COMPLICATIONS OF CHRONIC SUPPURATIVE OTITIS MEDIA AA TYPE-3 YEARS EXPERIENCE AT TUTH

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ABSTRACT

This retrospective study was carried out in the Department of ORL and Head & Neck Surgery, Tribhuvan University Teaching Hospital, Maharajgunj, Kathmandu. Three hundred patients having atticoantral type of chronic suppurative otitis media underwent emergency or routine mastoid exploration from 14 April 1997 to 12 April 2000. Of the 300 patients, 64 (21.33%) had complications. Age of the patients with complications ranged from 5-38 years. Thirty eight (59.38%) patients were male while 26 (40.62%) were female. Forty eight (75%) had extracranial and 15 (23.44%) had intracranial complications while 1 (2.08%) had both extra and intracranial complications. Cholesteatoma was present in 233 (77.66%) patients and of these 48 (20.60%) had complications. Sixty seven (22.33%) patients had granulation tissue, of these 16 (23.88%) had complications.In cholesteatomatous cases 34 (70.83%) had extracranial complications. Intracranial complications were present in 14(29.17%) cholesteatomatous cases. In patients with granulation tissue extracranial complication was present in 14 (87.50%) patients and only one patient had intracranial complication.Combination of extra and intracranial complications were found in 1 patient with granulation tissue. When compared with types of pathology extracranial complications were higher in patients with granulation tissue (87.50% vs 70.83%) and intracranial complications were found more in cholesteatomatous cases (29.17% vs 6.26%). Both these findings were , however, statistically not significant. Reasons behind these findings may be presence of granulation tissue beneath the epithelium of choleateatoma, and association of both types of pathology with infection and inflammatory process.

Key Words: Chronic Suppurative Otitis Media, Atticoantral Type, Mastoid Exploration, Complications.

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INTRODUCTION

Existence of chronic suppurative otitis media (CSOM) has been documented since prehistoric times. The potential seriousness of this disease was appreciated by Hippocrates.[1] Morgagni recognized the potential of suppurative otitis media to invade intracranium and also established direct relationship between CSOM and brain abscess.[2]

Chronic suppurative otitis media is one of the commonest otolaryngologic problems especially in underdeveloped country like ours. Its high incidence in low socioeconomic status is associated with poor hygiene, overcrowding, ignorance and lack of awareness of disease and its consequences. Though the incidence of it and its complications has decreased in the Western world, in developing countries the incidence rate is still high. In developed countries the incidence of complications of CSOM has come down to 0.04% of all cases of suppurative ear disease.[3,4] In a rural area of India it has found to be 4.26%[5] whereas in Thailand it varies from 6.45-7.60%.[6,7]

No study has been done in Nepal regarding incidence of complication, types of complication and correlation of different types of complications with types of pathology in CSOM. Therefore the main aim of this study was to evaluate the prevalence of complications, and to correlate types of complications with types of pathology in cases of atticoantral type of CSOM who underwent mastoid exploration in Tribhuvan University Teaching Hospital, Maharajgunj, Kathmandu.

PATIENTS AND METHODS

This study was carried out in the Department of ORL and Head & Neck Surgery, TUTH, Maharajgunj, Kathmandu.The total number of patients having atticoantral type of CSOM who underwent emergency or routine mastoid exploration during the period of 3 years from 14th April 1997 to 12 April 2000 were 300. Of these, 64 patients had complications .Those patients with brain abscess were treated surgically by neurosurgeons first and those with meningitis were treated conservatively. These patients underwent mastoid exploration as soon as their general condition permitted for general anesthesia. Those patients with complications other than brain abscess and meningitis underwent emergency mastoid exploration. During the operation types of complications and types of pathology (whether cholesteatoma or granulation tissue) were noted. Complications were divided into 3 groups-(1) extracranial, (2) intracranial and (3) both. Fisher's exact test was applied to test significance of difference and p value < 0.05 was considered to be significant.

RESULTS

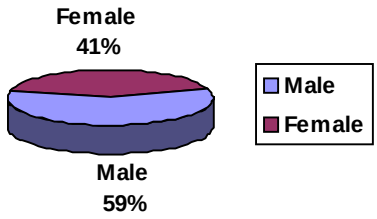
A total of 300 patients having atticoantral type of CSOM underwent either emergency or routine mastoid exploration.Of these, 64 (21.33%) patients had complications.Age of the patients with complications ranged from 5 to 38 years. The commonest age group to have complications was 11-20 years - 37 (57.81%) patients and the least affected age goup was 31-40 years - 1 (1.56%) patient (Table I). Thirty eight (59.38%) patients were male while 26 (40.62%) were female (Fig 1).

