

## **Original Article**

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# **Relationship between social factors and frequency of chronic suppurative otitis media and its extracranial complication**

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### **Abstract**

**Objectives:** To determine the relationship between social factors and frequency of CSOM & its extracranial complications and their clinical presentation.

**Methods:** This cross-sectional study was carried out in the Department of Otolaryngology Head and Neck Surgery, Sir Salimullah Medical College & Mitford Hospital and Dhaka Medical College Hospital from 1<sup>st</sup> July 2009 to 30<sup>th</sup> June 2010.

**Results:** In this study male (59%), lower class people (57%), age 11-20 years, resident in rural area (66%) and less educated patients were more affected. Having bath in the pond and/or river suffers more. Clinical presentation of CSOM and complication were aural discharge (100%), hearing impairment (94%), post auricular swelling (45%), pain in the ear (21%), postauricular discharge (27%), tinnitus (11%), vertigo (9%), headache (07%) and mass in the EAC (12%). Here found aural discharge mostly malodorous and scanty, attic perforation and cholesteatoma. Post auricular abscess most common (47%) extracranial complication and labyrinthitis is the lowest (3%). Atticoantral variety was more common (89%).

**Conclusion:** Lower class people of rural area, children and less educated persons were affected more with CSOM and its extracranial complications. So proper awareness among all level of people including medical practitioners can enhance prompt diagnosis and treatment and reduce the complication.

**Key words:** Social factors, Chronic suppurative otitis media, Extracranial complication.

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### **Introduction**

Chronic suppurative otitis media and its complications are major health problem in Bangladesh and other developing countries.<sup>1,2,3</sup> Though the incidence of CSOM is gradually declining, it is still remained an important subject of research both in developing and the developed countries.<sup>2,3</sup>

CSOM implies a permanent abnormality of the parse tensa or flaccida, most likely as a

result of earlier acute otitis media, negative middle ear pressure or otitis media with effusion.<sup>4</sup> CSOM found the most common otological disease in different study in most ENT units and commonly encountered in general practice.<sup>3,5,6</sup>

Chronic suppurative otitis media is usually classified into two main groups- atticofurcal disease and tubotympanic disease.<sup>7,8</sup> Tubotympanic disease is characterized by a perforation in the pars tensa, are generally called safe from developing complications.<sup>1,7,8</sup> Atticofurcal disease most commonly involve the pars flaccida and is characterized by the formation of a retraction pocket in which keratin accumulates to produces cholesteatoma and considered to a dangerous form of the disease because of development of complications.<sup>1,7,8</sup>

The incidence of chronic suppurative otitis media appears to some extent on racial and socio-economic factors. Poor living conditions, overcrowding, poor hygiene and nutrition have been suggested as a basis for the widespread prevalence of CSOM in developing countries.<sup>2,3,7,8</sup>

Complications of suppurative otitis media develop if infection spreads from middle ear cleft to structures from which this mucosa-lined space is usually separated by bone.<sup>9</sup> In the pre-antibiotic era these complications followed acute suppuration more than chronic middle ear disease. But now complications of CSOM are more hazardous.<sup>9,10,11</sup> Complications of CSOM are more common in combined with cholesteatoma and granulation tissue.<sup>10,11</sup> The overall incidence of complications has fallen greatly with antibiotic treatment.<sup>12</sup>

Based on popular usage, complications of suppurative otitis media are classified into two main categories- extracranial complication (EC) and intracranial complication (IC).

Extracranial complications are subperiosteal abscess, labyrinthitis, facial paralysis, petrositis.<sup>10,13</sup> Labyrinthine fistula is a frequent complication of long-standing unsafe CSOM, characterized by slowly progressive erosion of the bony labyrinth.<sup>14</sup> Intracranial complications are- meningitis, brain abscess, extradural abscess, subdural abscess and lateral sinus thrombosis. Different studies showed the extracranial complication of CSOM is more than that of intracranial complications.<sup>2,7,10,13</sup> Among the extracranial complications- post auricular abscess and post auricular sinus are the leading complications.<sup>7,10,11</sup> Cholesteatomas are potentially dangerous because of their potential to incite resorption of bone, leading to intratemporal or intracranial complications.<sup>15</sup>

### Methods

This is a Cross sectional, observational study carried out in the department of Otolaryngology & Head Neck Surgery department of Sir Salimullah Medical College and Mitford Hospital and Dhaka Medical College Hospital from 1<sup>st</sup> July 2009 to 30<sup>th</sup> June 2010. Patients presented with Chronic suppurative otitis media with extracranial complications were included and Patients with acute suppurative otitis media, chronic suppurative otitis media with intracranial complications were excluded from the study. Whenever a case selected from the admitted patients, detailed history of each of the patients had been taken in a prescribed data sheet with the informed consent of the patient or the patient's guardian. Each of the patients under gone through clinical examination and the findings were recorded and plotted on the data sheet. Some important relevant investigations were done and findings recorded properly. All the collected data analyzed and the results shown in tabulated form.

**Results****Table- I***Age distribution of the patients (n= 100)*

Age group (years)	Number	Percentage (%)
0-10	21	21
11-20	51	51
21-30	18	18
31-40	07	07
41-50	03	03

**Table- II***Educational qualifications of the patients (n= 100)*

Educational qualifications	Number	Percentage (%)
Illiterate	24	24
Primary education	41	41
Secondary education	21	21
Higher secondary education	11	11
Graduation	03	03

Here shown that the patient with illiterate and less educated group suffered more from CSOM and its complications.

