

ORIGINAL RESEARCH ARTICLE

DOI: 10.26727/NJRCM.2020.9.2.085-089

Year: 2020 Vol: 9 Issue: 2. Apr.-Jun. Page: 085-089

A Cross Sectional Study on Chronic Suppurative Otitis Media (CSOM) Among Patients Attending A Tertiary Care Centre in Salem, Tamil Nadu**S. Sangeetha¹, S Shiva Kumar², M. Vijayakarathikeyan³**

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Date of Submission : 20-05-2020
Date of Acceptance : 10-06-2020

Date of online Publication : 13-06-2020
Date of Print Publication : 30-06-2020

ABSTRACT

BACKGROUND: The prevalence of CSOM (Chronic Suppurative Otitis Media) in India varies from 0.5% to 30%. It is one of the major causes of acquired hearing impairment in all individuals. The burden of the infection depends on age, low socio-economic status and overcrowding. **OBJECTIVES:** To determine the epidemiological factors among CSOM patients attending ENT Department in a tertiary care hospital; To study the clinical profile of CSOM patients attending ENT Department. **METHODS:** This cross-sectional study was conducted among 60 CSOM patients attending ENT Dept of VMKV Medical College & Hospital, Salem, from July 2019- Dec 2019. The patients with history of ear discharge for more than 3 months were considered for the study and purposive sampling method was used. A pre-tested semi structured questionnaire was used for data collection. Detailed history and examination of the ear was done. Descriptive statistics were used to describe the study variables. **RESULTS:** Among 60 participants, majority of patients 20 (33.3%) belonged to 10-20yrs age group, males constituting the maximum of participants 37 (61.6%). About 35(58.3%) had bilateral type of CSOM. Nearly 43(71.7%) had active discharge with 57(95%) hearing loss. About 48 (80%) had mucopurulent ear discharge with 54(90%) having perforation and complication like chronic mastoiditis was seen in 8(13.3%) individuals. Associated risk factors like Overcrowding, ASOM (Acute Suppurative Otitis Media), recurrent upper respiratory infection, history of water or oil instillation into the ear were seen in majority of patients. **CONCLUSION:** CSOM is the most common cause of preventable hearing loss, increasing the burden over the society. Its prevalence can be reduced by increasing the awareness of risk factors for ear discharge and hearing loss.

Key word: Otitis media, Tertiary care center, Hearing loss, CSOM

INTRODUCTION

India is a developing nation, where CSOM (Chronic Suppurative Otitis Media) is a common ailment in the specialty of ENT. CSOM is a chronic inflammatory disease of middle ear cleft which presents with recurrent ear discharge or otorrhoea through a tympanic perforation. It's a common condition affecting 0.5 to 30% of any community worldwide. ⁽¹⁾ Studies in India, Bangladesh, various countries in Africa and amongst certain disadvantaged ethnic groups have shown that CSOM may have a prevalence of between 2% & 17% among children. In developing countries, the complications are comparatively higher. ⁽²⁾

Recurrent upper respiratory tract infection in children is an important triggering factor for otorrhoea episodes and in rural areas swimming and bathing in lake or streams leads to entry of water into the middle ear causing intermittent

ear discharge. ⁽³⁾ Recurrent AOM (Acute Otitis Media) may predispose to CSOM and that 35% of children with recurrent AOM developed CSOM. Common risk factors are repeated respiratory infections, infection of the nose and throat, poor standard of living, lack of access to proper medical care and irrational use of antibiotics. Poor hygiene, malnutrition, allergy, overcrowding, bottle feeding, passive exposure to smoking, attendance in day care congested centers and a family history of CSOM are associated with increased risk of CSOM. These risk factors probably favour the development of CSOM by weakening the immunological deficiencies, increasing the inoculum and encouraging early infection. ⁽⁴⁾

The disease is classified into active (mucosal) and inactive (squamous). The CSOM mucosal type is characterised by either permanent perforation of pars tensa with

inflammation of the middle ear, characterised by intermittent mucopurulent discharge which is precipitated by upper respiratory tract infection and entry of water or oil instillation.⁽⁵⁾

CSOM Inactive type is characterised by retraction pocket in the tympanic membrane with cholesteatoma in the tympanic membrane with foul-smelling discharge. Complications of CSOM are, it produces chronic mastoiditis by contagious spread, erosion of the walls of middle ear and mastoid cavity leading to exposure of facial nerve, Jugular bulb, lateral sinus thrombosis, labyrinthitis, Meningitis and brain abscess.⁽⁶⁾ With this available background the study was planned to assess the factors influencing CSOM in a tertiary care hospital, Salem.

