

## Challenges in the Management of Adult Chronic Suppurative Otitis Media in Port Harcourt Nigeria.

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### Abstract

**Background:** Chronic Suppurative Otitis Media (CSOM) cuts across all age groups and its management has been revolutionized by the use of microscopes and other modern equipments in developed countries. Prompt diagnosis and appropriate management is the key to good clinical recovery. This study established the clinical profile of adult CSOM in Port Harcourt Nigeria and highlighted its management challenges.

**Patients And Methods:** This was a retrospective study of adult patients who presented to the department of Ear Nose and Throat (ENT) surgery of the UPTH, Port Harcourt from January 2002 to December 2012. The patient's data were retrieved from the clinic registers and patients' case notes. Demographic data, clinical presentation, etiological factors, site of tympanic membrane perforation, affected ear, treatment modalities and challenges encountered during the management of patients were recorded and analyzed. Results are represented in percentages, frequency tables and pie charts. All statistical analysis was done using the SPSS version 21 software.

**Results:** Eight hundred and thirty six patients were found to have CSOM. These constituted 12.8% of all otorhinolaryngological cases seen within the study period. There were 404 males and 432 females (male: female ratio of 1.0:1.1). Age range was 18 to 94 years, mean = 38.8 +/- 10.4 years. Age group 18-28 years has the highest (n=412, 49.3%) number of cases. Bilateral CSOM accounted for the highest number (n=500, 59.8%) of cases. Perforation was found more on the antero inferior aspect of the tympanic membrane and the commonest etiological factor was trauma from the use of cotton buds (n= 350, 41.9%). Among the elderly most of them the condition was carried over from childhood and they don't know the cause. The commonest mode of treatment was conservative medical treatment.

**Conclusion:** This study confirmed a prevalence of 12.8 % of CSOM among adult patients that attended the ENT clinics in UPTH, Port Harcourt. The commonest type seen was the tubo-tympanic disease. Trauma was found to be the commonest etiological factor. Conservative medical treatment was the commonest mode of treatment. However, lack of surgical expertise for otologic surgeries and facilities constituted a major challenge in the management of patients with CSOM.

**Keywords:** Chronic Suppurative Otitis Media, tubotympanic disease, antico-antra disease, conservative medical treatment, tympanic membrane perforation, surgical treatment.

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### I. Introduction

Chronic Suppurative Otitis Media (CSOM) is defined as a prolonged inflammation of the middle ear cleft characterized by a persistent otorrhoea through a perforated tympanic membrane, lasting more than 6-12 weeks<sup>1,2</sup>. The duration of otorrhoea regarded as chronic suppurative is under controversy, such that the World Health Organization (WHO) suggests duration of two weeks<sup>2,3</sup>. Its etiology includes trauma, tympanostomy tube placement, or poorly treated acute otitis media. It is a disease occurring worldwide having significant health and socioeconomic implications. In Nigeria, a developing nation, CSOM constitutes the commonest presentation in the otorhinolaryngology clinics especially in children<sup>1,2</sup> and this is because it is strongly associated with low socio-economic status<sup>3</sup>. CSOM is believed to develop in early childhood, often following poorly managed acute otitis media, with potential of spilling over into adulthood, accounting for recurrent episodes of chronic discharging ears that can last for many years<sup>2,4-6</sup>.

Although CSOM is a major health problem in many indigenous populations around the world, its impacts are often more pronounced in developing countries despite the advances in Medicare recorded in the surgical management of CSOM globally<sup>3,7-12</sup>. Furthermore, about 65-330 million people are affected, and 60% have significant hearing loss<sup>3</sup>. The risk factors for CSOM are multi-factorial. Poor antibiotic therapy, recurrent upper respiratory tract infection, nasal disease, low level of hygiene, poor nutrition, and overcrowded living conditions are responsible for an increased risk to otitis media especially in the Sub Saharan Africa<sup>13,14</sup>. Studies have shown that improvement in these social factors of inequalities will reduce the prevalence of chronic suppurative otitis media<sup>9,15</sup>.

