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CHRONIC SUPPURATIVE OTITIS MEDIA "UNSAFE TYPE": AN EXPERIENCE AT A TERTIARY CARE HOSPITAL

Objective:
To evaluate the clinical characteristics, examination findings, complications and hearing in patients with unsafe type of chronic suppurative otitis media (CSOM) in a tertiary care hospital.

Materials and Methods:
This prospective clinical study was conducted in Department of Otorhinolaryngology &HNS, B.P.Koirala Institute of Health Sciences Dharan, from January 2007 to January 2008. All patients with unsafe type of CSOM were assessed with clinical history, otoscopic examination, tunning fork test, pure tone audiometry, radiological investigations and examination under microscope and findings were noted in proforma.

Results:
Total 118 patients of unsafe type of CSOM with mean age of 20.4 years were included. Maximum numbers of patients (88.1%) were from terai region. Eighty nine patients (75.4%) complained of hearing loss and almost all (99.2%) had aural discharge. Nineteen patients (16.1%) presented with associated complications. On examination, 54(45.7%) had tympanic membrane perforation, while 59 (50%) had retraction pocket. Hundred eleven patients (94%) had hearing loss, mainly moderate degree (29.7%), conductive type (75.4%). Forty five patients had both cholesteatoma and granulation tissue. The common site of pathology was posterior superior quadrant (PSQ). There was high incidence of cholesteatoma when lesion was at PSQ and attic region while granulation was common at external auditory canal. (p= 0.046)

Conclusion:
Unsafe type of CSOM is common in younger population that presents with ear discharge and variable degree of conductive hearing loss. Retraction pocket and tympanic membrane perforation are the main otoscopic findings and PSQ is the most common site of pathology.

Key words: Chronic suppurative otitis media, Complication, Unsafe

INTRODUCTION:

Chronic suppurative otitis media (CSOM) has been defined as typically a persistent disease, insidious in onset, often capable of causing destruction and irreversible sequelae and clinically manifest with hearing loss and discharge. It has been an important cause of middle ear disease since pre historic times. Poor living condition, overcrowding and poor hygiene and nutrition have been suggested as a basis for the wide spread prevalence of CSOM in a developing countries like ours. CSOM is divided into tubo-tympanic (safe) and attico-antral (unsafe) variety. Attico-antral(AA)involves pars flaccida and characterized by formation of retraction pocket in which keratin accumulates to produce cholesteatoma and has higher risk of intra-cranial complication[1]. Cholesteatoma is a three dimensional epidermal and connective tissue sac, which has a bone eroding capacity. The pathogenesis is diverse, with different pathways leading to same destructive lesion. This bony destruction may lead to serious intra and extracranial complications. It is said to be more aggressive in children than in adults[2,3]. Hearing loss in CSOM 'AA' is mixed type, both conductive and sensorineural (SNHL), which depends upon the nature and extent of disease[4]. The incidence and operation for CSOM with cholesteatoma seem to have decreased markedly over the past few decades in western societies.[5] But it is still the commonest diseases in otolaryngologic practice in an under- developed country like ours. So this study was designed to evaluate the clinical characteristics, clinical findings, complications, type and degree of hearing loss in patients with unsafe type of CSOM.

MATERIALS AND METHODS:

This prospective clinical study was conducted in Department of Otorhinolaryngology &HNS, B.P. Koirala Institute of Health Sciences Dharan, during a period of one year from January 2007 to January 2008. All the patients with unsafe type of CSOM admitted for surgery during the study period were included. A total of 118 patients enrolled in this study were assessed with clinical history, otoscopic examination, tuning fork test, pure tone audiometry and radiological examination. Air and bone conduction hearing levels were measured at the time of admission by means of pure tone audiometry at 4 speech frequency of 500, 1000, 2000 and 4000 Hz. Pure tone audiometry was performed by single audiologist in an acoustically treated room. All the findings were noted in a proforma and analyzed using Microsoft excel office 2007 version.

