB with a mean of 33.7 dB \pm standard deviation (SD) 16 dB, also the preoperative hearing threshold of the left ear was between 30 dB to 50 dB with a mean of 33 dB \pm SD 15.7 dB. The

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difference between values is statistically significant ($p < 0.05$). So, there was mild hearing loss in both ears among our patients.

Our study is similar to Fria et al (11) that reported the mean threshold for children with otitis media with effusion in the poorer hearing ears was 31dB.

The postoperative hearing threshold of the right ear ranged between 20 dB to 45 dB with a mean of $22.5 \text{ dB} \pm \text{SD } 11.2 \text{ dB}$. Also, for the left ear the hearing threshold it ranged from 20 dB to 40 dB with a mean $21.8 \text{ dB} \pm \text{SD } 10.8 \text{ dB}$. There is association between values ($p < 0.05$). So, the mean hearing gain was 11.2dB in both ears. Black et al (4) reported that ventilation tube alone will improve the hearing level by 9dB at six months and adenoidectomy has an additional effect of 3-4 dB. Other study (23) mentioned that children randomized to have ventilation tubes had a marked improvement three months following surgery of 12 dB, compared with non-surgical group.

Conclusion:

1. Surgical treatment of otitis media with effusion in form of myringotomy and tympanostomy tubes with adenoidectomy is effective ,safe and rapid ,helping to restore the hearing of child immediately after operation without significant complications.
2. The postoperative complications are rare and can be controlled, especially when the parent of the child applies the instructions and advices carefully.
3. Otitis media with effusion is a very common condition in our country specially in rural areas, and high altitudes due to cold climate and recurrent upper respiratory tract infection.
4. Otitis media with effusion is a painless condition that kills the hearing of the child in silent manner without alarming symptoms for parents to bring the child to ENT doctor.
5. Adenoid hypertrophy is the most common etiology that obstructs the Eustachian tube and leads to otitis media with effusion.
6. Due to the lack of education and bad traditional, especially in the rural areas, and fear of anesthesia many parents refuse the operation of myringotomy and came too late with adhesive otitis media difficult to treat surgically.
7. Many doctors ignore this medical condition, specially the general practitioner and pediatric specialist, this lead to late diagnosis of this medical problem.
8. When the child start to complain of diminution of hearing, many parents, specially non educated, consider that part of psychological behavior changes and not due to underline ear problem, this lead to late presentation of child to ENT specialist.

References:

1. Al-Humaid I, Humaid, Abou-halawa S, Ashraf, Khan A, Masood, Al-Hamamah SN, Al Duways AS, Alanazi MA. (2014). Prevalence and risk factors of Otitis Media with effusion in school children in Qassim Region of Saudi Arabia. *International Journal of Health Sciences, Qassim University*. V. 8(4): 325-334
2. Areias B, Parente MPL, Gentil SC, Natal Jorge RM. (2017). The human otitis media with effusion: a numerical-based study. *Journal Computer Methods in Biomechanics and Biomedical Engineering*. Vol. 20(9): 958-966
3. Black N. (1985). Causes of Glue Ear. *The Journal of Laryngology and Otology*. Vol. 99:953–966
4. Black NA, Sanderson CF, Freeland AP, Vessey MP. (1990). A randomized controlled trial of surgery for glue ear. *British Medical Journal*. Vol. 300; 1551-6.
5. Browning GG. (2008). Otitis media with effusion. In: Gleeson M et al. Eds.). *Scott-Brown's Otolaryngology Head and Neck Surgery*. (7th edn). Vol 1, Arnold, London, UK, 877-885.
6. Capaccio P, Torretta S, Marcianite GA, Marchisio P, Forti S, Pignataro L. (2016). Endoscopic Adenoidectomy in Children With Otitis Media With Effusion and Mild Hearing Loss. *Clinical and Experimental Otorhinolaryngology*. Vol. 9(1): 33-38,
7. Chan KH, Swarts JD, Rudoy R. (1993). Otitis media in the republic of Palau. *Archotolaryngol. Head Neck Surg*. Vol. 119: 425-28.

