

Original Article

Prevalence of Chronic Suppurative Otitis Media in Out Patient Department (OPD) in a District Level 250 Bedded General Hospital, Gopalganj, Bangladesh

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Abstract

Aims: To find out the prevalence and profile of chronic suppurative otitis media (CSOM) in district level of Bangladesh.

Methods: This was a prospective cross sectional study which was carried out patients of chronic suppurative otitis media attended in OPD of 250 Bedded General Hospital, Gopalganj. A total number of 200 patients of CSOM were randomly selected from OPD irrespective of sex and religion during period of July 2015 to June 2016. Age ranging 0- 60 years and person residents of Gopalganj and adjacent districts.

Results: In this study 60.5% were male and 39.5% female. Male Female ratio 3:2. Majority of respondents were age group is 11 to 20 years. (36.5%). Mean age of patient 29.98 years. Maximum families 52% had monthly income of TK 10,000 to 15,000 and maximum patients were dependant (37.5%). 5- 6 family members were highest group (60%), 60% respondent lived in Kacha house, 75% lived in rural area and 35% respondents used to bath in pond. The majority of clinical features were otorrhea (100%), deafness (32%), otalgia (42%), itchy ear (10%), tinnitus (50%), odor from ear (10%) and vertigo (5%). Most of ears (90%) were tubotympanic type of CSOM and medium size perforation were maximum (32.5%).

Conclusion: Prevalence of CSOM is still high in rural area of our country and community found in younger age group. Improvement of socio-demographic factors, health awareness campaign, improved health education and easy accessibility to health care facilities can reduce the incidence of disease.

Key Words: Chronic Suppurative Otitis Media, Prevalence, District level Hospital

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Introduction

Chronic Suppurative Otitis Media (CSOM) has been an important middle ear disease since prehistoric times.²⁸ Chronic Suppurative Otitis Media (CSOM) is one of the most common ear diseases in South East Asia having a prevalence of approximately 5.2% in general population.¹ Prevalence of CSOM in developing countries represents a wide range 4% to 33.3%.² In Bangladesh its prevalence is 12.44%³, 7.39%.⁴ Studies in Bangladesh, India, various countries in Africa and amongst certain disadvantaged ethnic groups have shown that CSOM may have a prevalence of between 2 and 17% among children.⁵

Chronic Suppurative Otitis Media is one of most common health problem in Bangladesh. Its incidence has been reported to depend on race and socio-economic factor.⁶ The etiology and pathogenesis of otitis media are multifactorial and include genetic, infections, allergy, environmental, social and rural factors and Eustachian tube dysfunction.⁷ Chronic Suppurative Otitis Media (CSOM) is one of the most common childhood infectious diseases worldwide and is a common cause of hearing impairment in resource limited settings, although it is infrequently seen in resource-rich settings.⁸

CSOM is chronic inflammation of the middle ear associated with tympanic membrane(TM) perforation and chronic discharge (otorrhea).⁸ The world Health Organization defines CSOM as otorrhea lasting at least two weeks⁸; however, "Chronic" is more commonly are defined as symptoms persistent for >6 weeks. The most common suggested cut off for duration of suppuration is six weeks (range two weeks to three months).⁹ CSOM is a major health problem in developing countries like India respites the advances in health care facilities. It is one of common disease in ENT practice. In our country burden of the disease

is too high considering the huge population. CSOM is more common in low socioeconomic status groups, communities with overcrowding, made quite housing, poor hygiene, lack of breastfeeding, poor nutrition, impaired immunologic status, passive smoking, frequent upper respiratory tract infection, high rates of hospitalised colonization with potentially pathogenic bacteria and inadequate or unavailable health care. CSOM usually present with otorrhea, hearing loss, otalgia etc. causing psychological trauma and financial burden to the society.¹⁰ During the recent decades the incidence of chronic otitis media has dramatically declined due to improvements in housing, hygiene and antimicrobial chemotherapy.¹¹ Racial difference, geographic and socioeconomic condition, educational status are factors that influence the prevalence of this disease.¹² The department of community medicine in All Indian Institute of Medical Science revealed CSOM in 15.3% of rural child.¹³ More than eighty percent of our people are from rural areas and for practical regions a small proportion of this bulk is within the access of the national health care system. CSOM in our population is still alarming. Now it is the most common cause of deafness in our country. In our country due to lack of facilities and unawareness the people usually take less care of CSOM. Poor environmental sanitation and poor housing influence the higher incidence of disease. This study based on clinical examination of the people attended in outpatient department of 250 Bedded General Hospital. Aim of this study was find out the prevalence of CSOM in district level of Bangladesh and to find out the aetiological factors of C.SOM.

