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Unsafe CSOM still a challenge in rural areas

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Abstract:

AIMS AND OBJECTIVES

To determine the frequency of complications in unsafe chronic suppurative otitis media.

MATERIAL AND METHODS

This prospective study was conducted in the department Otorhinolaryngology MMIMSR over the time duration of one year from March 2011 to April 2012. Fifty consecutive patients were selected whose clinical diagnosis was CSOM Attico-antral type.

Conclusion:

The rate of complications, especially more serious intracranial complications ,observed in developing countries is significantly more than those observed in studies from the developed countries. (12). In our study the frequency of extracranial complications excluding ossicular erosion is 22% and the frequency of intracranial complications is 4%. It was observed by Memon et al (13) in 2008 that in a series of 390 patients of chronic discharging ears that the rate of extracranial complications was 4.10% and rate of intracranial complications was 2.3%of the unsafe variety . The high frequency in our study may be explained by the fact that we are sitting in a rural background with very poor socio-economic background patients. Osama U et al (14) from Turkey reveals the rate of 1.35% of extracranial complications and 1.97% of intracranial complications in his study.

INTRODUCTION

Chronic suppurative otitis media is typically a persistent disease, insidious in onset, often capable of causing severe destruction and irreversible sequele, and clinically manifests as deafness and discharge. Infants and children are at the highest risk for acquisition of otitis media with peak prevalence rate occurring between 6 and 36 months and a lesser peak between 4 and 7 years.(1) Incidence of CSOM varies from country to country ; even in developed countries like UK the overall incidence of the disease varies from 0.6 to 1.1 percent. The widespread prevalence of CSOM in third world countries can be attributed to the socio-economic factors such as poor living conditions, overcrowding, poor hygiene and malnutrition.(2) CSOM has been an important cause of middle ear disease since prehistoric times.(3,4,5).

Unsafe type of this disease, previously known as attico antral type usually presents with marginal perforation having cholesteatoma which is the hallmark of this affection and also considered as the complication producing element.(6,7).The cholesteatoma is a sac lined by keratinizing stratified squamous epithelium in the middle ear cleft with continuous desquamated epithelium arranged like onion skin layers. It is also known as the non-malignant bone destroying disease of the middle ear cleft .Bone erosion is an established complication of this type and may involve extra cranial as well as intracranial structures.(8)

Even though the incidence of suppurative intracranial complications of otitis media has dramatically declined since the advent of antimicrobial agents, we still encounter many serious and potentially life threatening complications, especially in developing countries of the world.(9). Before the introduction of antimicrobial agents 2.3% of all patients with otitis media developed intracranial complications, and two-thirds of the cases were due to chronic middle ear disease.(10) In developing countries ,the complications are comparatively higher leading to any disability or even death.(11). The commonly seen intracranial complications are meningitis, cerebral abscess, extradural abscess and lateral sinus thrombophlebitis. Today the widespread availability of computed tomography (CT) and Magnetic resonance imaging(MRI) has greatly enhanced the diagnosis of intracranial complications.

The objective of this study was to determine the frequency of complications in unsafe Chronic suppurative otitis media.

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This prospective study was conducted in the department Otorhinolaryngology MMIMSR over the time duration of one year from March 2011 to April 2012. Fifty consecutive patients were selected whose clinical diagnosis was CSOM Attico-antral type.

The criteria for selection of cases:

Patients having attico-antral CSOM (unilateral or bilateral).

The criteria for exclusion of cases:

1. Suspicion of ear pathology to be malignant
2. Congenital ear disease
3. Clinically safe CSOM
4. Patients unfit for surgery or anesthesia
5. Old operated ear cases
6. Patient age less than 10 years

In all patients, a detailed history was taken followed by complete examination of ear nose and throat. Otoscopy, routine investigations and audio logical assessment were performed in all cases whereas examination under microscope was done under selected cases. In all cases with suspicious impending complications or overt complications HRCT ear and head was done. The choice of surgical procedure was depending on status of the ear, however canal wall down procedure was preferred in all cases with attico-antral disease. Brain abscess were first treated by neuro-surgical departments and later on mastoid exploration was done in ENT department. In meningitis patients were treated conservatively first with antibiotics and lumbar puncture. After the condition of the patient was stabilized, mastoid exploration was carried out.

