Otomycosis: clinical features and treatment outcome

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ABSTRACT

Objective
To determine the clinical presentation and treatment outcomes of Otomycosis.

Patients and Methods
This was a prospective descriptive study was carried out at Departments of ENT and Pediatrics of Ghulam Muhammed Mahar Medical College Hospitals, Sukkur, Pakistan from March 2007 to March 2010. 100 cases of Otomycosis who were 5-50 years of ages, from OPDs of both ENT and Pediatric departments were included in the study. After obtaining written informed consent from patients/ parents, detailed medical histories were taken including the previous drugs, risk factors, clinical examination and culture done in 26 patients only. After proper suction, clearance of fungal discharge, along with topical application of Clotrimazole was carried out and minimum follow up of 6 weeks were carried out.

Results
Out of 100 cases 60 were females and majority were in the age group of 20-40 years. The unilateral ear presentation was in 90 % of cases. Ear pain was the most common symptom (60%), itching in 50%, followed by aural fullness in 44% of cases and otorrhea in 26% of cases. The culture showed aspergillus niger species in 50% and candida species in 11%. 96% of patients were cured but in 20% disease recurrence was noted.
Conclusion
Otomycosis was more common in females than males and pain and itching were most common presentation. It could be diagnosed by clinical examination, and resolved with appropriate topical antifungal agents. (Rawal Med J 2012;37:191-193).

Keywords
Otomycosis, Aspergillus niger, antifungal Application.

INTRODUCTION
Otomycosis (also known as Singapore ear) is a superficial mycotic infection of the outer ear canal.\(^1\) It is more common in the tropical countries. The infection may be either sub-acute or acute and is characterized by inflammation, pruritus, scaling, and severe discomfort. The mycosis results in inflammation, superficial epithelial exfoliation, masses of debris containing hyphae, suppuration, and pain.\(^2\) The most characteristic finding on ear examination is the presence of grayish white thick debris known as “Wet blotting paper”. Most infections are caused by Aspergillus niger and Candida albicans but exceptions exist.\(^3\) Otomycosis prevalence has been quoted to be as high as 9% among patients who present with otitis externa.\(^4\) Predisposing factors include humid climate, presence of cerumen, instrumentation of the ear, immunocompromised host and recently increased use of topical antibiotics/steroid preparations.\(^5\) In this study, we aimed to determine the clinical features, and treatment outcome of otomycosis in our tertiary care hospitals.

PATIENTS AND METHODS
All cases of otitis externa (Black spores with pus discharge/wet blotting tissue paper in external auditory canal) were included in the study from both OPDs of ENT and Pediatrics departments. In 74 patients the diagnosis of otomycosis was made on the basis of the clinically recognizable and characteristics appearance of fungal mats on otoscopy so, culture was not routinely obtained. In 26 patients, secretion and pus were collected from the ear (one swab was used for direct microscopy and other for culture examination) because these patients had less itching and more discharge and pain as compared to the classical cases. After the diagnosis, the Clotrimazole cream was applied directly onto the involved external auditory canal skin after cleaning the canal with the use of the microscope. The clotrimazole cream was held in place largely by its innate viscosity and
the shape of the external auditory canal. The ear canal was inspected 7 days later and residual cream was removed.

Successful treatment outcome was defined as resolution of all evidence of fungal infection on physical examination. Recurrent disease was defined as a condition that occurred in patients who had resolution of disease after initial treatment but recurred in the same ear later during the follow up in 6-8 weeks.

**RESULTS**

Out of 100 patients 60 were females and age ranged from 5 to 50 years (Table 1). In 90 patients, only one ear was affected; bilateral disease was observed in 10 cases. Pain in the ear was the most common symptom in 60% of cases, followed by itching in 50%, aural fullness in 44% and otorrhea in 26% (Table 2).