Aim of the study : To find out the prevalence and profile of chronic suppurative otitis media (CSOM) among the people of Gopalganj and neighbouring districts.

Methods

Type of the study: Cross sectional study .
Place of study: ENT Outpatient Department, 250 Bedded General Hospital, Gopalganj .

Study Population: Patients of chronic suppurative otitis media (CSOM) attended in OPD.

Selection of patients: 200 patients of CSOM were randomly selected from OPD irrespective of sex and religion.

Period of study: July 2015 to June 2016.

Statistical Analysis:

The data obtain from the study were compiled and standard scientific calculator as well as computer software were used and the results of this study analysed statistically using SPSS 20 where relevant.

Results

Two hundred cases of chronic suppurative otitis media(CSOM) were included in this study from outpatient department of ENT, 250 Bedded General Hospital Gopalganj, from July 2015 to June 2016.

In this study 121(60.5%) cases were male and 79(39.5%) cases were female. Male Female ratio 3: 2. Age ranges were 0 to 60 years.

Table-I*Distribution of respondents by Age (n=200)*

Age Group	Male	Female	Total	Percentage
0-10 years	9	5	14	7%
11-20	45	28	73	36.5%
21-30	36	20	56	28%
31-40	20	13	33	16.5%
41-50	8	5	13	6.5%
51-60	3	8	11	5.5%
Total	121	79	200	100%

Table shows the distribution of the respondents (by inclusive method) .Majority of the respondents were the age group 11-20

years 73(36.5%) and age group 51-60 years 11 (5.5%) were minimum. Mean age of patient 29.98 years (SD 17.7529).

Table-II*Distribution of respondents by sex (n=200)*

Sex	Number of Patient	Percentage
Male	121	60.5%
Female	79	39.5%
Total	200	100%

Male comprise 60.5% Female 39.5%

Table-III*Distribution of respondents by monthly family income (n=200)*

Monthly Income	Number	Percentage
Up to TK 10,000	60	30%
TK 10,001 to 15,000	104	52%
TK 15,001 to 20,000	20	10%
TK 20,001 to 25,000	10	5%
More than TK 25,000	6	3%
Total	200	

Maximum of families 104(52%) had monthly income of TK 10,000 to 15,000 and lowest more than TK 25,000 group was 6(3%).

Table-IV*Distribution of respondents by occupation (n=200)*

Occupation	Number	Percent
Dependant	75	37.5%
Day labourer / Farmer/ Rickshaw / Van / Auto puller	30	15%
Service holder	35	17.5%
Business	10	5%
Others (Included House wife)	50	25%
Total	200	100%

Maximum 75(37.5%) patients were dependants and minimum 10 (5%) were businessman.

Table-V*Distribution of family by number of family member (n=200)*

No of member	Number	Percentage
Upto 4	50	25%
5 - 6	120	60%
7 - 8	20	10%
9 - 10	10	5%
Total	200	100

5- 6 family members 120 (60%) were the highest group and 9- 10 family members 10 (5%) were lowest group.

Table-VI*Distribution of respondents by type of housing (n=200)*

Housing Type	Number	Percentage
Zhupri	4	2%
Katcha	120	60%
Semi Pakka	46	23%
Pakka	30	15%
Total	200	100

Maximum 120 (60%) respondents lived in katcha house and minimum 4 (2%) lived in zhupri.

Table- VII*Distribution of respondents by habitat (n=200)*

Habitat	No. of patients	Percentage
Urban	50	25%
Rural	150	75%
Total	200	100

Maximum respondents 150 (75%) lived in rural area.

Table- VIII*Distribution of respondents according to source of water supply for bathing (n=200)*

Source of water	Number of patients	Percentage
River	50	25%
Pond	70	35%
Tube Well	45	22.5%
Tap water	35	17.5%
Total	200	100

Table shows most of the respondents used to bath in pond 70(35%) followed by river 50 (25%) and Tube well 45 (22.5%).

