

## Original Article

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# Sociodemographic Factors of Atticoantral Chronic Suppurative Otitis Media

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### Abstract:

**Background:** Chronic suppurative otitis media (CSOM) is an inflammatory process in the middle ear cleft. When there is attic or marginal perforation it is called the atticoantral variety of COSM which is manifested as foul smelling aural discharge and hearing impairment. In Bangladesh, chronic suppurative otitis media (CSOM) is a common disease in clinical practice.

**Objective:** The aim of this study was to find out the clinical presentation of atticoantral chronic suppurative otitis media (CSOM) in defence personnel and their families.

**Methods:** A retrospective study was carried out in the Department of ENT and Head-Neck Surgery, Combined Military Hospital (CMH), Dhaka from 01 April 2017 to 31 December 2019. Forty seven patients of Atticoantral variety of CSOM were included by matching inclusion and exclusion criteria.

**Results:** Majority of the patients presented in the second and third decade of life (11-20 years: 29.79%, 21-30 years: 44.68%). All the patients belonged to the soldiers and their families. The maximum numbers of patients were from rural area (51.06%), completed only primary education (48.94%). Most of them lived in a kutchha building. Almost all the patients presented with multiple symptoms. Discharge from ear(s) (100%), and hearing impairment (82.97%) were the leading features. Only (2.14%) had extracranial complication and there was no intracranial complication. Most of the patients were having unilateral atticoantral CSOM, in the right side (61.70%), left side (36.17%) and only one (2.12%) had bilateral involvement. Audiometric tests were done in 100% of the patients and found; mild deafness (19.14%), moderate deafness (78.72%) and moderately severe deafness (2.14%).

**Conclusion:** The frequency of chronic suppurative otitis media is higher in the younger age group and lacking of education. By increasing health awareness of the general people and early diagnosis of atticoantral CSOM and timely surgical intervention may be helpful to eradicate the disease and prevent complications.

**Key words:** Atticoantral, Chronic Supportive Otitis Media, Extracranial, Intracranial, Deafness.

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**Introduction:**

Chronic suppurative otitis media (CSOM) implies a permanent abnormality of the pars tensa or flaccida, most likely a result of earlier acute otitis media, negative middle ear pressure or suppurative otitis media with effusion<sup>1</sup>. In other way, It is an inflammatory process in the middle ear space that results in long-term, or more often, permanent changes in the tympanic membrane including atelectasis, dimmer formation, perforation, tympanosclerosis, retraction pocket development, or cholesteatoma<sup>2</sup>.

Chronic Suppurative otitis media (CSOM) has been an important cause of middle ear disease since prehistorical era<sup>3</sup>. It is a worldwide health problem and is still prevalent in the modern antibiotic era. It is one of the most common ear disease in developing countries<sup>4</sup>. In Bangladesh, chronic suppurative otitis media (CSOM) is also a common disease in clinical practice. Prevalence of CSOM in South-East Asia is 4.2%- 9% and in Bangladesh it is 9% (2002)<sup>5</sup> according to WHO situation review report in 2007. Predisposing factors have been frequently attributed to the population with low socioeconomic conditions, overcrowding, poor hygiene, poor nutrition, inadequate antibiotic treatment, and poor and unavailable healthcare<sup>6</sup>. The important clinical risk factors associated with the disease are deviated nasal septum, frequent upper respiratory tract infections, nasal allergy, chronic tonsillitis and adenoid hypertrophy<sup>7</sup>.