There are basically two types of CSOM, depending on the site of perforation on the tympanic membrane resulting in either, attico-antral type or tubo-tympanic CSOM respectively<sup>16</sup>. It can also occur with

cholesteatoma (epidermal inclusion cyst), as the unsafe or without cholesteatoma as the safe type<sup>8</sup>. This disease is usually initiated by a bout of acute infection, with resultant inflammation of the middle ear cleft. This leads to mucosal oedema and secondary ulceration with eventual breakdown of the epithelial lining. Common organisms isolated from an ear swab microscopy and culture includes pseudomonas aeruginosa, staph aureus, proteus species, klebsiella pneumonia, and diphtheroids<sup>14</sup>. Anaerobes and fungi can also be present<sup>9</sup> in other words, it can also be multi-microbial<sup>7</sup>. However, studies have shown that there is little or no role for swab culture in the effective management of this condition<sup>14</sup>. Plain radiographs of the mastoid and Computerized Tomography scan can be done to know the integrity of the mastoid air cells<sup>16</sup>.

CSOM may be actively discharging or not. In most texts, chronic otitis, media is referred to as “chronic suppurative otitis media” which is becoming obsolete. Thus active, inactive or healed chronic otitis media depending on the clinical disease condition are the preferred terms. The ultimate fate of the tympanic perforation is still largely undocumented. Thus, both the start and the end of the disease process are difficult to define. Although healing is often observed over prolonged periods, there are more patients who develop either recurrent bouts of otorrhoea (active CSOM) or a dry but permanent tympanic perforation (inactive CSOM). Inactive otitis media refers to a previously discharging ear that has apparently ceased [discharging] without probability of resumption in the near future<sup>17</sup>; the term is common among Asian colleagues.

Often, the perforation heals imperfectly with areas of retraction and scarring in the eardrum which do not vibrate in response to sound, as well as normal areas. The episodes of otorrhoea are often provoked by upper respiratory infections. This is particularly common in children. Soiling of the middle ear from swimming<sup>18</sup> or bathing also leads to intermittent and unpleasant discharges. A decidedly smaller group of patients, particularly those who have not been treated, develop life-threatening complications.

Conventional management of this condition is conservative medical treatment, with surgical intervention reserved for cases of unsafe ear, and complicated CSOM. Conservative form of management is achieved by aural toileting to reduce debris, antibiotics to control infection, decongestants to reduce mucosal oedema, and antihistamines to control allergy. Antibiotics can be topical alone, or topical and systemic. As much as aural toilet is a very effective aspect of this conservative treatment, some authorities argue that topical antibiotics alone is good enough, that there is no additional value added by the concomitant use of systemic antibiotics<sup>14, 19</sup>. Reason given for this is that due to poor vascularization of the middle ear mucosa, drugs delivered through this route; do not really penetrate the ear<sup>3, 14, 19</sup>. Surgical interventions usually include tympanoplasty, cortical mastoidectomy, or a modified radical mastoidectomy. The end result is usually to achieve a safe, dry ear<sup>19</sup>. A review of existing literature in our environment revealed that there is paucity of information on CSOM. Therefore, this study was done to establish the clinical profile of adult CSOM in Port Harcourt Nigeria and to highlight the management challenges.

## **II. Patients And Methods**

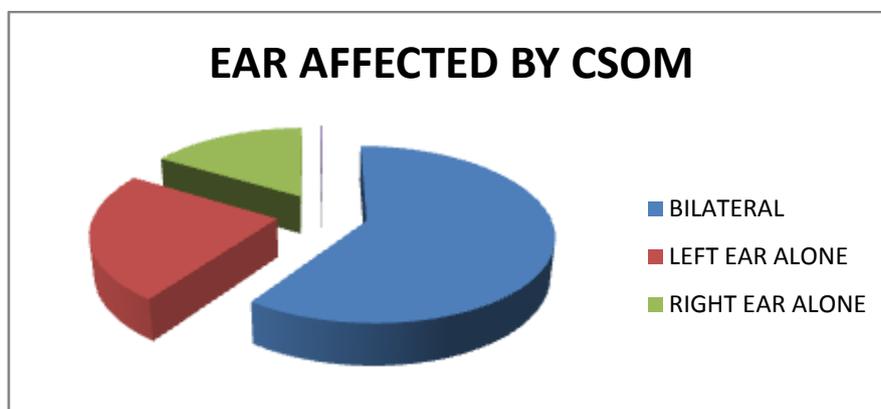
This was a retrospective study of adult patients who presented to the department of Ear Nose and Throat (ENT) surgery of the UPTH, Port Harcourt from January 2002 to December 2012. The patient's data were retrieved from the clinic registers and patients' case notes. Demographic data, clinical presentation, etiological factors, site of tympanic membrane perforation, affected ear, treatment modalities and challenges encountered during management were recorded and analyzed. Results are represented in percentages, frequency tables and pie charts. All statistical analysis was done using the SPSS version 21 software.