MATERIAL AND METHODS

This is time bound Cross-Sectional study conducted on CSOM patients. The study was conducted in the ENT Dept of Vinayaka Mission's Kirupananda Variyar Medical College & Hospital, situated in the Salem district of Tamilnadu for a period of 6 months from July 2019-December 2019.

Study population: Chronic Suppurative Otitis Media (CSOM) patients attending the hospital with history of ear discharge for > 3 months.

Sampling method and sample size: Purposive sampling method was used to select the study participants and the sample size enrolled was 60.

Inclusion criteria: Chronic Suppurative Otitis Media (CSOM) patients attending the hospital with history of ear discharge for > 3 months and providing consent for participation were included.

Exclusion criteria: CSOM patients on antibiotic therapy and those who did not provide consent for participation were excluded.

Data collection: A pretested semi structured questionnaire containing socio demographic details (age, sex, education, place of residence and socioeconomic status), clinical and epidemiological factors, examination findings (tuning fork test and ear examination) and details regarding risk factors (frequent upper respiratory tract infections, nasal disease, and poor housing, history of oil instillation into the ear or history of swimming in the pond) for CSOM were used for data collection.

Statistical analysis: Data was entered in MS Excel and analysed using SPSS version 22. Descriptive variables were represented in frequency and percentages.

Informed consent: A written informed consent was obtained from all the participants of the study before administering the questionnaire.

RESULTS

It was found that, majority of patients 20 (33.3%) with CSOM, belonged to 10-20 yrs age group and 14 (23.3%) belonged to 20-30 yrs age group, while only 3 (5%) belonged to < 10 yrs. The mean age of the study subjects was 21yrs+/-1.2SD among CSOM patients. It was found that majority were males 37 (61.7%), while female constituted 23 (38.3%). It was also found that majority of

patients 42 (70%) lived in bigger families with members of 5-7 and about 17(28.3%) patients lived in families, with members of 2-4. Nearly 40 (66.7%) were residing in rural areas, while 20(33.3%) lived in urban areas. Most of the patients 28(46.7%) had completed Primary schooling, while 19(31.7%) were illiterates. Similarly, majority of patients 45(75%) belonged to low socio economic class, in which 28 (46.7%) belonged to Lower socio economic class and 17 (28.3%) belonged to Lower upper socio economic class.

Table 1 Socio-demographic profile among the study population

Socio-demographic profile	Frequency (n=60)	Percentage (%)
Age group		
<10	3	5
10-20	20	33.3
20-30	14	23.3
30-40	13	21.6
>40	10	16.7
Sex		
Male	37	61.7
Female	23	38.3
No. of family members		
2-4	17	28.3
5-7	42	70
8-10	1	1.7
Place of living		
Urban	20	33.3
Rural	40	66.7
Educational Status		
Illiterate	19	31.7
Primary	28	46.7
Secondary	9	15
S.S.L.C	2	3.3
Degree	2	3.3
Socio-economic status		
Upper middle	2	3.3
Lower middle	13	21.6
Upper lower	17	28.3
Lower	28	46.7

It was found that 33(55%) of the patients lived under overcrowded environment. Similarly, 48 (80 %) had ASOM (Acute Suppurative Otitis Media), while 12(20 %) patients did not have ASOM. Around 41(68.3%) had recurrent upper respiratory infection, while 19(31.7%) did not have recurrent URTI. The patients, who complained of snoring/breathing by mouth were 47 (78.3%), while 13(21.7%) did not have snoring or mouth breathing. The patients, who had oil /water instilled into their ears were 45 (75%), while 15(25%) of patients did not have oil or water instillation into the ear. About 22 (36.7%) had history of river water bathing, which could have predisposed to CSOM, while 38(63.3%) did not have history of river water bathing. It was found that factors like overcrowding,

history of ASOM, recurrent URTI, history of oil or water instillation into the ear were all strongly associated in causing CSOM.

