

## Original Article

### Review of patients with chronic suppurative otitis media in the National Ear care centre, Kaduna Nigeria.

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#### ABSTRACT

**Background:** Chronic suppurative otitis media (CSOM) is the most common condition presenting to Otolaryngological clinics, often patients present late with consequent complications that require surgical intervention. This study aimed to review the mode of clinical presentation, modality and outcome of treatment of CSOM seen at NECC Kaduna. **Methodology:** This was a retrospective study carried out in the National Ear Care Centre, Kaduna for a period of 3 years; from January 2016 - December 2018. **Results:** Two hundred and thirty-four patients with CSOM were studied. There were 127 males and 107 females making M: F=1.2:1. The age range was from 8-60years with a mean age of 26.5±12.6years. The age group 11-20 (31.2%) had the highest number. Majority presented with hearing loss and ear discharge 228(97.4%) and 182(77.8%) respectively. Other symptoms were otalgia, tinnitus, vertigo and nasal symptoms. Eleven (4.7%) had complications at presentation. Ninety-two (39.3%) had surgery, 64 had only aural toileting and dressing with topical antibiotic with recorded success as majority achieved dry ear, while 38 patients were lost to follow up. Postoperative complications include; loss of taste sensation, facial nerve palsy, recurrent/persistent ear discharge, persistent dizziness, and infection of the donor site and no mortality was recorded. **Conclusion:** One-third of the patients who benefitted from surgery had a good outcome and for those with conservative treatment, the majority achieved dry ear. Early presentation is advised to avoid complications.

**Keywords:** *Chronic suppurative otitis media, Kaduna, Nigeria.*

#### Introduction

Chronic suppurative otitis media refer to as chronic inflammation of the middle ear and mastoid cavity, which presents with recurrent ear discharge or otorrhoea through a tympanic membrane perforation for more than 6weeks to 3months.<sup>1,2</sup> Its prevalence is related to poor socio-economic conditions, and it is relatively common in developing countries and constitute the most common condition presenting to Otolaryngologic clinic in Nigeria.<sup>2,3</sup> Majority present with otorrhea, hearing loss, tympanic membrane perforation, aural polyp or granulation tissues in the canal and the diagnosis depends on Otoscopic findings, a culture of the ear discharge and radiological findings.<sup>3,4</sup> The most common sequelae of CSOM is hearing loss, either conductive or sensorineural and can result in serious extracranial and intracranial complications such as Meningitis, Brain abscess, Facial nerve palsy, subperiosteal abscess and mastoid abscess and even mortality follows when inadequately treated.<sup>5,6</sup> The treatment of CSOM generally begins with local care of

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**Cite his article as:** Umaru G. Sambo, Murtala A. Sakwa, Babagana M. Ahmed, Usman I. Dansani, Omodele Abdulrahman. Review of patients with chronic suppurative otitis media in the National Ear care centre, Kaduna Nigeria. Kanem J Med Sci 2021; 15(2): 118-123

the ear and outpatient medical management. This intervention requires repeated microscopic examination of the ear and diligent suctioning. For patients with otorrhea secondary to cholesteatoma, the hope is to achieve a dry ear before surgical intervention and if this is not feasible, and some refractory cases will require surgery to achieve a dry ear.<sup>4</sup> The Surgical interventions usually include tympanoplasty, cortical mastoidectomy or a modified radical mastoidectomy at the end to achieve a safe and dry ear.<sup>7</sup>

This study aims to review the clinical presentation, modality and outcome of treatment of chronic suppurative otitis media seen at NECC Kaduna.

### Materials and Methods

This is a retrospective review of chronic suppurative otitis media seen at National Ear Care Centre, Kaduna for the period of 3 years; from January 2016 – December 2018. Using clinic and theatre registers, the case notes of all patients with a diagnosis of chronic suppurative otitis media were retrieved. Information on Biodata, clinical presentation, site of the ear affected, hearing level, type of the treatment and outcome of the treatment offered and complications from the treatment were extracted from the patients' case notes. All the information obtained were analyzed using the Statistical Package for the Social Sciences (SPSS) version 20 (IBM, SPSS Statistics) and the results obtained were presented in tabular and graphic forms.