## **III. Results**

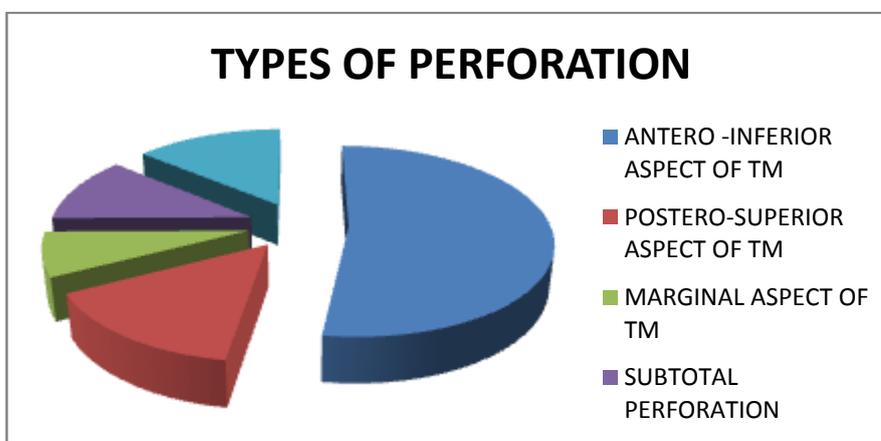
Eight hundred and thirty six patients were found to have CSOM. These constituted 12.8% of all otorhinolaryngological cases (6,532) seen within the study period. There were 404 males and 432 females (male: female ratio of 1.0:1.1). Age range was 18 to 94 years, mean = 38.8 +/- 10.4 years. Age group 18-28 years has the highest (n=412, 49.3%) number of cases (Table 1). Bilateral CSOM accounted for the highest number (n=500, 59.8%) of cases. Left (n=200, 23.9%) cases, right (n=136, 16.3%) cases (Figure 1). Perforation was found more on the antero-inferior aspect of the tympanic membrane (n=700, 52.4%); marginal (n=100, 7.5%), postero-superior (n=200 15%), total perforation (n=186, 13.9%); subtotal (n=150, 11.2%) (Figure 2) and the commonest etiological factor was trauma from the use of cotton buds (n= 350, 41.9%) (Table 2). The commonest mode of treatment was conservative medical treatment (Ear toileting + oral antibiotics + ototoxic antibiotics +nasal decongestants) (Table 3). Only few patients has surgical interventions (n=12, 1.4%) (Table 3) as well as satisfactory outcome following conservative management (n=157, 18.78%). The remaining (n=679, 81.22%) patients management was unsatisfactory because of the challenges we encountered that ranged from lack of appropriate surgical equipments, man power, poverty and ignorance.

**Table 1: Age Of Patients With Csom**

Age Range Of Patients	Number	Percentage (%)
18-28	412	49.3
29-39	150	17.9
40-50	135	16.1
51-61	95	11.4
62-72	34	4.1
82-92	6	0.7
>92	4	0.5
Total	836	100



**Figure 1: Ear affected by CSOM**



**Figure 2: types of tympanic membrane perforations**

**Table 2: Aetiological Factors Of Csom**

Aetiological Factors	Number	Percentage (%)
Poorly Treated Acute Otitis Media	156	18.7
Trauma From The Use Of Cotton Bud	350	41.9
Trauma From Assaults/Slaps	56	6.7
Not Documented	274	32.7
Total	836	100

**Table 3: Treatment Modalities**

Treatment Modalities	Number	Percentage (%)
Ear Toileting + Use Of Otopotic Antibiotics + Nasal Decongestants	340	40.7
Ear Toileting + Oral Antibiotics + Otopotic Antibiotics +Nasal Decongestants	348	41.6
Ear Toileting + Otopotic Ear Drops Alone	136	16.3
Examination Under Anaesthesia + Aural Polypectomy	10	1.2
Mastoidectomy	2	0.2
Total	836	100

#### **IV. Discussion**

Chronic Suppurative Otitis Media has continued to remain the commonest otorhinolaryngological disease seen in the outpatient departments of most hospitals in Nigeria by otorhinolaryngologists, pediatricians and general practitioners<sup>20</sup>. Our study showed that the prevalence of CSOM among adult patients that attended the ENT clinics in UPTH Port Harcourt is 12.8%. Bakari et al., in National Ear Care Centre Kaduna, Nigeria found had a prevalence of 3.8% among all the patients they reviewed in one year. Their finding was lower than ours and those of other researchers<sup>12, 14, 19</sup>. Onotai and Osuji in a previous study done in Port Harcourt, Nigeria found a prevalence of 9.4% among children<sup>21</sup>. All these point to the fact that across all age groups the prevalence of CSOM appears to be on the high side when compared to the prevalence found in developed countries<sup>3</sup>.