CSOM is classified based on the location of the perforation and presence of pathologies like cholesteatoma and retraction pockets. When there is a central perforation in the pars tensa it is called the tubotympanic variety of CSOM. On the other hand when there is attic or marginal perforation it is called the atticoantral variety of CSOM. The

classical presentation for the atticoantral variety is a foul smelling aural discharge and hearing impairment. But many patients are unaware of the discharge and therefore can present with only hearing impairment.<sup>8</sup>

The typical feature of atticoantral disease is the presence of cholesteatoma. The relevant aetio-pathology of cholesteatoma is negative middle ear pressure, invasion of squamous epithelium and squamous metaplasia of middle ear mucosa<sup>9</sup>. The atticoantral variety is more commonly associated with complications. Various extracranial complications like mastoiditis, various types of subperiosteal abscess, facial nerve paralysis, labyrinthitis, and petrositis with bone destruction may occur. The intracranial complications are extradural abscess, subdural abscess, meningitis, encephalitis, brain abscess, lateral sinus thrombosis and otitic hydrocephalus<sup>10</sup>.

As atticoantral disease is considered unsafe because of the risk of the developing complications particularly intracranial complication, early diagnosis and complete eradication are essential for the safety of patients<sup>11</sup>.

**Methods:**

A retrospective study was carried out in the Department of ENT and Head-Neck Surgery, CMH Dhaka. Forty seven patients (31 males, 16 females), age ranging from 5 to 44 years old of atticoantral variety of CSOM (32 posterior superior marginal, 15 attic perforation), who visited the Department of ENT and Head-Neck Surgery, CMH Dhaka from 01 April 2017 to 31 December 2019 were included in this study by matching inclusion and exclusion criteria.

**Inclusion criteria:**

Patient of CSOM with posterior superior marginal and attic perforation.

## Exclusion criteria:

1. CSOM with central perforation.
2. History of ear discharge less than 3 months duration.
3. Patients who did not attend for post operative follow up interview.

## Data collection and data analysis:

The data were collected from patient's hospital documents and active participation of patients during follow up interview. Then data were compiled, analyzed by manual calculator and computer software.

**Results:**

A total of 47 CSOM patients of different age (0- 50 years) and sex (31 male, 16 female) were included in this study with definite atticofacial disease. Male to female ratio was 1.9:1 and the predominant age range was 21-30 years (44.68%).

**Table I :**

*Age and gender distribution of patients, (n = 47)*

Characteristics	%
Age (years)	
0- 10	4.26
11 – 20	29.79
21 – 30	44.68
31 – 40	19.15
>40	2.13
Gender	
Male	65.95
Female	34.05

**Table II :**

*Distribution of study population (n=47)*

Area of residence	%
Urban - inside cantonment	19.15
Urban – outside cantonment	29.79
Rural	51.06

**Table III :**

*Educational status of the study population, (n=47)*

Education status	No of patients	%
1. Primary education	23	48.94
2. Secondary education	17	36.17
3. Higher secondary education	6	12.76
4. Graduation	1	2.13

Among them, the maximum number of patients (51.06%) were from rural area (51.06%) and completed only the primary education (48.94%). Almost all the patients presented with multiple symptoms. The most common symptoms were discharge from ear(s) (100.00%) and hearing impairment 82.97%. The other symptoms were granulation tissue (27.65%), aural polyp (19.14%), earache (14.89%) etc. and only (2.13%) of patient had extracranial complication.

**Table IV :**

*Clinical presentation of chronic suppurative otitis media patients, (n = 47)*

Symptoms	%
Discharge from ear(s)	100.00
Hearing impairment	82.97
Granulation tissue	27.65
Aural polyp	19.14
Earache	14.89
Post-auricular painful swelling	2.13

**Table V :**

*The patients with extracranial complication (n = 47)*

Complication -extracranial	%
Post-auricular abscess	2.13

**Table VI :**  
*Audiometric findings of atticoantral chronic otitis media, n =47 patients*

Audiometric findings	%
Mild deafness (26- 40 dB)	19.14
Moderate deafness (41- 55 dB)	78.72
Moderately severe (56- 70 dB)	2.13

All the cases had a perforation either in the posterior superior marginal (68.08%) or in the attic region (31.92%). Most of the patients were having unilateral atticoantral CSOM, in the right side (61.70%), left side (36.17%) and only one (2.13%) bilateral involvement. Although 82.97% of the patients complained of hearing loss, audiometric tests were done in 100% of the patients. All of them (100%) had developed deafness; mild deafness (19.14%), moderate deafness (78.72%), and moderately severe deafness (2.13%).

