Original Article

Cholesteatoma

Cholesteatoma Clinical Outcome and Complications: A Study on Patients with Chronic Ear Disease

1. Adnan Ejaz 2.Amjad Ali Khan 3. Qazi Mahfooz ul Haq

1. Assoc. Prof. Azra Nahid Medical College Lahore 2. Asstt. Prof. of ENT, WMC Abbottabad
3. Prof. of Medicine FMDC, Abbottabad

ABSTRACT

Objectives: To identify the clinical behaviour and consequences of cholesteatoma and to formulate a strategy for achieving early diagnosis, appropriate management and avoidance of all the grave complications.
Study Design: Hospital based descriptive type of study
Place and Duration of Study: This study was conducted in Shahina Jamil Hospital from April 2011 to Dec 2012.
Materials and Methods: 40 patients of any age and gender were included in the study. The age, gender, socio-economic status and complications like hearing loss, facial nerve paralysis, intracranial spread, labyrinthitis, mastoid fistula and ossicular chain status were recorded and analyzed.
Results: We found that 62.5% were male and 37.5% were female.75% of the patients belong to rural areas and 25% belong to urban areas. All the patients (100%) presented with ear discharge and hearing loss. Ossicles were found intact in all patients. Labyrinthitis was the most common complication (37.5%).
Conclusion: It was found that cholesteatoma was frequent among poor, male and young patients leading to necrosis of the ossicles in all patients. Labyrinthitis, mastoid fistula and intracranial spread were common complication.
Key Words: Cholesteatoma, Clinical outcome, Complications.

INTRODUCTION

Normally skin does not present in the middle ear or mastoid. When keratinizing squamous epithelium gets into these air spaces, it can form a progressively enlarging and destructive cystic lesion called a cholesteatoma[1] Papillar cholesteatoma represents the presence of non neoplastic accumulation of keratinizing stratified Squamous epithelium along with desquamated keratin debris in the tympanic cavity and/or mastoid. Once the squamous epithelium reaches these areas from its origin in the external auditory canal or tympanic membrane, a locally invasive and destructive process typically ensues. The cholesteatoma of the middle ear is a chronic otitis described as dangerous because of the evolutionary risks and the potentially serious complications [2]. Cholesteatoma is locally destructive and erode bone. A number of mechanisms have been proposed to account for this behavior, including secretion of osteolytic enzymes, pressure necrosis, osteitis and surrounding chronic granulation tissue[3, 4] The rate of progression of the disease is usually insidious. Surgery is the treatment. The goals of surgical management include the eradication of disease, restoration of hearing, and to the extent possible, maintenance or restoration of normal anatomic configuration[5].

There is no single surgical treatment of choice for aural cholesteatoma. The extent of cholesteatoma, the amount of preoperative destruction, mastoid pneumatization guide the surgeon in choosing the type of operation for a particular ear, which may range from simple extraction of cholesteatoma to radical mastiodectomy[6].

Large erosive lesions that arise in the middle ear can extend through the roof of the temporal bone to compress the brain, and associated infection may cause intracranial abscesses[7].

MATERIALS AND METHODS

This study was a hospital based descriptive type of study conducted in department of Otorhinolaryngology, Shahina Jamil Hospital Abbottabad from 1st April 2011 to 31st Dec 2012, after approval from hospital ethical committee. 40 patients of any age and gender were included in the study.

The inclusion criteria included those patients of any age and sex with chronic ear disease in which cholesteatoma was found and confirmed postoperatively by histopathology. The exclusion criteria included all those patients who required mastoid exploration for the second time due to the diagnosis of cholesteatoma

A detailed history of the patient was taken pre-operatively with special regard to clinical features of complications i.e. facial weakness, vertigo, Nystagmus, headache, pain or swelling behind the ear. A thorough examination of the patients was done with otoscope and microscope. Findings were noted in questionnaire.