The increase in the prevalence found in our study can be attributed to the number of years we reviewed in our study as against the one year period reviewed by the researchers in Kaduna. Furthermore, the high prevalence can be due to the growing degree of poverty among the low socio-economic class in our environment which is worsened by high cost of transportation to the tertiary hospitals. This factor combined with exorbitant hospital bills result in late or no presentation to ENT clinics, or eventually to poor treatment of acute otitis media by the General Practitioners<sup>12, 13, 21</sup>. Our finding and those of other researchers within our setting agree with the W.H.O placement of Nigeria as one of the nations with high CSOM prevalence<sup>3, 9, 11, 21</sup>, alongside countries like Angola, Vietnam, and Mozambique<sup>3</sup>.

The male to female ratio was 1.0:1.1, which shows a slight female preponderance. Several studies have shown that CSOM possibly has equal gender incidence in distribution<sup>3, 5, 8, 10, 11, 13</sup>. However, in Kaduna they found a slight male preponderance<sup>20</sup>. The mean age in this study was 38.8 +/- 10.4 years. Age group 18-28 years has the highest number of cases. However, in several studies that involve both children and adults they found children to be more affected<sup>20, 22</sup>. In this study, bilateral disease had the highest occurrence while the occurrence in the left ear was slightly more than the right, similar to the findings of Ezeanolue et al<sup>23</sup>, where up to 60% had bilateral disease. Tiedt et al., recorded 31.4% of bilateral disease with slight right side majority<sup>4</sup>.

The tubotympanic type of CSOM predominated in this study, similar to the findings of other researchers<sup>20, 22, 24, 25</sup>. Studies by Salisu in Kano<sup>26</sup> and Okafor in Enugu<sup>27</sup> showed comparable findings. This goes to show why there were relatively reduced cases of complicated CSOM in our environment as compared to the high prevalence of the disease<sup>21</sup>. The commonest aetiological factor responsible for the majority of the cases of CSOM among our adult patients was trauma to the tympanic membrane from the injudicious use of cotton buds and assaults followed by poorly treated acute otitis media. Onyeagwara et al., however reported a lower incidence of CSOM (9.4%) occurring as a complication from traumatic tympanic membrane perforation while da Lilly-Tariah and Somefun reported a higher incidence of CSOM (42.4%)<sup>28,29</sup>. Among the elderly patients most of them the condition was carried over from childhood and they don't know the cause.

The principles of management of CSOM entail eradication of disease and restoration of function to as near normal as possible. Treatment could be conservative medical treatment or surgical treatment which can either be conservative or radical depending on the indication for surgery<sup>30</sup>. The commonest mode of treatment in our series was conservative medical treatment with the use of oral antibiotics + ototoxic antibiotics +nasal decongestants after ear toileting. The importance of aural toileting before instilling antibiotic eardrops is hereby emphasized especially to the general practitioners, pediatricians and practitioners in the rural areas who may see the patients first in their health facilities. Aural toileting and instillation of topical antibiotic eardrops in the patients has proved to be effective in making the discharging ears quiet<sup>20, 21, 25, 30</sup>. Systemic or local decongestants reduce secretions blocking the pharyngeal opening of the Eustachian tubes thereby improving aeration of the middle ear with the majority of patients achieving dry ears within the first month of hospital visit<sup>20</sup>. In our series only few patients had surgical interventions. Apart from most patients declining to have surgical interventions because of ignorance and poverty, we also had challenges ranging from poor surgical equipments, lack of adequate resources for surgical interventions and expertise for otologic surgeries. Although, complications of the disease process were not encountered in our series but the outcome of management of most of the patients 'left much to be desired'. Only few patients had satisfactory outcome following conservative management.

#### **V. Conclusion**

This study confirmed a prevalence of 12.8 % of CSOM among adult patients that attended the ENT clinics in UPTH, Port Harcourt. The commonest type seen was the tubo-tympanic disease. Trauma was found to be the commonest etiological factor. Conservative medical treatment was the commonest mode of treatment. However, lack of surgical expertise for otologic surgeries and facilities constituted a major challenge in the management of patients with CSOM. Resident doctors should be exposed to more otologic surgeries during their training period while otolaryngologists should undergo more training to improve their surgical skills in otologic surgeries.

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