RESULTS:

A total of 118 patients with unsafe CSOM were included in the study. The mean (range) age of patients was 20.4 (4–58) years. Most of the patients (44.9%) were in the age group of 10-20 years. There was male preponderance with male to female ratio of 1.2:1. Maximum number of patients (88.1%) were from terai region. Right ear was involved in 72 patients (61%). Chief complaint was aural discharge in almost all patients (99.2%) while hearing loss was in 89 patients (75.4%). Fifty one patients (43.2%) had ear discharge since childhood. The duration of discharge was >5 years in 81 cases (69.2%). Nineteen patients (16.1%) presented with complications. Extra cranial complications were seen in 14 and intra cranial in five patients. Sub-periosteal abscess was the most common extra cranial complication seen in10 patients (8.5%), followed by mastoiditis in two patients (1.7%). Extradural abscess was diagnosed in three (2.5%) patients. (Figure 1) When all the cases were examined under microscope, discharge was the most frequent finding (65.2%) noted in external auditory canal (EAC) and other EAC examination findings were presented in Figure 2. Tympanic membrane was found intact in 5 cases (4.23%). Fifty four cases (45.7%) had perforation and 59 patients (50%) had retraction pocket as shown in Table 1. Attic was the commonest site of perforation while posterior superior quadrant was

Tab. 1 : Status of Tympanic membrane

Tympanic membrane		*Number of patients*	*%*
Perforation		54	45.8
	Attic	45	38.2
	Marginal	6	5
	Central	3	2.6
Retraction		59	50
	Attic	22	18.7
	Posterior superior quadrant	30	25.4
	Anterior superior quadrant	7	5.9
Intact		5	4.2
Total		118	100

Tab.2 : Pathology at examination under microscope

		No of patients	%
No specific pathology seen		**31**	**26.3**
Specific pathology seen		**87**	**73.7**
Specific pathology	Cholesteatoma (C)	22	18.7
	Granulation (G)	9	7.6
	Polyp (P)	11	9.3
	Granulation and Cholesteatoma	45	38.1
Site of pathology	Posterior superior quadrant (PSQ)	41	34.7
	Attic	29	24.6
	External auditory canal	14	11.9
	Anterior superior quadrant (ASQ)	3	2.5

the common location for retraction pocket formation. In 87 cases (73.7%) specific pathology like cholesteatoma, granulation tissue and polyp were seen during examination under microscope. Cholesteatoma was seen in 22 cases (18.6%). Granulation was found in 9 patients (7.6%) and polyp in 11 patients (9.3%). But maximum number of patients 45 (38.1%) had both granulation and cholesteatoma. Commonest site of pathology was posterior superior quadrant (PSQ), which accounts for 34.7%. Attic was the second most common site (24.6%), followed by EAC (11.9%) and in 3 cases (2.5%) it was found in ASQ alone. (Table: 2) When we correlated between the site and type of pathology, we found that there was high incidence of cholesteatoma when lesion is at PSQ or attic region. Granulation was much commoner at external auditory canal. (p= 0.046) When all the patients were assessed for hearing loss, we found that 9 patients (7.6%) had profound hearing loss, seven patients (5.9%) had hearing within normal limit, while rest had variable degree of hearing loss. Mild degree of hearing loss (26-40 dB) was seen in 34 patients (28.8%), moderate degree (41-55 dB) in 35 patients (29.7%), moderate to severe (56-70 dB) in 24 patients (20.3%) and severe degree of hearing loss in 9 patients (7.6%). (Table: 3) Most of them (89, 75.4%) had conductive type of hearing loss; very few (5, 4.2%) had sensorineural type and 24 patients (20.3%) had mixed type of hearing loss. (Figure3)

Tab: 3. Degree of hearing loss

Degree of hearing loss	No. of patients	%
No hearing loss (<26 dB)	7	5.9
Mild hearing loss (26-40 dB)	34	28.8
Moderate hearing loss (41-55 dB)	35	29.7
Moderate to severe hearing loss (56-70 dB)	24	20.4
Severe hearing loss (71-91 dB)	9	7.6
Profound hearing loss (>91 dB)	9	7.6
Total	118	100

