

Chronic Purulent Otorrhea in the South of the Sahara: Epidemiological, Clinical and Therapeutic Profiles about 135 Cases

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Abstract

Objective: To study the clinical and therapeutic epidemiological profile of chronic purulent otorrhea in the ENT and CCF departments of the Gabriel Touré university hospital. **Materials and Method:** This was a retrospective study from May 2019 to April 2021. We made an exhaustive sampling of all patients who consulted for chronic purulent otorrhea with a complete medical file. All ages were included (except from 0 to - 5 years), and all sexes combined. The data medium was the patient records and the department's operating report register. The non-inclusion criteria were patients with incomplete files and patients who were less than 5 years old. **Results:** In total, we collected 135 cases. The average age of our patients was 29.27 years. The most represented age group was 16 to 25 years old. We noted a male predominance in 60.7%. The associated signs found were hearing loss, earache, tinnitus, ear pruritus, vertigo, headache and facial paralysis. The main pathology involved is chronic otitis media (CMO) in 55.5%, the most serious of which is dangerous chronic otitis (8.1%). All of our patients have received medical treatment. The treatment was surgical in 64% of patients after medical treatment. With the mean follow-up of 6 months, tinnitus and reperforation were the most common complications found in 6.2% and 3.1% respectively. **Conclusion:** Chronic purulent otorrhea is the most common ear discharge in ENT consultation. The main pathology involved is CMO, the most formidable of which is cholesteatoma. Medico-surgical treatment.

Keywords

Chronic Otorrhea, Cholesteatoma, Myringoplasty, Bamako

1. Introduction

Chronic purulent otorrhea is the flow of purulent fluid through the external acoustic meatus evolving for more than 3 months [1]. This is the most frequent discharge from the ear in ENT consultations [2]. The associated signs include earache, headache, hearing loss, vertigo, tinnitus, ear pruritus and fever [2]. The main disease involved is chronic otitis media (CMO), the most serious of which is dangerous chronic otitis [3]. If the diagnosis of CMO seems easy thanks to a good clinical examination, CMO is not unique, and it is essential to dismember the perfectly distinct varieties that compose it, each with its own history and calling for special care. [4]. its prevalence was 44.7% in a study carried out on the complications of chronic otitis media in the same department [5]. Its incidence and prevalence worldwide are not known. It is found in both sexes. Young children are most often affected [3]. In the country, while some specific aspects of the subject have been the subject of studies such as microbiology and complications [5] [6] [7], there was no work dealing with it as a whole. Thus we approached it in its entirety in order to have a database in the service and compared our results with data from the literature while setting ourselves the objectives of studying the epidemiological, clinical, and therapeutic aspects of chronic purulent otorrhea in the ENT department of the University Hospital Center of Gabriel Toure Bamako.

2. Materials and Methods

This was a retrospective study that took place in the ENT and head and neck surgery department of the CHU Gabriel Touré in Bamako. It took place over a period of 2 years, from May 2019 to April 2021.

2.1. Sampling

We made an exhaustive sampling of all patients who consulted for hearing loss. Thus we collected 135 patients. The data carrier was the patient files and the operating report register of the ENT department CCF.

2.2. Inclusion Criteria

Any patient has consulted for chronic purulent otorrhea in the department with a complete medical file. All ages were included (except from 0 to -5 years), of both sexes and across all regions of the country.

2.3. Non-Inclusion Criteria

Patients with incomplete records and patients, who were less than 5 years old.

2.4. The Data Collection Technique

A complete ENT examination was performed on all patients. The data were recorded on a survey form designed for this purpose after rereading the clinical observations, operating and hospitalization reports.

2.5. The Variables Studied

They were sociodemographic data, clinical data, paraclinical data, namely (tone audiometry, CT), etiological data, therapeutic data, operative indications and postoperative results, and postoperative hearing gain. The postoperative follow-up time was on average 6 months.