### Results

Two hundred and thirty-four patients with CSOM were studied. There were 127 males and 107 females making Male to Female ratio of 1.2:1. The age of the patients with CSOM ranges from 8-60years with a mean age of 26.5±12.6years. The age group 11-20 (31.2%) had the highest number among the study subjects as shown in **table 1**. Majority of them, about 77.8% presented with ear discharge more from the right than the left ear and 53% with more than 5years duration of discharge. There was otalgia in 27(11.5%), Hearing loss in 228(97.4%), Tinnitus in 143(61%), Vertigo in 36(15.4%) and 19(8.1%) had Nasal symptoms as shown in **table 2**. Eleven (4.7%) had complication at presentation; 1(0.4) % intracranial abscess, 1(0.4) % canal stenosis, 3(1.3%) facial nerve palsy, 4(1.7%) mastoid abscess and 2(0.8%) mastoid fistula as shown in **table 3**.

Ninety-two (39.3%) out of 234 patients had surgery, 64(27.4%) had conservative treatment in form of aural toileting and ear dressing with a topical antibiotic, 40(17.1%) declined surgery, while 38(16.2%) were lost to follow up. Of those who benefitted from surgery, 71 (77.1%) had tympanoplasty, 11(12.0%) had tympanoplasty with mastoidectomy, 6 (6.5%) had tympanoplasty with meatoplasty and 4(4.3%) had mastoidectomy only as shown in **table 4**. Different types of graft were used. Temporalis fascia was used in 47(53.4%), fascia latae in 38(43.2%), conchal cartilage was used in 1(1.1%) while tragal cartilage graft was used in 2(2.3%) as shown in **table 5**. Seventy-three (83%) had a good graft take, graft failure was recorded in 15(17%) and only 3 had revision surgery as of the time of this study. Surgeries were performed via two approaches; 48(54.5%) had a post auricular approach and 40(45.5%) via permeal approach as shown in **Table 6**. The pre-and postoperative mean hearing threshold results showed some improvement/gain in hearing after surgery as shown in **Table 7**. Postoperative complications: 2 had a loss of taste, 3 facial nerve palsy, 11 had recurrent/persistent ear discharge, 2 had dizziness, and 4 had an infection of the donor site as shown in **figure 1**.

**Table 1:** Age range distribution

Age range (year)	Frequency(n)	Percentage (%)
1 - 10	35.0	15.0
11 - 20	73.0	31.2
21 - 30	46.0	19.7
31 - 40	31.0	13.2
41 - 50	26.0	11.1
51 - 60	23.0	9.8
<b>Total</b>	<b>234</b>	<b>100</b>

**Table 2:** Clinical presentation

Clinical Presentation	Frequency(n)	Percentage (%)
Otalgia	27	11.5
Ear discharge	182	77.8
Hearing loss	228	97.4
Tinnitus	143	61
Vertigo	36	15.4
Nasal symptoms	19	8.1

**Table 3:** Complications at Presentation

Complication	Frequency (n)	Percentage (%)
Canal stenosis	1	0.4
Facial nerve palsy	3	1.3
Intracranial abscess	1	0.4
Mastoid abscess	4	1.7
Mastoid fistula	2	0.8

**Table 4:** Type of Treatment Offered

Treatment	Frequency(n)	Percentage (%)
Tympanoplasty	71	30.3
Tympanoplasty + Mastoidectomy	11	4.7
Tympanoplasty + Meatoplasty	6	2.6
Mastoidectomy	4	1.7
Surgery not done	40	17.1
Conservative treatment	64	27.4
Loss to follow up	38	16.2
<b>Total</b>	<b>234</b>	<b>100</b>