OBSERVATIONS

A total number of 50 cases of unsafe type of chronic suppurative otitis media were selected for the present study

TABLE 1. AGE DISTRIBUTION

Age Group(in years)	No. of cases	%age
11-20	12	24%
21-30	26	52%
31-40	10	20%
41-50	2	4%

The patients were in the age group varying from second decade to fifth decade. Maximum number of patients belonged to the age group of 21-30 years. Mean age of the patients included in the present study was 26.76.(Table 1)

Table 2. SEX DISTRIBUTION

Sex	No. of cases	%age
Males	22	44%
Females	28	56%

Female to male ratio in the present study was 1.27:1 .Out of a total number of 50 cases, 22(44%) were found males and 28(56%) were females.(Table 2)

Table 3. COMPLAINTS OF PATIENTS

Symptoms	**No. patients**	**%**
Otorrhea	50	100
Headache	3	6
Fever	5	10
Decreased Hearing	45	90
Otalgia	10	20
Vertigo	1	2
facial asymmetry	1	2

All patients presented with the chief complaint of otorrhoea (100%) and nearly all with hearing loss (90%). Presence of headache in 6% cases and Fever in 10% cases aroused suspicion of possible complications.Vertigo and facial asymmetry was observed in one case each.

Table 5. DISEASE PATHOLOGY

Pathology	**no. of cases**	**%**
Granulation	14	28
Cholesteatoma	10	20
Both	26	52

Cholesteatoma along with granulation tissue which is characteristic of the disease was found in 52% of the cases.

Table 6. COMPLICATIONS

Complications	**No. patients**	**%**
Extracranial		
Ossicular erosion	46	92
Mastoid abscess	2	4
Exposed facial nerve	5	10
Exposed sigmoid sinus	3	6
Erosion lateral semicircular	1	2

canal		
Intracranial		
Meningitis	1	2
Brain abscess	1	2

The most common extracranial complication in our study was ossicular erosion seen in 92% cases followed by facial nerve canal erosion seen in 10% cases. Mastoid abscess was seen in two cases (4%) ,exposed sigmoid sinus in three(6%) cases and erosion of lateral semicircular canal in one case(2%) .

The intracranial complications seen were meningitis and temporal lobe abscess in one case each.

DISCUSSION

The rate of complications, especially more serious intracranial complications ,observed in developing countries is significantly more than those observed in studies from the developed countries. (12). In our study the frequency of extracranial complications excluding ossicular erosion is 22% and the frequency of intracranial complications is 4%. It was observed by Memon et al (13) in 2008 that in a series of 390 patients of chronic discharging ears that the rate of extracranial complications was 4.10% and rate of intracranial complications was 2.3%of the unsafe variety . The high frequency in our study may be explained by the fact that we are sitting in a rural background with very poor socio-economic background patients. Osama U et al (14) from Turkey reveals the rate of 1.35% of extracranial complications and 1.97% of intracranial complications in his study.

Chronic suppurative otitis media is a disease of young adults and about 50% of the patients were in the age group of 21-30 years which is comparable to study of Alam J et al.(15) In our study there was a female preponderance Similar female preponderance was seen by others.[16,17]

Presence of headache in 6% cases and Fever in 10% cases aroused suspicion of possible complications. Albers(18) confirmed persistent fever and headache as the most common early symptom of an intracranial complication and stressed the need to make an early diagnosis to reduce morbidity and mortality.

Cholesteatoma along with granulation tissue is the characteristic feature of unsafe CSOM, which was found in 52% cases and this can be compared to other studies.(19) Complications of otitis media are divided into intra temporal and extra temporal. The former include hearing loss which may be conductive or sensor neural, ossicular erosion, facial nerve palsy, mastoiditis, labyrinthitis and petrositis. Extra temporal complications are subdivided into intracranial and extra cranial complications. Intracranial complications include meningitis, extradural abscess. Cerebral abscess, lateral sinus thrombophlebitis and otitic hydrocephalus..Extra cranial complications include retro auricular, zygomatic and Bezold abscess. We should suspect of ICC when the patient has clinical manifestations such as persistent headache, malaise, fever, otalgia, lethargy, nausea/vomiting, neck rigidity, diplopia, hemi-anopia, papilla edema, blurred vision, ataxia, seizures, aphasia, intention tremor, dysmetry and/or dysdiadocokinesia. Currently, the use of antibiotics may mask some ICC symptoms, emphasizing the importance of detection of atypical cases. These patients present mild but persistent otological and neurological symptoms and signs.