Table- IX*Clinical features of Patients with CSOM (n=200)*

Clinical Feature	Number of patients	Percentage
Otorrhea	200	100%
Deafness	64	32%
Otalgia	84	42%
Itchy Ear	20	10%
Tinnitus	100	50%
Vertigo	10	5%
Odor from ear	20	10%

The majority of clinical features were Otorrhea 200(100%), Deafness 64(32%), Otalgia 84(42%), Itchy Ear 20(10%), Tinnitus 100(50%), Odor from ear 20(10%) and Vertigo 10(5%).

Table- X
Distribution of Ears by type of CSOM (n=200)

Site	No. of patients (No of Ears)		Total No. of patient
	Tubotympanic	Attico antral	
Unilateral	130	15	145
Bilateral	50	5	55

Table shows most of Ears 180 (90%) were Tubotympanic Type of CSOM and 20(10%) Attico antral Type of CSOM.

Table- XI
Distribution of diseased Ears on the basis of perforation size (n=200)

Size of perforation	No. of ears	Percentage
Small	55	27.5%
Medium	65	32.5%
Large	40	20%
Sub total	20	10%
Attic	20	10%

Table shows medium size perforation were maximum 65(32.5%) followed by small 55(27.5%) and large 40(20%).

Discussion

CSOM is one of the most common ear diseases in south east Asia having a prevalence of approximately 5.2% of general population (According to WHO regional office for SE Asia 2004).¹ CSOM with or without complications continues to affect a large number of patients particularly in developing countries². The major causes of this problem are neglected and lack of proper medical attention. There is large number of patient in whom any sort of treatment is delayed for various reasons. Many of them received inadequate or inappropriate medical therapy. CSOM is a common health problem in our country, affecting especially the low socioeconomic group of people. Some

studies have already been done in CSOM in inside and the outside the country and various predisposing factors have been clearly identified. Most studies in CSOM were done amongst children. But a very few studies were done among all age group.

In our study, during the study period of one year 8,700 ENT and Head-Neck patients were attended in outpatient department. 2,900 patients were various ear diseases. Out of these 660 (7.59%) were CSOM and out of 660 CSOM 200 CSOM patients were randomly selected as per as inclusion criteria of the patients. This finding (7.59%) is consistent with the reports of Balle VH et al. and Rupav et al. Balle VH et al. in a prevalence study in Vietnam in 1995 found CSOM in 6.68%^{15,16}. Similarly Rupav et al. also found the prevalence of CSOM as 6% in India 1999.² However the present finding is less than the prevalence shown in some Bangladeshi studies. Majed MA. has found CSOM 15.06% patient in a study in Dhaka Medical College Hospital in 1977 (Majed MA. 1979).¹⁶ Amin et al found CSOM 18.46% to 35.58% in four rural ENT camps in 1985 (Amin et al 1985).⁵ 31.25% CSOM was found in Rangpur Medical College Hospital in 1996(Haque GHMS et al).¹⁸ Thakur, et al shown high incidence of otitis media (17.3%)¹⁷and Zakzouk and al-Mohaimed also showed similar high incidence of otitis media in their study (19.6%).¹⁸ The lower incidence and prevalence our series can be explained by the fact that with passage of time the

socioeconomic status of the country have improved. The increase in awareness among mothers and improved the healthcare facilities may have some positive impact in decreasing the incidence of CSOM. Lower incidence 1.1% of CSOM has been stated in Kenya in 1992 (Hatcher J et al)^{19,20}. In New Zealand two different studies has shown the reduction of CSOM (Hamilton MA et al.).²¹ In one study CSOM was said to reduce from 10.0% in 1974 to 2.7% 1978 (Giles M, Asher L).^{21,22}

In this study, the age distribution shows that highest 36.5% cases of CSOM were found in 11- 20 years and age group 51- 60 years were minimum (5.5%). It seems that it is not in accordance with view of Browning GG. The incidence of otitis media remains high in first five years of life.²⁹ In the present study 60.5% patients were male and 39.5% patients were female. This findings suggests that sex affect in the development of CSOM in the ear. Our results approved with the results of Venderveen et al, 2006. while not agreed with the study of Arnold, 1996. Venderveen et al (2006) stated that no difference between the sex in the patients with CSOM with age.²³ Arnold (1996) found that the middle ear disease is more common in boys than girls. The sex incidence of present series is similar to Siddique BH where in large series the male comprised 62.18% and female comprised 37.72% of cases.²⁴