Table I. Age distribution of patients (n=64)

Age group (years)	No. of patients	Percentage
0-10	15	23.44
11-20	37	57.81
21-30	11	17.19
31-40	1	1.56

Of 64 patients, 48 (75%) had extracranial complications. Of these, 4 (8.33%) patients had more than one extracranial complications.Thirty six (75%) patients had acute mastoiditis/mastoid

Figure 1 - Sex Distribution



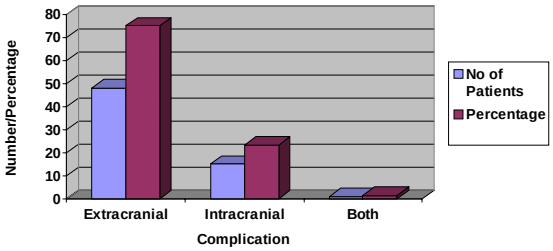
abscess and/or fistula/Bezold's abscess and these were the commonest extracranial complicaions. Four (8.33%) patients had facial nerve palsy and acute labyrinthitis. Labyrinthine fistula was found in other 4 (8.33%) patients. Mastoid abscess/fistula with profound sensorineural hearing loss (SNHL) was found in 2(4.16%) patients. Mastoid abscess and facial nerve palsy and CSF otorrhea was found in 1(2.08%) patient and facial nerve palsy and profound SNHL was found in another 1(2.08%)patient. Fifteen (23.44%) patients had intracranial complications. Of these, brain abscess was present in 6 (40%) and meningitis in 4 (26.67%) patients.Two(13.33%) patients had perisinus abscess and 2 other (13.33%) patients had subdural empyema. Lateral sinus thrombosis was found in 1(6.67%) patients Both extra- and intracranial complication was present in 1 (1.56%) patient (Table II & Fig. 2).

Table II. Distribution of complications

Complication	No. of patients	% of ECC	Overall %
Extracranial			
Acute mastoiditis / mastoid abscess / fistula / Bezold's abscess	36	75	56.25
Facial nerve palsy	4	8.33	6.25
Acute labyrinthitis / labyrinthine fistula	4	8.33	6.25
Mastoid abscess / fistula + profound SNHL	2	4.16	3.13
Facial nerve palsy + profound SNHL	1	2.08	1.56
Mastoid abscess + facial nerve palsy + CSF otorrhea	1	2.08	1.56
		% of ICC	
Intracranial			
Brain abscess	6	40.00	9.38
a. cerebellar abscess	4	26.67	6.25
b. temporal lobe abscess	2	13.33	3.13
Meningitis	4	26.67	6.25
Perisinus abscess	2	13.33	3.13
Subdural empyema	2	13.33	3.13
Lateral sinus thrombosis	1	6.67	1.56
Both			
Acute mastoiditis + Bezold's abscess + extradural abscess	1		

ECC -Extracranial Complications
ICC-Intracranial Complications

Figure 2 - Distribution of Complications



Of 300 patients, 233 had cholesteatoma and only 67 had granulation tissue. Of the 233 patients with cholesteatoma, 48 (20.6%) had complications whereas of the 67 patients with granulation tissue, 16 (23.88%) had complications. When tested statistically it was found not to be significant (p=0.3764) (Table III). Of the 48 cases of cholesteatoma with complications, 34 (70.83%) had extracranial complications whereas of the 16 cases of granulation tissue, 14 (87.50%) had extracranial complications. However, statistically it was found not to be significant (p=0.3892) (Table IV). Similarly, out of the 48 patients of cholesteatoma with complications, 14 (29.17%) had intracranial complications whereas of the 16 patients of granulation tissue with complications, only 1(6.26%) had intracranial complication. When tested statistically it was also found not to be significant (p=0.1089) (Table V).

Table III. Comparison of types of pathology with complications

Pathology	No. of operation	Complications
Cholesteatoma	233	48 (20.60%)
Granulation tissue	67	16 (23.88%)

Fisher's exact test: p=0.3764 (not significant)

Table IV. Comparison of types of pathology with extracranial complications

Pathology	Total Complication	Extracranial Complication
Cholesteatoma	48	34 (70.83%)
Granulation tissue	16	14 (87.50%)

Fisher's exact test: p=0.3892 (not significant)

Table V. Comparison of types of pathology with intracranial complication

Pathology	No. of Complications	No. of intracranial Complications
Cholesteatoma	48	14 (29.17%)
Granulation tissue	16	1 (6.26%)

Fisher's exact test: p=0.3892 (not significant)