**Table- III***Social parameters of the patients (n=100)*

Social factors		Number	Percentage
Sex	Male	59	59
	Female	41	41
Residence	Rural	66	66
	Urban	34	34
Bathing habit well/Shower	River/Pond	66	66
	Tube	34	34
Socio-economic conditions	Lower class	57	57
	Middle class	30	30
	Affluent	13	13

Lower class male living in rural area and having shower in river or pond are main sufferers.

**Table- IV***Clinical symptoms of the patients.*

Symptoms	Number	Percentage
Aural discharge	100	100
Hearing impairment	94	94
Post auricular swelling	45	45
Neck swelling	09	09
Supra & preauricular swelling	05	05
Pain in the ear	21	21
Headache	07	07
Vertigo	09	09
Tinnitus	11	11
Vomiting/nausea	04	04
Postauricular discharge	27	27
Mass in the EAC	12	12

**Table- V***Findings of physical examination of the patients*

Aural discharge	Odor (n= 100)		Amount of discharge (n= 100)		Nature of discharge (n= 100)			
	Odorless	Malodorous	Scanty	Profuse	Mucoid	Muco Purulent	Purulent	Blood stained
	13(13%)	87(87%)	85(85%)	15(15%)	09(09%)	31(31%)	46(46%)	14(14%)
TM perforation			Attic		Otoscopic		Microscopic	
			Posterior marginal		64		64	
			Central		25		25	
Cholesteatoma					11		11	
					87		91	
Aural polyp					12		12	
					07		09	
Granulation tissue			Middle ear		04		04	
			EAC		01		09	
Epithelial in growth					29		32	
			Intact		71		68	
Ossicles			Eroded					

The table above shows aural discharge is mostly malodorous and scanty in amount. Attic perforation and cholesteatoma found in majority of the cases. Most important factor is that microscopic examination is more important both in diagnosis of the disease and planning of the treatment.

**Table-VI**  
*Types of Extracranial complication of CSOM found in the study (n=100)*

Complication	Number	Percentage (%)
Post-auricular abscess	47	47
Post auricular discharging sinus	26	26
Labyrinthitis	03	03
Bezold's abscess	07	07
Facial nerve paralysis	11	11
Zygomatic abscess	06	06

**Table- VII**  
*Distribution of patients in different types of CSOM (n= 100)*

Types of CSOM	Number	Percentage (%)
Atticoantral	89	89
Tubotympanic	11	11

The complication of atticoantral variety of CSOM is more than that of tubotympanic variety of CSOM.

### Discussion

Chronic suppurative otitis media is a potentially serious disease because of its complications.<sup>10</sup> CSOM is quite common in developing countries.<sup>2</sup> A large number of peoples of younger age group and low socio-economic groups are more sufferers.<sup>2,3</sup> This type of disease is also common in our country.<sup>1</sup> Despite an overall decline in the incidence of complication of otitis media, some complications still exist.<sup>2,12</sup> Different

studies in different parts of the world found that patients with attico-antral type of disease presented with more complications than the tubo-tympanic type.<sup>1,7,10,12</sup> In this study we found 89 patients of attico-antral disease and its complications, which were more than that of tubo-tympanic, which are consistent with previous study.<sup>1,7,10,12</sup> Cholesteatoma with or without granulation tissue is the commoner causative factor for the development of complication in the patient of CSOM.<sup>2,3,12,13,14</sup> This study also found cholesteatoma in most of the cases which were consistent with the previous studies.

Incidence of CSOM with complications are common in children and young adults.<sup>1,7,11</sup> In this study the highest incidence of CSOM with extracranial complications were found in 11-20 age group (table-I) which are compatible with many studies.<sup>1,3,7,11</sup> Different studies both in home and abroad<sup>1,3,11</sup> shows that male patients are more sufferer with CSOM than female which were in good agreement with this findings (table-III). Higher incidence of CSOM and its complications were shown in different studies<sup>3,11,13</sup> in illiterate and primary educated groups which are similar in this study.

Rural peoples from low socio-economic groups are the common victim of CSOM and its complications, which are evident in many studies.<sup>2,3,7,11</sup> Our study having similar agreement with the mentioned studies. The reasons behind this are the lack of awareness about the consequence of the disease, inadequate healthcare facilities, improper practice of hygiene, irregular and inadequate treatment by antibiotics usually presented by local practitioners.<sup>11</sup>

Symptoms include aural discharge, hearing loss, post auricular swelling, otalgia, post auricular discharge, headache, vertigo, fever and facial weakness. Signs include foul smelling, scanty, purulent aural discharge

associated with cholesteatoma and or granulation tissues. Similar symptoms and findings were found in our patients, which are consistent with some of the studies.<sup>7</sup> Most of the literatures published that attic perforation is the most common otoscopic and microscopic findings<sup>2,7</sup>. Post auricular abscess was the most common extracranial complication in this study. In addition to post auricular abscess also found Bezold's abscess and Zygomatic abscess which have the similarities in different studies.<sup>1,2,10,11</sup> In this study post-auricular discharging sinus was found as second most extracranial complication, keeping agreement with different study at home.<sup>7,11</sup> The incidence of facial nerve paralysis in our study corresponds to the value of other studies.<sup>2,7,10</sup> In these cases urgent mastoidectomy with facial nerve decompression should be done to recovery the nerve function.

### Conclusion

It is important to identify that in this study, the prevalence of CSOM with extracranial complications are still high in the child and young age group in low socio-economic classes specially in the rural areas. Here we found that lack of knowledge regarding the disease process and its complications in illiterate and under educated population lead to complications like post auricular abscess and discharging sinus, facial palsy and deafness. So we recommend organizing health education program, both from local and national level for all classes of people specially in rural and underdeveloped areas. So that the people can be motivated and morbidity due to CSOM could be minimized. Physicians working in all level should have necessary steps or special attention regarding the proper management when patients presented to them with otological complains.

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