The prevalence of CSOM was 30% upto TK10,000, 52% is TK 10,000- 15,000, 10% upto TK 15,000 to 20,000, 5% upto TK 20,000 to 25,000 and 3% more than TK 25,000 monthly family income group. The study shows CSOM was more prevalent in lower socioeconomic conditions. Aundhkar VH found CSOM is generally found to be more prevalent in lower socioeconomic condition.²³ Siddique BH also found majority of CSOM cases is poor and very poor families.²⁴ In a rural based survey in Bangladesh in 1995

found CSOM is 19% is very poor and 54% is poor class. CSOM in middle and affluent class were found is 25% and 2% families respectively.²⁴

In this study, as an occupation the dependents were affected most (37.5%). Nazma Kamal shows that the most of the population are dependent group (83.2%) and in CSOM cases the most (93.3%) are also is dependent group.²⁰ In this study, most respondents (60%) were in 5- 6 family members and CSOM were maximum in this group. In our study 60% families used to live in katcha house and 23% semi pakka house. This finding is well supported in WHO/CIBA foundation workshop of 1996, where poor housing has been recognised as a risk factor for CSOM. In this study maximum respondents lived in rural area (75%). In the present study most of the respondents used to bath in pond (35%) followed by river (25%) and tube well (22.5%). Mohammad Shafiqul Islam et al. shows that most patients used to bath in pond (29.39%) followed by tube well (27.33%) and river (20%) which are similar to our study.³² Considering clinical features that majority of clinical features were otorrhea (100%), deafness (64%), otalgia (42%), itchy ear (10%), tinnitus (50%), odor from ear (10%) and vertigo (5%). Study done by Alabbasi et al. Shown the similar type of clinical features otorrhea (100%), otalgia (41.7%), itchy ear (38%), tinnitus (50%), odor from ear (25%) and vertigo (25%).

Considering the type of CSOM our study shows that most of ears (90%) were tubotympanic type and only 10% were attico-antral type of CSOM. This result consistent with study done by Shaheen MM et al. Where children with CSOM (95.4%) were tubotympanic type and only (4.6%) were attico-antral type.³² Study done by Dr. Prakash Adbikari et al around 76% had tubotympanic disease and only 29% had

attico-antral disease.³⁵ This result is not consistent with our result. This study indicates higher prevalence of tubotympanic disease in our society.

Considering the size of perforation our study shows medium size perforation were maximum (32.5%) and small size perforation 27.5%. Mohammed Shafiqul Islam et al. also found medium size perforation were maximum (26.67%).³⁶ Al- Rabbani AM et al. also shown that medium size perforation were maximum (26.67%).²⁵

Conclusion

The objective of the study were to determine the prevalence of CSOM among the patients attended in ENT outpatient department and to see association of CSOM with age, sex, family members, types of housing, bath in ponds, overcrowded housing. Prevalence of CSOM is still high in rural area of our country and community found in younger age group. Male are more affected than female, lower socioeconomic group of peoples are more prevalent. Thus improvement of these sociodemographic factors, health awareness campaign, improved health education and easy accessibility to health care facilities can reduce the incidence of this disease.