In patients with cholesteatoma the commonest extracranial complication was acute mastoiditis/ mastoid abscess/ fistula or Bezold's abscess 27 (79.41%). Three (8.82%) patients had multiple extracranial complications.Acute labyrinthitis/ labyrinthine fistula was present in 3(8.33%) patients. Mastoid abscess/fistula with profound SNHL was found in 2 (5.88%) patients. Facial nerve palsy was found in 1 (2.94%) patient and mastoid abscess and facial nerve palsy and CSF otorrhea was present in another 1 (2.94%) patient. Among intracranial complications brain abscess - 6 (42.86%) and meningitis – 4 (28.57%) were the commonest. Among brain abscess, 4 (28.87%) patients had cerebellar abscess and 2 (14.29%) patients had temporal lobe abscess. Two (14.29%) patients had presented with subdural empyema. Lateral sinus thrombosis and perisinus abscess was found only in 1 (7.14%) patient each (Table VI). Among granulomatous cases the commonest extracranial complication was same as in cases of cholesteatoma i.e. mastoid abscess/ fistula or Bezold's abscess with 9 (64.28%) patients. Facial nerve palsy in isolation was present in 3 (21.42%) patients. Labyrinthine fistula and facial palsy with profound sensorineural hearing loss were present in 1 (7.14%) patient each. The only intracranial complication found in granulomatous cases was perisinus abscess which was present in 1 patient. Both extra- and intracranial complications (acute mastoiditis, Bezold's abscess and extradural abscess) were present in 1 patient with granulation tissue (Table VII).

Table VI. Distribution of complications in cholesteatomatous cases

Complication	No. of patients	Percentage
Extracranial		
Acute mastoiditis / mastoid abscess / mastoid fistula / Bezold's abscess	27	79.41
Acute labyrinthitis/ labyrinthine fistula	3	8.82
Mastoid abscess/fistula and profound SNHL	2	5.88
Facial nerve palsy	1	2.94
Mastoid abscess and facial nerve palsy and CSF otorrhoea	1	2.94
Intracranial		
Brain abscess	6	42.86
a. cerebellar abscess	4	28.57
b. temporal lobe abscess	2	14.29
Meningitis	4	28.57
Subdural empyema	2	14.29
Perisinus abscess	1	7.14
Lateral sinus thrombosis	1	7.14

DISCUSSION

Table VII. Distribution of complications in patients with granulation tissue

Complication	No. of patients	Percentage
Extracranial		
Mastoid abscess / mastoid fistula / Bezold's abscess	9	64.28
Facial nerve palsy	3	21.42
Labyrinthine fistula	1	7.14
Facial nerve palsy and profound SNHL	1	7.14
Intracranial		
Perisinus abscess	1	
Extra+Intracranial		
Acute mastoiditis and Bezold's abscess and extradural abscess	1	

In preantibiotic era the incidence of complications of CSOM was very high. After invention of antibiotics although the incidence has decreased, it is still high in underdeveloped countries like ours. Most of our patients had a single extracranial complication - 48 (75%) patients. This is in contrast to other study done in India which reported higher incidence of multiple complications (43.48%) .[5] We found that complications were more common in age group of 11-20 years which is consistent with other studies. [5,6,7,8,9] The reason behind this may be that this is socially the most active and health conscious age group. Male patients were more than females which is consistent with other studies.[5,10] It may be due to male dominating society.

In this study the commonest extracranial complication was acute mastoiditis/mastoid abscess and/or fistula/Bezold's abscess 36 (75%). A study done by Gupta et al. (1996) reported only .12% subperiosteal and subcutaneous abscess with mastoiditis and 13.04% discharging sinus.[5]

Brain abscess - 6 (40%) patients and meningitis - 4 (26.67%) patients were the two most common intracranial complications. Among the brain abscess, cerebellar abscess - 4 (26.67%) patients was more common than temproral lobe abscess - 2 (13.33%). This finding is more or less consistent with the study of Kurien Mary et al. (1998) which also revealed meningitis to be the commonest intracranial complication followed by cerebellar abscess.[10] However, in other studies temporal lobe abscess was more common than cerebellar abscess.[1,6]

This study showed that 75% patients with complications were due to cholesteatoma which is consistent with the study of Gupta et. al. (1996) which showed 75.74% cases with cholesteatoma.[5] Bluestone also reported that 2/3 of complications were due to cholesteatoma.[1] Extracranial complications were more common in patients with granulation tissue 14 (87.50%) while intracranial complications were more common in patients with cholesteatoma 14 (29.17%). However, when tested statistically it was found not to be significant (p= 0.3764 and 0.1089 respectively). The reason behind this finding may be presence of granulation tissue beneath the epithelium of cholesteatoma though it can occur without cholesteatoma.[11] Another reason may be association of both types of pathology with infection and inflammatory process where inflammatory cells and various factors such as lymphokinin, prostaglandins and lysozomal enzymes are released which are responsible for bone erosion resulting in complications. Multiple complications (more than one complications) were seen in only 5 (7.81%) patients. However, Gupta et al. reported the incidence of multiple complications being 47.82%.[5]

CONCLUSION

Complications of atticoantral type of CSOM accounts for a high rate of morbidity and mortality in developing countries. Complications were common in males and in young age group (11-20 years). Extracranial complications (75% of the cases) were more common than intracanial complications (23.44%). Acute Mastoiditis/ mastoid abscess and/or fistula were being the commonest extracanial complication.Brain abscess and meningitis were the commonest intracranial complications. Cerebellar abscess was more commom than temporal lobe abscess. General Physicians (GP) as well public at large should be made aware of seriousness of middle ear suppuration as these account for high rate of morbidity and mortality in our country.

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