Table 2 Associated risk factors for CSOM among the study population

Risk Factors	Frequency (n=60)	Percentage (%)
Over Crowding		
Present	33	55
Absent	27	45
ASOM		
Present	48	80
Absent	12	20
Recurrent URTI		
Present	41	68.3
Absent	19	31.7
H/O		
Snoring/Mouth Breathing		
Present	47	78.3
Absent	13	21.7
H/O oil/water instillation into ear		
Present	45	75
Absent	15	25
H/O River bathing		
Present	22	36.7
Absent	38	63.3

Table 3 Clinical profile of CSOM among study population

Clinical profile	Frequency n=60	Percentage (%)
Type of CSOM		
Right	8	13.3
Left	17	28.3
Bilateral	35	58.3
Stage of CSOM		
Active	43	71.7
Inactive	17	28.3
Discharge		
Present	60	100
Absent	-	-
Hearing Loss		
Present	57	95
Absent	3	5
Discharge Type		
Mucoid	10	16.7
Mucopurulent	48	80
Purulent	2	3.3
Perforation		
Present	54	90
Absent	6	10
Developed complications		
Present	8	13.3
Absent	52	86.7

Table 3 shows clinical profile of CSOM among study population. Sixty patients with a history of ear discharge for more than 3 months were studied. On clinical examination, it was found that majority 35 (58.3%) had bilateral type of CSOM, 17 (28.3%) had left side CSOM and 8 (13.3%) had Right side CSOM. About 43 (71.7%) had Active type of CSOM, while 17 (28.3%) had inactive type of CSOM. Nearly 57 (95%) had hearing loss, tested by tuning fork tests. All 60 (100%) patients had chronic ear discharge. Majority 48 (80%) had mucopurulent type of ear discharge. Mucoid discharge was seen in 10 (16.7%) of cases and purulent discharge was seen in 2 (3.3%) of the cases. Perforation was seen in 54 (90%) of the cases and complications was seen among 8 (13.3%) of the individuals, mainly chronic mastoiditis.

DISCUSSION

CSOM is one of the commonest otorhinolaryngological disease. Although the use of antibiotics has reduced complications of CSOM, it is still a major cause of morbidity in our environment with poverty being the main influencing factor.

The multifactorial nature of otitis media includes inadequate antibiotic treatment, frequent upper respiratory tract infections, nasal disease and poor living conditions with poor access to medical care are related to the development of CSOM. Poor housing, hygiene and nutrition are associated with higher prevalence rates and improvement in these aspects was found to have less prevalence of CSOM.⁽⁷⁾

Sixty patients with a history of ear discharge for more than 3 months were studied. More than 50% cases belonged to second and third decades (Table no. 1), similar to Narve et al.⁽⁸⁾ found 69% cases belonging to second and third decades. The reason for highest incidence of patients in this age group may be due to multiple reasons like low resistance or negative attitude to seek early treatment. Our study found a mean age of 21 years among CSOM patients similar to the results in a study by Shrestha BL, Shrestha I, Amatya R⁽⁹⁾ showed that Patients < 30 years were affected whereas Maharjan M⁽¹⁰⁾ reported a mean age of 34 years and Vartianinen⁽¹¹⁾ a mean age of 38 years among CSOM patients.