Tunning fork tests was done pre-operatively and post operatively to document qualitative status of hearing and result were confirmed by doing pure tone audiometry. Fundoscopy was performed to see any papilodema indicative of some intracranial lesions. Routine investigations and CT scan was done in those

patients in which intracranial complications were suspected.

All patients underwent surgery and during surgery all the complications which were suspected pre-operatively were confirmed and cholesteatoma taken out during surgery was sent for histopathology to pathology department for confirmation of the diagnosis. All the patient were discharged within 7-days, after the removal of stitches and aural packs and were advised to report back for follow up after 1 week, and after 1 month, till the ear become dry. At the completion of the study all individual data was entered in questionnaire.

RESULTS

The study on patient with cholesteatoma was carried out. Forty (40) patients were included in this study. Patient selected for study were divided in 3 age groups(Child, adult and old age) for convenience.

Table No.1: Demographic variable of the patients.

Age Group	No of patients (40)	% age
Children (5-14 years)	5	12.5 %
Adults (15-40 years)	25	62.5 %
Old (41- Onward)	10	25 %
Sex		
Male	25	62.5 %
Female	15	37.5 %
Income Group		
Upper Class	Nil	-
Middle Class	8	20 %
Lower Class	32	80 %
Area Distribution		
Urban	10	25 %
Rural	30	75 %
Duration of disease in Years		
1-5	25	62.5 %
6- 10	10	25 %
11- 15	5	12.5 %

Among 40 patients with cholesteatoma, 25 patients (62.5%) were male and 15 patients (37.5%) were female. Thirty two (32) patients (80%) belonged to lower class while 8 patients (20%) belonged to middle class and non belonged to upper class. In our study 30 patient (75%) were from rural area and 10 patients (25%) were from urban areas, when duration of symptoms of disease was recorded it was found that 25 patients (62.5%) had their duration between 1-5 years, 10 patients (25%) had duration of 6-10 years and only 5 patients (12.5%) had duration of 11-15 years.

During the study it was seen that most common presenting features were discharge from the ear and hearing loss i.e. 100%. Out of 40 patients with ear discharge, 30 patients (75%), complaint of foul smelling discharge and 25 patients (62.5%) complaint of bleeding from the ear. 37.5% of patient complaint of vertigo, 25% patient complaint of tinnitus, 25% Complaint of headache, 20% complaint of neck rigidity, 12.5% complaint of Otalgia and 12.5% were having severe degree of hearing loss. In 15 patients (37.5%) there was moderate degree hearing loss and none of them had mild degree hearing loss.

Table No.2: Variables of clinical features and complications of the patients.

Clinical Features	No. of Patients (40)	% age
Ear Discharge	40	100%
Hearing Loss	40	100%
Otalgia	5	12.5%
Bleeding from the Ear	25	62.5%
Headache	10	25%
Tinnitis	10	25%
Vertigo	15	37.5%
Neck Rigidity	8	20%
Fever	5	12.5%
Foal Smelling Discharge	30	75%
Hearing Loss Degree		
Mild	0	-
Moderate	15	37.5 %
Severe	25	62.5 %
Type of H/L		
Mixed	8	20 %
Conductive	30	75 %
Sensorineural	2	5 %
Status of ossicles		
Intact	0	0%
Necrosed	40	100 %
Complications		
Facial Palsy	2	5 %
Intracranial Spread	10	25 %
Mastoid Fistula	10	25 %
Labyrinthitis	15	37.5 %

Out of 40 patients 30 (75%) were having conductive hearing loss. 8 patients (20%) were having mixed hearing loss and only 5% were having sensorineural hearing loss. During mastoid exploration for cholesteatoma the Ossicular chain was seen under microscope and it was found that all the patients were having intact ossicles. Regarding complications out of 40, 15 patients (37.5%) were having labyrinthitis, 10 patients (25%) had mastoid fistula, 10 patients (25%) had intracranial complications and only 2 (5%) had facial nerve paralysis.