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8. Chibuikwe Nwosu, OB da Lilly-Tariah , Lucky Obukowho Onotai. (2017). Prevalence of Otitis Media with Effusion among Preschool Children in Port Harcourt, Nigeria. *Glob J Otolaryngol*. Vol. 4(4): 1-5
9. Curley JW. (1986). Grommet insertion ; some basic questions answered ,*Clin Otolaryngol*. Vol. 11: 1-4.
10. Finitzo T, Freil-Patti S, Chinn K, Brown O. (1992). Tympanometry and otoscopy prior to myringotomy ; issue in diagnosis of otitis media .*International Journal of pediatric otorhinolaryngology*. Vol. 24: 101-10.
11. Fria TJ, Cantekin El, Eichler JA. (1985). Hearing acuity of children with otitis media with effusion. *Archives of Otolaryngology*. Vol. 111: 10-16
12. Gultekin E, Develioğlu ON, Yener M, Ozdemir I, Külekçi M. (2010). Prevalence and risk factors for persistent otitis media with effusion in primary school children in Istanbul, Turkey. *AurisNasus Larynx*. Vol. 37:145–9.
13. Haggard MP, Cannon MM, Birkin JA (2007) Otitis media with effusion. In: Anil L, (Ed.) *Current diagnosis and treatment Otolaryngology-Head and Neck Surgery*. (2nd edn). Graw-Hill, New York, USA.
14. Hall AJ, Maw AR, Steer CD. (2009). Developmental outcomes in early compared with delayed surgery for glue ear up to age 7 years: a randomised controlled trial. *Clin Otolaryngol*. Vol. 34:12-20.
15. Handzic J, Radic B, Bagatin T, Savic A, (2012). Hearing in Children with Otitis Media with Effusion – Clinical Retrospective Study. *Coll. Antropol*. Vol. 36 (4): 1273–1277
16. Herzon FS. (1980). Tympanostomy tubes. Infectious complications, *Arch Otolaryngol*. Vol. 106: 645-647.
17. Jeans W, Fernando D. (1981). A longitudinal study of the growth of the nasopharynx and its contents in normal children. *British Radiology*. Vol. 54: 117-21.
18. Koc A, Uneri C. (2001). Sex distribution in children with tympanosclerosis after insertion of a tympanostomy tube. *Eur Arch Otorhinolaryngol*. Vol. 258:16–19
19. Lack G, Caulfield H, Penagos M. (2011). The link between otitis media with effusion and allergy: a potential role for intranasal corticosteroids. *Pediatr Allergy Immunol*. Vol. 22:258–66.
20. LIU Li-min, DONG Min-ming. (2008). Management of Otitis Media with Effusion. *Journal of Otolology*. Vol. 3(2): 68-75
21. Mandel EM, Rockette HE, Bulestone CD, Paradise JL, Nozza RJ. (1989). Myringotomy with and without tympanostomy tubes for chronic otitis media with effusion. *Arch Otolaryngol Head Neck Surg*. Vol. 115(10): 1217-1224
22. Margaret AK, Adriane DL. (2006). Epidemiology of otitis media with effusion. In: Byron JB, et al. (Eds.). *Head and Neck Surgery Otolaryngology*. (4th edn). Vol 1. Williams and Wilkins, New York, USA, 1297-1306.
23. MRC Multicenter Otitis Media Study Group. (2003). The role of ventilation tubes status in the hearing level in children managed for bilateral persistent otitis media with effusion. *Clin Otolaryngol*. Vol. 28(2): 146-53.
24. O'Connor SS, Coggins R, Gagnon L, Rosenfeld RM, Shin JJ, Walsh SA. (2016). Plain language Summary: Otitis Media with Effusion. *Otolaryngol Head Neck Surg*. Vol. 154 (2):215-25.
25. Ohashi Y, Nakai Y. (1991). Current concepts of mucociliary dysfunction in otitis media with effusion. *Acta Otolaryngol*. Vol. 486: 149-61.
26. Paradise JL, Bluestone CD, Rogers KD. (1990). Efficacy of adenoidectomy for recurrent otitis media in children previously treated with tympanostomy tubes placement. Results of parallel randomized and nonrandomized trials. *JAMA*. Vol. 263: 2066-2073.
27. Passali D, Giulio C, Passali GC, Lauriello M. (2014). Nasal Allergy and Otitis Media: A real correlation?. *SQU Medical Journal*. Vol. 14(1): 59-64
28. Rosenfeld RM, Shin JJ, Schwartz SR, (2016). Clinical Practice Guideline: Otitis Media with Effusion (Update). *Otolaryngol Head Neck Surg*. Vol. 154:S1-S41.