Majority of the patients in the study were males accounting to 61.7%, Similar to Narve et al which found high prevalence in males of 57%.⁽⁸⁾ It is observed that in a study by Aminu A. Bakari et al⁽¹²⁾ gender ratio in prevalence of CSOM was 1: 1 : 1 (males: females). The results in a study by Shrestha BL, Shrestha I, Amatya R⁽⁹⁾ showed that male to female ratio in chronic otitis media mucosal was 1.14:1, whereas in chronic otitis media squamous, it was 1.96:1. Of all the cases. 75% patients belonged to the lower socio-economic group, like other studies. Families of a lower social class often have more children and live in more congested homes with poor sanitation and hygiene, all of which create environmental conditions conducive to transmission of infectious agents. In addition, malnutrition which commonly accompanies low socioeconomic status, suppresses the immune system and places poor children at

greater risk of disease. The results in another study by Muhammad Musharaf Baig et al showed that majority (69%) of the patients belonged to lower socioeconomic status⁽¹³⁾ Another prospective study by Chowdhury MA et al⁽¹⁴⁾ and Md Rafiqul Islam et al⁽¹⁵⁾ showed that majority of the patients with CSOM were living in poor socio economic condition.

It is observed that in a WHO study in 2004 recurrent AOM may predispose to CSOM, similar to our study, (Table 2), where 80% of CSOM patients had recurrent ASOM⁽¹⁶⁾. In our study those with history of water or oil instillation into the ear, (75%) and recurrent URTI (68.3%) had CSOM, similar to study by Shrestha BL, Shrestha I, Amatya R⁽⁹⁾ showed that etiological factors, oil and water exposure (76%) was the most common cause in chronic otitis media mucosal, whereas in chronic otitis media squamous, oil and water exposure (62.5%) and recurrent upper respiratory tract infection (62.5%) were the most common causes.

In another study by Akeem O. Lasisi⁽¹⁷⁾ The onset of early otitis media (EOM), in the first few months of life has been reported to predict later chronic otitis media (CSOM). This study found correlation between EOM and hearing loss and identified allergy, low social status and chronic exposure to overcrowding through increased number of children in the household significant risk factors for future research focus. This may help in controlling the prevalence of hearing loss accompanying CSOM.

In our study 58.3% of the patients suffered from bilateral CSOM. Study done by Narve et al.⁽⁶⁾ Akinpelu OV et al.⁽¹⁸⁾ (2007) and Maharjan M et al⁽⁸⁾ (2009) "have similar results. All the cases of CSOM under study presented with ear discharge and hearing loss was associated with discharge in 95% of cases, like Olatoke et al study.⁽¹⁹⁾

Examination findings showed that most of the cases had mucopurulent discharge (80%), like other studies.⁽⁸⁾ Majority of the cases 43 (71.7%) had active CSOM with central perforation while only 17 (28.3%) cases had inactive type, like study by Mushtaque Ali Memon et al,⁽²⁰⁾ where, central perforation was seen in 89% cases and Intracranial complications were seen in nine patients.

CONCLUSION

Chronic Suppurative Otitis Media (CSOM) with and without complications continues to affect a large number of patients particularly in developing countries. CSOM is a common health problem in our country, affecting especially those with high risk factors like poor hygiene, malnutrition and lower socio-economic status of people. It is an important cause of morbidity in a very large group of Indian population in the form of preventable hearing loss. This morbidity becomes severe as duration of the disease progresses. Hence Increasing awareness about the disease and its complications among the people mandates its prevention.

ACKNOWLEDGEMENT

The authors are grateful to the Dean, and the Medical Superintendent of VMKV Medical College, Salem for their permission to conduct the study and their

encouragement. The authors wish to thank all the Interns, faculty and post graduate students of ENT department, who helped in data collection and examination of the patients for this study. The authors also thank the patients for their co-operation.