**Table 5:** Type of graft used and its outcome

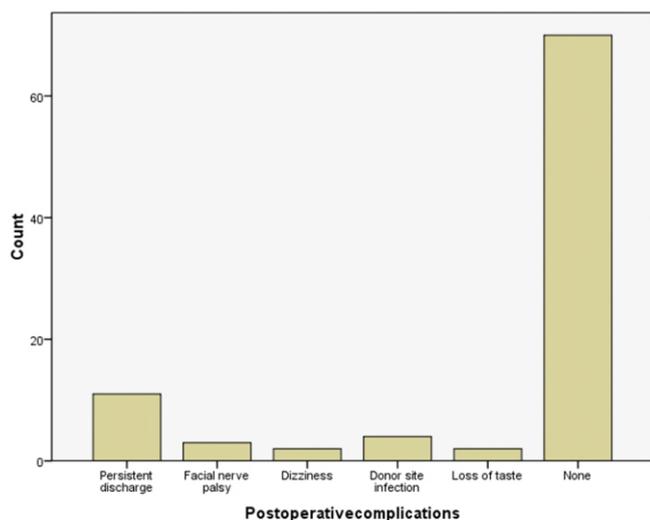
Type of graft	Frequency(n)	Percentage (%)	Take N (%)	Failed N (%)
Temporalis fascia	47	53.4	38 (80.9)	9 (19.1)
Fascia Lata	38	43.2	33 (86.8)	5 (13.2)
Conchal cartilage	1	1.1	1 (100.0)	0 (00.0)
Tragal cartilage	2	2.3	1 (50.0)	1 (50.0)
<b>Total</b>	<b>88</b>	<b>100</b>	<b>73</b>	<b>15</b>

**Table 6:** Surgical Approaches Tympanoplasty ± Mastoidectomy/Meatoplasty

Surgical Approach	Frequency N (%)	Resolution N (%)	Failed cases N (%)
Per meatal	40 (45.5)	34 (85)	6 (15)
Post auricular	48 (54.5)	39 (81.2)	9 (18.8)
<b>Total</b>	<b>88</b>	<b>73</b>	<b>15</b>

**Table 7:** Mean hearing threshold pre and postoperatively

Ear	Pre-op PTA (dBHL)	Post-op PTA(dBHL)	Gain (dBHL)
Right Ear	48.5±20.6	40.6±18.9	7.9
Left Ear	42.0±21.6	32.7±18.9	9.3

**Figure 1:** Postoperative Complications

## Discussion

The outcome of management of Chronic Suppurative Otitis Media varies from centre to centre, depending on the facilities available, expertise and general mode of patient presentation. In this study, there were 234 participants all presented with a history of chronic ear discharge, in which there were 127 males and 107 females making an M: F ratio of 1.2:1. With male preponderance which was also reported in other centres.<sup>3,7,8</sup> While some studies showed equal gender distribution.<sup>9-11</sup> The age group with the highest number fell within age bracket 11-20 years which is similar to the study done by Bijoy Krishna et al<sup>12</sup> and contrary to the studies done by Onotai et al, in Port Harcourt,<sup>7</sup> B.M Ahmed in Gombe<sup>3</sup> and -Ife.<sup>13</sup> But it is a known fact that the higher incidence of CSOM is commoner in the under 5 age group. Our study contradicts this fact maybe as a result of the smaller

sample taken only for 3 years and more so, ear surgeries are often done from the age of 12 years and above in our centre especially tympanoplasty for fear of graft failure. Majority of our patients presented with active ear discharge 182(77.8%) as shown in table 2, commonly affecting the right ear. About 53% presented with ear discharge for more than five years duration. Other symptoms at presentation are otalgia, hearing loss, tinnitus, vertigo and nasal symptoms in form of rhinorrhea, nasal obstruction and excessive sneezing especially in those with Allergic rhinitis. Other studies showed similar clinical presentations with otorrhea as the most frequent symptom.<sup>14-16</sup> In our study we found that some patients presented with complications which in one way or the other altered the mode of treatment and consequently the outcome of the treatment. The commonest complication was mastoid abscess 4(1.7%) as shown in table 3. These complications resulted either from a late presentation or poor treatment from the first point of contact, and some of them might result in inaccessibility to health facilities due to their lower socioeconomic status. Other studies similarly showed some of their patients presented with complications.<sup>15,17,18</sup>

Among the patients who had tympanoplasty, 64(78%) had type I, 12(14.6%) had type II and 6(7.3%) had type III. The approach was either via postauricular or permeal, 48 (54.5%) was via post auricular among which 39 (81.2%) had complete resolution and 9(18.8) had a failure. Permeal approach was done on 40 (45.5%) with 34 (85%) of them achieving complete resolution and failure was recorded in 6(15%). This showed that the permeal approach has a better favourable outcome. However, considering the indication for the postauricular approach, the majority were a result of tympanoplasty combined with mastoidectomy or mastoidectomy alone, which signifies probably dealing with complicated CSOM thus, expecting a lesser favourable outcome as shown in table 5.