Effectiveness of surgical treatment of otitis mediaSaleh Mohammed Abubakr Al-Shuaibi

29. Sarkar S, Sadhukhan M, Roychoudhury A, Roychaudhuri BK. (2010). Otitis Media with Effusion in Children and Its Correlation with Foreign Body in the External Auditory Canal. *Indian J Otolaryngol Head Neck Surg*. Vol. 62(4): 346–349.
30. Senturia B H, Bluestone CD, Lim DJ, Saunders WH. (1980). Recent Advances in Otitis Media with Effusion. *Annals of Otol Rhinol and Laryngology*. Vol. 67: 440–467.
31. Thomas S Higgins. (2017). Otitis Media with Effusion. *Medscape*. Available from: <https://emedicine.medscape.com/article/858990-overview>
32. Torretta S, Drago L, Marchisio P, Gaffuri M, Clemente IA, Pignataro L. (2013). Topographic distribution of biofilm-producing bacteria in adenoid subsites of children with chronic or recurrent middle ear infections. *Ann Otol Rhinol Laryngol*. Vol. 122(2):109-13.
33. Tos M, Stangerup SE. (1989). Hearing loss in tympanosclerosis caused by grommets. *Arch Otolaryngol Head Neck Surgery*. Vol. 115: 931-935.
34. Zielhuis GA, Rach GH, van den Bosch A, van den Broek P. (1990). The prevalence of otitis media with effusion: a critical review of the literature. *Clin Otolaryngol Allied Sci*. Vol. 15:283-8.

فعالية العلاج الجراحي لالتهاب الأذن الوسطى مع صيب، القاتل الصامت للسمع في

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الملخص

هدفت هذه الدراسة إلى تقييم فعالية العلاج الجراحي لالتهاب الأذن الوسطى مع الصيب. وتم تصميمها كدراسة استرجاعية أجريت في عدن خلال فترة 6 سنوات. وقد تم تشخيص 132 طفلاً يعانون من التهاب الأذن الوسطى مع الصيب. وكان نسبة الذكور (59.8%) والإناث (40.2%) ومتوسط العمر هو 2.8 ± 9.9 سنة. معظم المرضى من المناطق الريفية (78.8%). وكان متوسط المدة من بداية الأعراض 4.2 ± 11.3 شهراً. أما السبب الأكثر شيوعاً فكانت الغدانية (45.5%). كما أن المخطط الطبلي قبل الجراحة للأذنين كان من نوع B. أما المخطط الطبلي بعد الجراحة فكان في الأذن اليمنى (88.7%) نوع A و (3.0%) نوع B و (8.3%) نوع C. وفي الأذن اليسرى (87.9%) نوع A و (1.5%) نوع B و (10.6%) نوع C. كانت العمليات الجراحية استئصال الغدانيات مع أنبوب الثقب الطبلي، استئصال اللوزتين والغدانيات مع أنبوب الثقب الطبلي، وشق طبلة الأذن مع أنبوب الثقب الطبلي. وكانت المضاعفت الأكثر انتشاراً هو تصلب غشاء طبلة الأذن 12 (9.1%). وجد أن متوسط عتبة السمع قبل الجراحة في الأذن اليمنى $33.7 \pm$ ديسبل الانحراف المعياري 16 ديسبل، كما كان للأذن اليسرى $33 \pm$ الانحراف المعياري 15.7 ديسبل ($P < 0.05$). وجد أن متوسط عتبة السمع بعد العملية الجراحية للأذن اليمنى $22.5 \pm$ ديسبل الانحراف المعياري 11.2 ديسبل، وللأذن اليسرى $21.8 \pm$ ديسبل $10.8 \pm$ ديسبل ($P < 0.05$). كان كسب السمع $11.2 \pm$ ديسبل ومتساوياً في كلا الأذنين.

نستنتج أن العلاج الجراحي لالتهاب الأذن الوسطى مع الصيب في شكل شق الطبلة مع أنبوب الثقب الطبلي واستئصال الغدانيات فعالة وآمنة وسريعة، مما يساعد على استعادة السمع للطفل مباشرة بعد العملية.

الكلمات المفتاحية: التهاب الأذن الوسطى مع الصيب، العلاج الجراحي، الفعالية، عدن.