DISCUSSION:

Chronic otitis media is a sequele of acute otitis media and its most common form include chronic suppurative otitis media (CSOM) with or without cholesteatoma. Although, the incidence of CSOM with cholesteatoma seems to have decreased markedly over the past few decades in western societies[5], it is quite a common occurrence in our part. Its importance lies in the fact that it is associated with high morbidity and at times even with mortality. Maximum numbers of patient in our series were young, less than 20 years of age. In a series by Mustafa et al[8], the mean age of study population was 30 years ranging of 1 to 76 years. Similarly in other reported series the mean age were 27.5 and 30.7 years respectively[3,7]. As compared to those series, our study population were relatively young. Kamal et al[9] screened all the population in two slums of Dhaka city and found that the prevalence of CSOM was 7.39% and it was mostly in age group of 2-5 years of age group. The prevalence was even higher up to 14.7% in some African communities[10]. In our study, there was slight male domination and other studies had also reported male proportion to be 60.4% and 63.8% respectively[7,8]. Maximum number of patients were from terai region; only very few were from hilly region. This could be attributable to easy access to author's institute from terai districts and high prevalence of this disease in terai community because of poor socioeconomic condition, poor sanitation and tropical climate.

The incidence of disease was described high in slums of Dhaka because of above conditions.[9] Similarly, Verhoeff et al[11] and Lasisi et al[12] also identified that crowded condition (i.e. large families with several siblings, large day care centers), parental history of chronic otitis media, and acute or recurrent otitis media as significant risk factors for CSOM. Almost all patients in our study complained of aural discharge and that too from early childhood. The discharge was smelly and scanty in amount in most of the cases. Lasisi et al[13] reported the mean duration of aural discharge to be 4± 2 years and the prevalence of hearing loss to be 47% in his series. Azevedo et al[14] stated that the duration of ear discharge was in average of 12.4 years. Kamal et al[9] found that 60% of patients had hearing impairment while almost all patients had aural discharge who was diagnosed to have the disease. As compare to those series, our population had higher degree of hearing impairment and for longer duration. This might be due to ignorance and lack of knowledge about the CSOM in our community. In our series, complications were seen in 18.6% of cases, out of which extracranial complication was in 14.4% and intracranial complication was seen in 4.2% of cases. Complications were reported to be 14.8% in a series by Mustafa et al[3], Similarly, extracranial and intracranial complications were 7.6% and 7.2 respectively in his study. Analysis of many literature concluded that the most frequent extracranial complications were facial paralysis (13-58%), subperiosteal abscess (40-68%), mastoiditis (14-74%) and labyrinthitis (7-34%). Similarly the most common intracranial complications were meningitis (21-72%), cerebral abscess (18-42%), lateral sinus thrombosis (2-26%), extradural abscess (7-16%), otic hydrocephalus (5-11%) and encephalitis (2%).[11] Thus we confirmed that the complication rate in our population was high in comparison to other literature available and the cause for high morbidity could be due to long standing diseases. Surprisingly, the rate of intracranial complication was low in our series which is more dangerous and fatal.

When all the cases were examined under microscope, the common site of pathology was PSQ which accounts for 34.7%; followed by attic which represents 24.6%. When the site of pathology was correlated with type of pathology, we found that there was high incidence of cholesteatoma when lesion was at PSQ or attic region. Granulation was much commoner at external auditory canal. Sakagami et al[15] found that the area of extension of cholesteatoma was attic in 12 cases (39%). These proved that when the PSQ or attic was involved the chance of having cholesteatoma was significantly high. When all the patients were assessed for hearing loss, we found that 5.9% had no hearing loss while rest had variable degree of hearing loss. Profound hearing loss was seen in 7.6% of cases. (Table 3) Most of them (75.4%) had conductive type of hearing loss; very few (4.2%) had sensorineural type and rest had mixed type of hearing loss. (Figure 3) Lasisi et al[13] reported that conductive type of hearing loss was seen in 82% of cases while sensorineural type seen in 18% of cases. In another series, author studied 78 cases of CSOM with cholesteatoma and reported that sensorineural hearing loss was seen in 15 cases (19.2%) and 6 cases (7.7%) had profound hearing loss[14]. As compared to those literature we found that incidence of sensorineural hearing loss is our series is much less (18 to19% Vs 4.2%).