DISCUSSION

Chronic suppurative otitis media with cholesteatoma is persistent diseases which can cause even life threatening complications if left untreated.

Male to female ratio of our study was 5:3.In contrary to this ratio, Hanne H Owen, Jorn Rosborg and Michael Gaihede showed female to male ratio as 13:12[8]. Kikuchi M &Yamamoto E in 2002 concluded that the male to female ratio was 4:1 in their study, which also showed male preponderance[9]

In our study, disease was found more common in adults with peak age incidence in 15-40 years (62.5%), and only 5 patients (12.5%) were seen in the age group of 5-14 years.Compareable to our study, a study byArunabha Sengupta showed peak age incidence of disease in 11-30 years[10]. A study at Karachi by Udipurwala et al in (1994)[11] showed the mean age 24 years. Majority of the patient in our study belonged to rural area (75%) and out of these 40 patients 32 (80%) were from poor socio-economic setup. A similar study was carried out at Mayo hospital Lahore, showed 88% patients belonging to low income group[12]. Arunabha Sengupta also showed that majority (60%) of the people are from poor socio-economic setup [10]. The reason for higher incidence in poor socio-economic setup was probably poor hygienic environment, malnutrition and low immunity.

It was found that 62.5% of patients had the disease from the last 1-5 years while 25% had disease for last 6-10years. This study was comparable to Grewel, who in 2003 noted otorrhoea of long duration with an average of 8 years[13]

The clinical presentations of CSOM in my study were discharging ear and hearing loss in all patients (100%) while 12.5% suffered from otalgia,25% presented with headache. This is comparable to a study by David Moffat in which the most common presenting complaint was hearing loss (60%) [14]

.In our study vertigo was present in 37.5% of the cases, while in Grewel study it was only 18%[13].Tinnitus in our Study was 25%, while it was 38% by Grevel[13].

In my study majority of patients (75%) had conductive type of hearing loss but few patients (5%) showed sensorineural hearing loss.

In my study pre-operative hearing loss was of severe type in majority of the patients (62.5%).It was in contrast to the study of Sakagami M & Seo T in 1999 who concluded that preoperative hearing level was mild (34.2 +/-18.4 dB) [15].The difference was probably due to the reason that patient presentations in our setup was late, due to prolonged duration of disease and long period of topical antibiotic use.

In our study 25% of the patients had intracranial complications which

Included meningitis, extradural abscess and cerebellar abscess, which is

Comparable to the percentage of takin M & Osma U i.e. 28%[16]. Different studies have noticed the common intracranial complication as brain abscess followed by meningitis and lateral sinus thrombus[17, 18]. In these studies the most common extra cranial complications were sensorineural hearing loss followed by facial paralysis and mastoid abscess[18].

Facial nerve paralysis was also seen in 5% of patients. Sade and Fuchs (1994)[19] noticed facial nerve paralysis was more in adults than in children. Labyrinthitis developed in 37.5% of patients, which is very high percentage in contrary to Grewel percentage which was only 11.46%[13] **.** This high percentage was again due to the reason that most of our patients presented late, due to ignorance and illiteracy

Limitation of our study was that it was a hospital based study which was not applicable to whole society and number of patients under this study was less due to poor referral by GPs and quacks.

CONCLUSION

In my study of 40 patients, cholesteatoma was found to be the disease of poor class, more prevalent among young age group and male persons and lead to necrosis of the ossicles in all the patients. Among complications labyrinthitis, mastoid fistula and intracranial spread was seen in most of the patients, which should be prevented with early diagnosis and prompt treatment of chronic middle ear disease. However, there is need to conduct such type of study in large number of patients of our society.

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Address for Corresponding Author:
Dr Adnan Ejaz.
Assoc. Prof. Azra Nahid Medical College Lahore
248 DI Nespak society Lahore
E-mail: adnan_ejaz24@yahoo.com
Cell Co: 03234180527