**Table 1. Age distribution (n=100).**

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>05-15</td>
<td>30</td>
<td>30%</td>
</tr>
<tr>
<td>16-25</td>
<td>20</td>
<td>20%</td>
</tr>
<tr>
<td>26-40</td>
<td>40</td>
<td>40%</td>
</tr>
<tr>
<td>41-50</td>
<td>10</td>
<td>10%</td>
</tr>
</tbody>
</table>

Physical examination findings that suggested otomycosis included a thick fibrinous accumulation of debris, the absence of significant edema of the canal skin, and small well-circumscribed areas of granulation tissue within the external canal or on the tympanic membrane.

**Table 2. Clinical presentation presentation.**

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain in the ear</td>
<td>60</td>
<td>60%</td>
</tr>
<tr>
<td>Itching</td>
<td>50</td>
<td>50%</td>
</tr>
<tr>
<td>Aural fullness</td>
<td>44</td>
<td>44%</td>
</tr>
<tr>
<td>Otorrhea</td>
<td>26</td>
<td>26%</td>
</tr>
</tbody>
</table>
Culture results of 26 patients showed that 19 (73%) were positive, mostly with Aspergillus niger and Candida species (Table 3). The therapeutic agents were used in conjunction with thorough mechanical debridement of visible fungal elements in the external auditory canal.

Table 3. Organism isolated (n=26).

<table>
<thead>
<tr>
<th>Organism</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspergillus Niger</td>
<td>13</td>
<td>50%</td>
</tr>
<tr>
<td>Aspergillus Fumigatus</td>
<td>02</td>
<td>07.5%</td>
</tr>
<tr>
<td>Aspergillus Flavus</td>
<td>01</td>
<td>03.9%</td>
</tr>
<tr>
<td>Candida species</td>
<td>03</td>
<td>11.6%</td>
</tr>
</tbody>
</table>

Clotrimazole cream was effective and treatment duration ranged from 1 to 3 weeks. Among the 96 patients who responded to initial treatment, 20% patients had recurrent disease. The recurrent otomycosis was treated with debridement of visible fungal elements in ear along with ketoconazole. The treatment was generally very well tolerated with no adverse effects.

DISCUSSION

Otomycosis or fungal otitis externa has typically been described as fungal infection of the external auditory canal with infrequent complications involving the middle ear. Fungi causes 10% of all cases of otitis externa. Otomycosis is an entity frequently encountered by otolaryngologists and can usually be diagnosed by proper clinical examination with high index of suspicion as symptoms are nonspecific. The unilateral otomycosis has been reported in 90% of cases and showed no preference for either side as reported by. In our study, ear pain was present in 60% of cases, comparable to the reported by Ho T et al, but the otorrhea was present in only 26% of cases. Itching (pruritus) has been frequently cited as one of the hallmark symptoms, up to 93 % of cases but was present in 50% of cases in present study and is comparable
with previously reported results. The aural fullness present in 44% of cases in our study is low as compared with reported world literature and local study where it was found in 80% of cases. Females were more affected in present study as reported by Ahmed et al, but Kaur et al and Ho et al showed males were more affected. Otomycosis usually occurs more frequently in adults but in our study, 30% of patient was under the age of 15 years which is slightly higher than the previously reported by local studies and international studies.

Aspergillus niger and candida species were the most commonly identified pathogens in 50% and 11.4% respectively in our study, as reported by several other investigators. Although multiple in vitro studies have examined the efficacy of various antifungal agents, there is no consensus on the most effective agent. Various agents have also been used clinically with variable rates success. In this study, application of topical clotrimazole cream coupled with mechanical debridement resulted in prompt resolution of symptoms in 96% cases. These results are similar to the locally and internationally reported studies. Among 96 patients who responded to initial treatment, 20% had recurrence of disease with 76% complete cure rate. These results are comparable to previously reported studies.

CONCLUSION
Otomycosis was more common in females than males. Pain (otalgia) and itching, aural fullness were most common presentation. It can usually be diagnosed by clinical examination and usually resolves with appropriate topical antifungal agents.

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REFERENCES
1 Otomycosis at Dorland’s medical dictionary