Sixty-four (27.4%) out of the total number seen had only Aural toileting and dressing with topical antibiotic as conservative treatment with a success rate of 78% evidenced by achieving dry ear. Those who had an indication for surgery but could not be done was as a result of either patient declined/defaulted or had contraindication for the surgery at

that particular time.

Our study shows that more often, surgical intervention for the treatment CSOM was adopted as the prepared option, probably due to associated complications. In a study/survey carried out by FT Orji which showed a variation of management of CSOM from one institution to another, some adopt medical management only, some combine medical and surgical while others surgical management was routinely done.<sup>19</sup> Ebekwe and Nwoargu also advocated surgical intervention as the medical intervention was insufficient especially in active squamous CSOM to prevent sequelae of cholesteatoma formation.<sup>20</sup> Yaor et al in their retrospective review of 73 patients operated, achieved a high success rate with surgical management.<sup>[21]</sup> While a study done in Ile-Efe by Akinpelu et al showed that the majority of their patients had medical treatment, only a few had surgical intervention especially those with complications.<sup>22</sup>

Four types of graft were used on our patients. Temporalis fascia was used on the majority of our patients 47(53.4%) especially in postauricular approach with take-up of 80.9%, fascia latae graft was used on 38(43.2%) which had better take-up of 86.8% against temporalis fascia as shown in table 4. Singh et al in their comparative study of different graft materials used, it was found out that temporalis fascia had a good take and best hearing gain.<sup>22</sup> Indorewala et al. used fascia latae in most of their patients, but better results with temporalis fascia and tragal perichondrium.<sup>23</sup> Postoperative complications: Two had a loss of taste sensation, 3 facial nerve palsy, 11 had recurrent/persistent ear discharge, 2 came down with persistent dizziness, and 4 had an infection of the donor site. Lasisi O.A et al<sup>24</sup> and other studies reported some postoperative complications such as; facial nerve palsy, severe vertigo, postauricular fistula, persistent mastoidectomy cavity discharge, meatal stenosis.<sup>21,25-27</sup>

The pre-and postoperative mean hearing threshold results showed some improvement and better hearing gain after surgery as shown in **Table 7**. For those conservative treatments, a reasonable level of success was achieved evidenced by dry ears. This was similarly reported by Onotai et al.<sup>7</sup> Ogisi et al also reported improvement in hearing threshold in their 10

years review of type 1 tympanoplasty.<sup>28</sup> In another study improvement in hearing threshold was achieved in 86% of their cases<sup>26</sup> and other Authors also reported similar improvement in hearing threshold.<sup>21,27,29</sup>

Looking at the various forms of treatment of CSOM and their outcome ranging from simple tympanoplasty type 1 as reported by Ogisi et al<sup>28</sup> to modified radical mastoidectomy for the treatment of attico-antral disease reported by Arivazhagan, GB et al<sup>29</sup> had recorded various successes as evidenced by graft take, closure of air-bone gap and hearing gain. Comparing these with our study, where different types of tympanoplasty with/without mastoidectomy and meatoplasty were done similar successes were recorded both in surgical and conservative treatment as mentioned previously.

### Conclusion

Chronic suppurative otitis media is relatively common in developing countries and constitute the most common ENT conditions presenting to Otolaryngologic clinic in Nigeria.<sup>[2,3]</sup> Majority of them presented with mucopurulent ear discharge, hearing loss and other otologic symptoms. Some patients present late associated with complications. One-third of our patients had surgery as the modality of treatment. While others had medical conservative treatment. Success was achieved in terms of gain in hearing and dryness of the ears. Various forms of tissues were used as a graft. Temporalis fascia was commonly used in our centre and but fascia latae had the highest percentage of graft take. There were drawbacks, like persistent otorrhea especially in post mastoidectomy, failed graft take, worsened hearing and these are some of the cases for revision surgery. No mortality was recorded in our study. We hereby recommend a forum where community awareness on CSOM discussing the importance of early presentation to an otolaryngologist to avoid unnecessary complications. Use of hearing aids to augment hearing in selected postoperative patients which our study did not address. And there is also a need to measure the Eustachian tube function of all patients going for tympanoplasty before the surgery, as this was missed in some of our patients.

### Consent

Patient consent not applicable: The study was a retrospective study.

### Ethical approval

Ethical clearance was sought and obtained from the National ear care centre Hospital Ethics Committee.

### Competing interest

None and all the expenses were borne by the researchers.

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