References

1. Prevention and causes of deafness and hearing impairment in the South East Asia region, State of Hearing and Ear care in the South East Asia Region, WHO regional office for SE Asia 2004:9-10.
2. Rupav, Jacob A, JosepA, 'Chronic Suppurative Otitis Media: Prevalence and practice among rural South Indian Children', International Journal Paediatric Otorhinolaryngology 1999; 48:217-21.
3. Biswas AC, Joardar AH, Siddique BH. Prevalence of Chronic Suppurative Otitis Media among rural school going children. Mymensingh Medical Journal 1995; 14: 152-5.
4. Kamal N, Joardar AH, Chowdhury AA, Khan AW. 'Prevalence of Chronic Suppurative Otitis Media among children living in two selected slums of Dhaka city', Bangladesh Medical Research Council Bull 2004; 30:95-104.
5. Datta PG, Newton VE, Amin etal. Chronic Suppurative Otitis Media – A major cause of hearing impairment in developing countries. J. Bangladesh Coll Phys Surg; 13: 24- 27.
6. Mills RP. Management of Chronic Otitis Media. In: Kerr AG, editor. Scott Brown's Otolaryngology. Vol. 3, Otology, 6th edition, London: Butter worths Heinemann publishers 1997: 1-11
7. Mahajan M, Bhandari S, Singh I, Mishra SC. Prevalence of Otitis Media in school going children in eastern Nepal. Kathmandu Univ Med J. 2006; 16: 479-82.
8. Verhoeffin, Van der Veen EL, Rovers MM, et al, Chronic Suppurative Otitis Media: a review. Int J Pediatr Otorhinolaryngol 2006; 70:1
9. Bluestone CD. Epidemiology and pathogenesis of chronic Suppurative Otitis Media: implications for prevention and treatment. Int J Pediatr Otorhinolaryngol 1998: 42: 207.
10. Basak B, Gayen GC, Das M, Dhar G, Ray R, Das AK, Demographic profile of CSOM in a rural tertiary care hospital. West Bengal, India. IOSR Journal of Pharmacy 2014; 4: 43-46.

11. Euro Vartiainen MD. Changes in the clinical presentation of Chronic Otitis Media From 1970s to the 1990s. *The Journal of Laryngology and Otology* 1998; 112: 1034-37.
12. Cambon K, Galbraith JD and Kong G. Middle ear disease in Indians of the mount currie Reservation, British Columbia, Can. *Med. Assoc. J.* 1965; 39: 1301-1305.
13. Verma AK, Vohra A, Maitra A et al. Epidemiology of Chronic Suppurative Otitis Media and deafness in arural area and developing an intervention strategy. *India J. pediatr* 1995 Nov-Dec. 62(6): 725-9.
14. Gower DJ, Meguirt WP. Intracranial Complication of acute and chronic infections ear disease: a problem still with us. *Laryngoscope* 1983; 93: 1023-31.
15. Balle VH, Tos M, Dang HS, Le T, Tran TT, Vu MT. Prevalence of Chronic Suppurative Otitis Media in a randomly selected population from two communes in southern Vietnam. *ActaOtolaryngol* 2000; 543(2-3 suppl): 51- 3.
16. Majed MA, ENT problems in Bangladesh, *Bangladesh Med. J.* 1979; 8: 55- 59.
17. Amin MN, Chowdhury WA, Sheikh MS, Abdullah M. Pattern of ENT diseases in rural Bangladesh. *J Bangladesh Coll Phys Surg* 1985; 7: 23- 27.
18. Haque GHMS, Joarder AH, Amin ASA, Islam MA, Ahsan MZ, Akaiduzzaman DGM. Pattern of ENT diseases: an outpatient based study in Rangpur Medical College Hospital. *Northern Med J* 1996; 5: 52- 5.
19. Hatcher J, Smith A, Mackenzie I, Thompson S, Bal I, Macharia I, Mugwe P, Okoth OC, Ourra H, Wanjjohi Z et al. A Prevalence study of ear problem in school children in kiambu district, Kenya, *Int J Padiatr Otorhinolaryngology* 1995; 33: 197- 205.
20. Nazma Kamal, Prevalence of Chronic Suppurative Otitis Media among the children of two selected slum dwellers in Dhaka city. (Dissertation) NIPSOM Library, 2000- 2001: pp 67- 68.
21. Hamilton MA, McKenzie- Pollock M, Health ME. Aural health in 227 Northland school and preschool children. *NZ Med J* 1980 Jan 23; 91(652): 59- 62.
22. Giles M, Asher L, Prevalence and natural history of otitis media with perforation – Maori school children. *J LaryngolOtol* 1991 April, 105(4): 257- 60.
23. Aundhkar VM. A study of correlation of clinical feature, radiological evaluation and operative findings of Chronic Suppurative Otitis Media with cholesteatoma. Research JN Medical College, 2000.
24. Siddique BH, Khan AH, Chronic otitis media- a rural area based study. *SSMCJ* 1995; 3(1): 31- 33.
25. Shawquat Iqbal, Prevalence of chronic Suppurative otitis media under 12 year of children in a selected slum of Dhaka city (Dissertation) BSMMU library, 1997: pp 17- 18.