ICC secondary to chronic suppurative otitis media normally occur by the extension of the mucoperiosteum inflammatory process to the head cavity, developing in the brain, lateral sinuses and epidural, subdural and subarachnoid spaces. In most cases, ICC extend through bone dehiscence on the

tegmen tympani or in the antrum; through vascular canals directly to the lateral sinus, through the superior petrous sinus; vascular anastomosis; caroticotympanic canaliculi, pericarotid venous plexus; cavernous sinus; bone dehiscence on the cavum tympani; through the endolymphatic sac; optic capsule fistula, or they may result in sinudural angle or petrous apex osteitis; or empyema of cochlear aqueduct or perineural spaces of the inner acoustic meatus (20)

In our study the most common extracranial complication was ossicular erosion seen in 92% cases. The Incus was the most frequently eroded ossicle followed by the malleus and stapes. This is consistent with the findings of Chee et al. (21)

Clinically one patient (2%) presented with Facial asymmetry. Facial palsy directly related to cholesteatoma in modern literature is around .04% to 0.16% (22). On operative findings 5 cases (20%) had facial nerve canal erosion . Memon et al (13) detected 6 cases of exposed facial nerve in their series of 390 patients of chronically discharging years. In our study tympanic segment of the facial nerve was the most susceptible to erosion. The findings are consistent with the observation of authors. (23).

Clinically one patient presented with vertigo .On operative findings in one case 2% the lateral semicircular canal was eroded. Anterior and posterior semicircular canals were intact. Findings are consistent with Silver et all (24), according to whom patients with vertigo & chronic middle ear disease may have a cholesteatoma with the a fistula between the middle & inner ear & the fistula usually involves the lateral semi circular canal.

Clinically 2 (4%) patients presented with mastoid abscess. Osama et al(14) showed mastoid abscess as the most common extracranial complication.

On operating findings 3(6%) patients had exposed sigmoid sinus.

In our study the rate of intracranial complications was 4 %. The most common ICC are meningitis, cerebral abscess, extradural abscess and thrombophlebitis of lateral sinus (TLS) [25]. In this In this series of cases, we present The most common intracranial complications in our study was brain abscess 2% and meningitis in 2 % cases.. In a review from Thailand by Kangsanarak(26) and colleagues found that meningitis was the most common intracranial complication ,either as the only complication or in combination with another one. Meningitis is the most common complications in most study.(27,28) In a report from South Africa Singh and Maharaj (29)found that of 181 patients with intracranial complications 51% had a brain abscess and only 12% had meningitis. Even today it is still not rare to see brain abscess secondary to otogenic infection in developing nations. In a recent review of intracranial complications of **otitis media in 33 Brazilian patients diagnosed between 1987 and 2002 26(46%)** had a brain abscess.(9).The most serious otogenic intracranial complications which our commonly is brain abscess. It needs prompt diagnosis and treatment. An abscess in the temporal lobe occurs more commonly than does one in the cerebellum, and multiple abscess are frequent.(30,25) om infants)Kessler and colleagues reported a mortality rate of 33% ii the 51 patients with otitic meningitis they studies.(31).There was no mortality in our study. However, intracranial complications represent a risk situation because of high mortality rate (36%)32

CONCLUSION

The incidence of complications of CSOM has declined with the advent of antibiotics. In developing areas of the world, however, where the availability of medical facilities is still in its infancy, complications occur with significant morbidity and mortality Early diagnosis of intracranial complications helps in reducing the rate of morbidity and mortality The presence of cholesteatoma should be diagnosed promptly and measures should be taken for converting the unsafe ear into a safe ear. High index of suspicion and prompt management is the key to reduce the morbidity and mortality of the disease so common in our country.

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