CONCLUSION:

Chronic suppurative otitis media (CSOM) "Unsafe Type" is a disease mainly affecting younger population. Although ear discharge and hearing loss are the main symptoms, patients can present with features of complications. Hearing loss is mainly conductive type and moderate degree. Retraction pocket and tympanic membrane perforation are the main otoscopic findings and posterosuperior quadrant is the most common site of pathology.

Fig. 1: Complications associated with unsafe CSOM

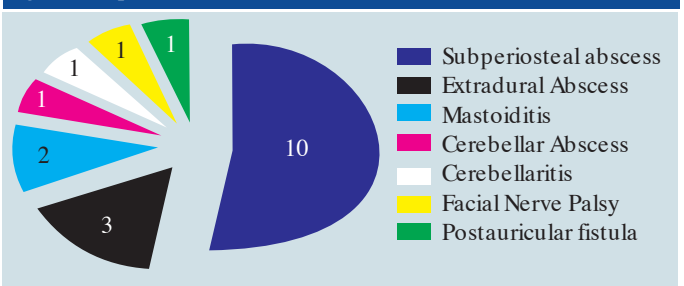


Fig. 2 : Findings of external auditory canal (EAC) examination

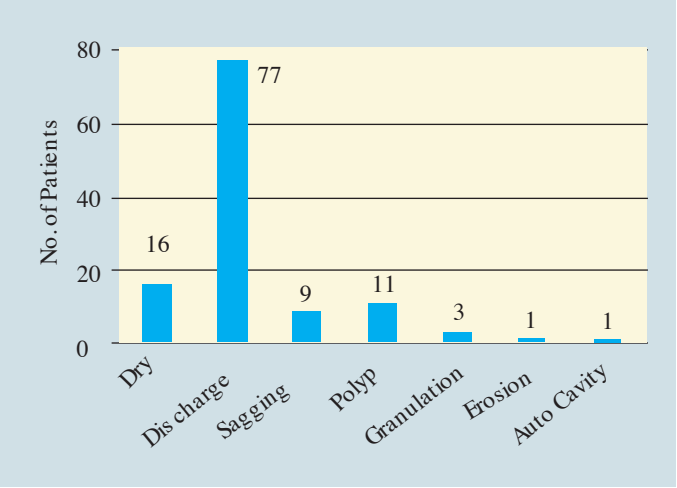
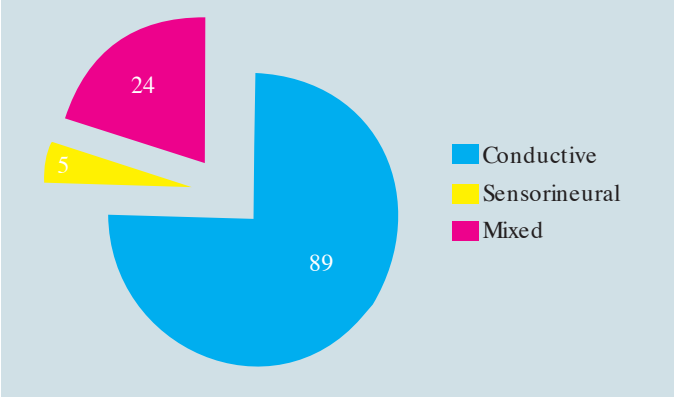


Fig. 3: Type of hearing loss



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