Comparison of Rate of Recurrence of Otitis Media with Effusion (Otorrhea) in Patients Treated by Myringotomy and Tympanostomy Tubes with Patients Treated by Additional Adenoidectomy

Nighat Arif, Muhammad Ajmal, Nausheen Qureshi
Department of ENT, Holy Family Hospital and Rawalpindi Medical College

Abstract

Background: To compare the frequency of recurrence of otitis media with effusion in patients treated by myringotomy and tympanostomy tube insertion with patients treated by adenoidectomy, myringotomy and tympanostomy tubes.

Methods: In this comparative study patients with otitis media with effusion, who were selected for the study were divided into two groups. Patients in group A(n=52) underwent myringotomy and tympanostomy tubes, while in group B(n=50), the patients underwent adenoidectomy, myringotomy and tympanostomy tubes. There was history of OME of at least 3 months which did not respond to medical treatment and nasal obstruction (snoring, mouth breathing). Patients with previous history of ENT surgery and acute infection were excluded. Myringotomy was done by giving radial or circumferential incision about 2 to 3 ml in tympanic membrane under microscope. Shepard’s ventilation tube was used as grommet in all cases. Patients were scheduled for follow up at 01, 02, and 06 months postoperatively to assess the otorrhea. The diagnosis of otorrhea was based on otoscopic visualization of discharge exuding through the tube lumen after gently cleaning the external auditory canal. Episodes of otorrhea were treated with oral antimicrobial drugs and if persistent then with ototopical medication. Final outcome of the study were documented at 06 months.

Results: Mean age of patients was 3.2 ± 1.1 and 2.9 ± 1.2 years in group A and B, respectively. Mean duration of illness was 3.8 ± 1.2 and 4.1 ± 1.1 months in group A and B respectively. Recurrence of disease was more commonly present in male patients, patients with greater duration of illness and in group A patients. There was significant difference in recurrence rate of the disease in both groups (p-value= 0.0029<0.05). Age stratification indicates that the rate of recurrence dropped with advancing age in both groups. Gender stratification showed that recurrence of the disease is more commonly present in male patients in both groups. Recurrence rate was higher in patients with greater duration of illness in both groups.

Conclusion: There was statistically significant difference (p-value= 0.0029<0.05) in the rate of recurrence of otitis media with effusion (otorrhea) among the two groups with fewer cases of recurrence in group B who underwent adenoidectomy, myringotomy and tympanostomy tubes.

Key Words: Otitis media with effusion, otorrhea, adenoidectomy, myringotomy, tympanostomy tubes.

Introduction

Otitis media with effusion (OME) is a pathological condition in which an effusion is present in the middle ear behind an intact tympanic membrane without signs of acute inflammation.\(^1\) It is a common disorder in childhood.\(^2\) At least 80\% of children experience one or more episodes between the age of 4 years.\(^3\) Peak incidence of SOM is between 2 to 8 years.\(^4\)

There is a strong association between adenoid inflammation with OME.\(^5,6\) Dysfunction of eustachian tube is also believed to play an important role.\(^3\) Day care attendance, recurrent upper respiratory tract infections, bottle feeding and exposure to tobacco smoke are important environmental factors.\(^8\) Host factors include genetics, immunodeficiency and birth defects like cleft palate and Down syndrome.\(^7\) The most common clinical presentation of OME is conductive hearing loss with average conduction threshold reaching around 27 decibels.\(^6,7\) Medical treatment which includes antibiotics, decongestants and antihistamines should be given for 3 months for spontaneous resolutions.\(^4\) Surgical therapy is often considered by otolaryngologists if middle ear effusions persist for more than 3 months.\(^4\) Recurrence of OME (otorrhea) is a common and often stubborn
problem in young children who have undergone surgical treatment for OME. Many surgical treatments are used to minimize this problem. The use of adenoectomy in the treatment of OME includes possible improvement of Eustachian tube function because adenoid could cause Eustachian tube dysfunction by blocking the nasopharyngeal orifice of the tube. Then surgeons started performing myringotomy i.e incision in the tympanic membrane to suppress the reaccumulation of fluid in the middle ear. Modern technique is to place a tympanostomy tube, i.e grommet after myringotomy, to keep the middle ear aerated for a prolonged time and to prevent reaccumulation of fluid.