REFERENCES

1. P. G. Datta V.E. Newton, M. N. Amin, RKD Chowdhury. Chronic Suppurative Otitis media- a major cause of hearing Impairment in developing countries. J Bangladesh Coll Phys Surg 1995; 13:24-27.
2. Rupa V, Jacob A, Joseph A. Chronic suppurative otitis media: prevalence and practices among rural South Indian children. International journal of pediatric otorhinolaryngology. 1999 May 25;48(3):217-21.
3. Sheahan P, Donnelly M, Kane R. Clinical features of newly presenting cases of Chronic Otitis media. J. Laryngol Otol. 2001;115 (12) :962-6.
4. Gregg J. B, Steele J. P. and Holzhuter A. Roentgen graphic evaluation of temporal bones from South Dakota Indian burials. American Journal of Physical anthropology 1965; 23:51-62
5. Basak B, Gayen GC, Das M, Dhar G, Ray R, Das AK. Demographic profile of CSOM in a rural tertiary care hospital. IOSR J Pharm. 2014;4(6):43-6.
6. Dubey SP, Larawin V. Molumi CP. Intracranial spread of chronic middle ear suppuration. American Journal of Otolaryngology- Head and Neck Medicine and Surgery (2010);31: 73-77
7. McKenezie W and Brothwell. D. Disease of the ear, In: Diseases of antiquity, edited by D. Brothwell and T. Standison, Springfield. Charles C. Thomas. 1967:464-73.
8. VP. Narve, Pallavi Gupta, Rajveer Basu, Manish Sachan, Kavish Jhavar et al, Clinicopathological study of 100 cases of chronic suppurative otitis media in tertiary health care centre. Journal of Evolution of Medical and Dental Sciences. 2013;2(33):6169-6175.
9. Shrestha BL. Shrestha I, Amatya RC. Comparison of Clinical Presentation between Chronic Suppurative Otitis Media Mucosal with Squamous. Kathmandu University Medical Journal, Oct-Dec 2010;8(32):387-391.
10. Maharjan M, Kafle P, Bista M, Shrestha S, KC Toran. Observation of hearing loss in patients with chronic suppurative otitis media tubotympanic type. Kathmandu University Medical Journal 2009; 7(28): 397-401.
11. Vartianinen E. Changes in the clinical presentation of chronic otitis media from the 1970s to the 1990s. J Laryngol Otol 1998; 112:1034-7
12. Aminu A Bakari, Adeyi A. Adoga, Olushola. A. Afolabi, Aliyu M Kodiya, Babagana M. Ahmad. Pattern of Chronic Suppurative Otitis Media at the National Ear Care Centre Kaduna, Nigeria. Journal of Medicine in the Tropics (2010);12:22-25

13. Muhammad Musharaf Baig & Muhammed Ajmal, Ifra Saeed, Syeda Fatima. Prevalance of Cholesteatoma and its complications in Patients of Chronic Suppurative Otitis Media. Journal of Rawalpindi Medical College (JRMC) 2011; 15 (1): 16 -17.
14. Chowdhury MA, Alauddin M. Comparative study between tubo tympanic and-attico antral types of chronic suppurative otitis media. Bangladesh med res councl bull 2002 Apr; 28 (1): 26 -35
15. Md. Rafiqul islam, Ahmmad Taous, Md. Monwar Hossain, AFM Ekramuddaula, Mohammed shafiqul Islam. Comparative study of tubo tympanic and attico antral variety of chronic suppurative otitis media. Bangladesh J otorhynolaryngeol 2010;16(2):113-119
16. WHO Library Cataloguing-in-Publication Data Chronic Suppurative Otitis Media: Burden of illness and management options. ISBN 92-4-1591587
17. Akeem O. Lasisi , Oladopo Olayemi, Achiaka E. Irabor . Early onset otitis media: risk factors and effects on the outcome of chronic suppurative, otitis media. European Archives of Oto Rhino - Laryngology July 2008;265(7):765-768
18. Akinpelu OV, Amusa YB, Komolafe EO, Adeolu AA, Oladele AO. Ameye SA. Challenges in management of chronic suppurative otitis media in a developing country. J Laryngol Otol. 2008; 122(1) : 16-20.
19. Olatoke.F, Ologe FE, Nwawolo CC, Saka MJ. The prevalence of hearing loss among school children with chronic suppurative otitis media in Nigeria and its effect on academic performance. Ear Nose Throat J. 2008 Dec; 87(12): E19.
20. Mushtaque Ali Memon, Salman Matiullah, Zeba Ahmed and Muhammad Saleem Marfani. Frequency of unsafe chronic suppurative otitis media in patients with discharging ear. JLUMHS. May-August 2008:102-105.



Conflict of Interest : None

Source of funding support : Nil

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