#### Discussion:

Forty seven CSOM patients of different age and sex were included in this study with definite atticoantral disease after taking relevant history, clinical examination and investigations. In our study majority of patients (44.68%) belonged to the age group of 21-30 years followed by (29.79%) in second decade. Our study result coincides with study of Nshimirimana JPD et al<sup>6</sup> with (39.2%) of patients in 21-30 years age group, Wahid FI et al<sup>12</sup> with (25.33%) of patients in 21-30 years age group, Islam MS et al<sup>15</sup> with (38.67%) patients in 21-30 years age group. The number of males and females was (65.95%) and (34.05%) respectively. This is consistent with the report in other studies like Islam MSet al<sup>11</sup> (67.2% male, 32.8% female) and Shrestha BL et al<sup>13</sup> (66.3% male and 33.7% female) with male predominance.

Almost all the patients presented with multiple symptoms. The most common

symptoms were discharge from ear(s) (100%) and hearing impairment (82.97%). This is consistent with Islam MS et al (discharge from ear 100% and hearing impairment 83.3%)<sup>10</sup> and Yousuf M et al (discharge from ear 100%, hearing impairment 80%).<sup>14</sup> The other symptoms were granulation tissue (27.65%), aural polyp (19.14%), earache (14.89%) etc which is consistent with other studies.<sup>10,14</sup> All the cases had a perforation either in the posterior superior marginal (68.08%) or in the attic region (31.92%). This is consistent with other studies like Yousuf M et al (posterior superior marginal 69.23%, attic perforation 30.77%).<sup>14</sup>

Most of the patients were having unilateral atticoantral CSOM, in the right side (61.70%), left side (36.17%) and only one (2.13%) bilateral involvement. Our study correlates with study of Adoga et al<sup>18</sup> (62.2% unilateral, 37.8% bilateral) and Kataria G et al<sup>7</sup> (76% unilateral, 24% bilateral) with majority cases having unilateral involvement. In our study 51.06% were from rural area and 49.04% (19.15% urban inside cantonment, 29.79% urban outside cantonment). Socio-demographic distribution of our study almost correlates with study of Islam et al,<sup>15</sup> Baig et al<sup>17</sup> with majority of patients from rural background. Although 82.97% of the patients complained of hearing loss, audiometric tests were done in 100% of the patients. All of them (100%) had developed deafness; mild deafness (19.14%), moderate deafness (78.72%), and moderately severe deafness (2.13%). This results are similar to results reported by others.<sup>10,14</sup>

In our study, only 2.13% of patient had extracranial (postauricular abscess) complication which did not coincide with study of Tsering P et al<sup>8</sup> (13.3% extracranial, 6.6% intracranial complications), Yorgancilar E et al<sup>16</sup> (An EC, IC, or combined EC and IC complication occurred in 47.1%, 30.6%, or

10.75%), Baig et al<sup>17</sup> (4.7% extracranial complication, 2.3% intracranial complication), Shrestha BL et al<sup>13</sup> (9.8% complication), Yousuf et al<sup>14</sup> (25% extracranial and 6% intracranial complications). This is probably the defence personnel and their families are more or less literate and have awareness of the disease. There is easy accessibility and availability of specialist medical service in the CMHs which provide the advantage for early diagnosis and treatment.

### Conclusion:

The results concluded that the frequency of CSOM occurs more in younger patients, rural background (poor housing) and those lacking health education. Therefore, complications of CSOM can be minimized by improving housing, literacy states and organizing health education. Early diagnosis and treatment can prevent the development of complications of chronic suppurative otitis media (CSOM).

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