Patients and Methods

This study was conducted as a comparative study in Department of ENT and Head and Neck Surgery Holy Family Hospital, Rawalpindi from January, 2013 to July, 2013. Patients with otitis media with effusion, who were selected for the study were divided into two groups. Patients in group A(n=52) underwent myringotomy and tympanostomy tubes insertion, while in group B(n=50), the patients underwent adenoectomy, myringotomy and tympanostomy tubes. There was history of OME of at least 03 months which did not respond to medical treatment and nasal obstruction( snoring, mouth breathing). Patients with previous history of ENT surgery, acute infection and parents attendants not willing to participate in this study were excluded. Myringotomy was done by giving radial or circumferential incision about 2 to 3 ml in tympanic membrane under microscope. It is usually given in antero-inferior quadrant to avoid the risk of injury to the facial nerve and incudostapedial joint. Shepard’s ventilation tube was used as grommet in all cases. Patients were scheduled for follow up at 01, 02, and 06 months postoperatively to assess the otorrhea. The diagnosis of otorrhea was based on otoscopic visualization of discharge exuding through the tube lumen after gently cleaning the external auditory canal. Episodes of otorrhea were treated with oral antimicrobial drugs and if persistent then with ototopical medication. Final outcome of the study was documented at 06 months.

Results

In group A, 32 were male (62%) and 20 were female (38%). In group B there were 30 (60%) male patients and 20 (40%) female patients. Mean age of patients was 3.2 ± 1.1 and 2.9 ± 1.2 years in group A and B, respectively. Mean duration of illness was 3.8 ± 1.2 and 4.1 ± 1.1 months in group A and B respectively. Recurrence of disease was more commonly present in male patients, patients with greater duration of illness and in group A patients.

Table 1: Recurrence at 6 months post operatively

<table>
<thead>
<tr>
<th>Group</th>
<th>Recurrence at 6 months post op.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (n=52)</td>
</tr>
<tr>
<td>A</td>
<td>18(34%)</td>
</tr>
<tr>
<td>B</td>
<td>05(10%)</td>
</tr>
</tbody>
</table>

Chi square 8.859df= 1 p-value = 0.0029

Table 2: Age stratification

<table>
<thead>
<tr>
<th>Age Group</th>
<th>No of patients operated</th>
<th>No of patients with recurrence at 6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-3 year</td>
<td>31</td>
<td>32</td>
</tr>
<tr>
<td>4-5 year</td>
<td>21</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>50</td>
</tr>
</tbody>
</table>

Table 3: Gender stratification

<table>
<thead>
<tr>
<th>Gender</th>
<th>No of patients operated</th>
<th>No of patients with recurrence at 6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>32</td>
<td>30</td>
</tr>
<tr>
<td>Female</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>50</td>
</tr>
</tbody>
</table>

Table 4: Duration of illness stratification

<table>
<thead>
<tr>
<th>Duration of illness</th>
<th>No of patients operated</th>
<th>No of patients with recurrence at 6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>03-04 months</td>
<td>30</td>
<td>31</td>
</tr>
<tr>
<td>05-06 months</td>
<td>22</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>50</td>
</tr>
</tbody>
</table>

Statistical test showed significant difference in recurrence rate of the disease in both groups ( p-value= 0.0029<0.05)(Table 1). Age stratification indicated that the rate of recurrence drops with advancing age in both groups ( Table 2). Gender stratification showed that recurrence of the disease is more commonly present in male patients in both groups(Table 3). Recurrence rate is higher in patients with greater duration of illness in both groups(Table 4).

Discussion

Otitis media with effusion is a common childhood disease. If neglected or left untreated the language
development and the education of the child is affected. The etiology is multifactorial and includes eustachian tube dysfunction, respiratory viral infections and bacterial biofilm formulations.

It commonly occurs in winter. Children of lower socioeconomic group are more susceptible to the disease. The disease is associated with increase daycare attendance and bottle feeding. Surgical intervention is needed in children with OME lasting 3 months and not responding to medical treatment and persistent hearing loss. Tymanostomy tube is the most common surgical treatment today for OME.

Tymanostomy tube can be categorized as short term or long term. Short term ventilation, also called grommets, remains is situ for 4-8 months. Otorrhea, tympanosclerosis; infection and perforation are commonly seen complication of the procedure. The benefit of adenoidectomy could be due to reduction of the reservoir for the bacteria of the nasopharyngeal end of the Eustachian tube leading to better ventilation of middle ear.

In our study otorrhea was found significantly low in group who underwent adenoidectomy along with myringotomy and tympanostomy tube than the other group without adenoidectomy. Similar results are seen in different studies.

### Conclusion

1. Adenoidectomy, myringotomy with tympanostomy tube insertion lowered the post operative otorrhea than did tymanostomy tubes alone.
2. Adenoidectomy should be considered when surgical therapy is indicated in children who are severely affected by otitis media with effusion.

### References