2.6. Data Processing and Analysis

The data was analyzed on SPSS software.
Graphics were made in Word Office 2013.

2.7. Ethical Consideration

The principles of good medical practice have been observed, *i.e.*, respect for ethics.

3. Results

This study extended over 2 years, from May 2019 to April 2021. During this study period, we recorded 135 patients who consulted for chronic purulent otorrhea. Patients aged 16 to 25 years were the most represented at 37.0%. The mean age was 29.27 years; the standard deviation was 18.338; the extreme ages were 5 years to 85 years (**Table 1**). We noted a male predominance in 60.7%, with a Sex-ratio of 1.547. The Bambara ethnic group was the most represented with a rate of 33.3%. The student profession was found in 36.3%, followed by workers and merchants 19.26%, 16.3%. The left side was the most affected with 38.5%. In 63.0% of cases the otorrhea was moderately abundant. 54.8% of patients consulted within more than 2 years. Hearing loss was the most associated sign in 68.1%. The external acoustic meatus was free in 80.73% of patients. The presence of scale was found in 17.77% of patients. Eardrum perforation was found in 66.66%; it was subtotal in 50% of cases. The central seat was found the most with 48.9%. Pure tone audiometry was performed in 57 patients which objectified conductive hearing loss in 55 patients or 96.5%. Hearing loss 20 - 40 was the most predominant at 40.3% of patients. CT of the petrous bone was performed in 49 patients, which objectified chronic cholesteatomatous otitis media (CMO) in 21 patients (42.9%). Simple CMO with an open eardrum was the most found diagnosis in 55.5% and cholesteatomatous CMO was found in 8.1%. Depending on the etiology of chronic purulent otorrhea (**Table 2**). Treatment varied; it could be medical and/or surgical. In 71 cases (52.60%), the treatment was purely medical based respectively on antibiotics and ear drops. In some cases, analgesics, nasopharyngeal disinfectants and decongestants were found. The protocol is established according to microbiological data and their sensitivities to antibiotics from previous studies of the service and those of the literature. The general antibiotic was based on amoxicillin + clavulanic acid in 100%, and the local one was based on ciprofloxacin. 64 cases (47.4%) required surgery after medical treatment. Surgical cure depended on the diagnosis. Myringoplasty was

the most performed surgical treatment in 21 cases (32.8%). A total of 10 cases benefited from a surgical treatment consisting of a hollow cavity plus myringoplasty (Table 3). The length of stay for hospitalized patients varied from 1 to 30 days with an average of 10 days. Tinnitus, vertigo was the immediate postoperative complications in 15.2% and 6.2%. With the mean follow-up of 6 months, tinnitus and reperforation were the most common complications in 6.2% and 3.1% respectively. An improvement of 0 to 40 dB was observed in 37.7% of patients who underwent tympanoplasty.

Table 1. Distribution of patients by age.

Age	Effective	Percentage
5 to 15 years old	21	15.6
16 to 25 years old	50	37.0
26 to 35 years old	28	20.7
36 to 45 years old	13	9.6
46 to 55 years old	14	10.4
55 to 85 years old	9	6.7
Total	135	100.0

Table 2. Distribution of patients according to diagnosis.

Etiologies	Effective	Percentage
Otomycosis	24	17.8
Malignant otitis externa	1	0.7
Superinfected traumatic tympanic perforation	4	3
Otorrhea on Trans-tympanic aerators	1	0.7
CMO mucosa with open eardrum	75	55.5
Cholesteatomatous CMO	11	8.1
Chronic otomastoiditis	16	11.8
Otomastoiditis complicated by meningoencephalitis	3	2.2
Total	135	100.00

Table 3. Distribution of patients according to type of surgery performed.

type of surgery	Effective	Percentage
Myringoplasty	21	32.8
Tympanoplasty type 2	9	14.0
Antrotomy + Myringoplasty	14	21.8
Antro-atticotomy + Myringoplasty	10	15.6
Recess cavity + Tympanoplasty	10	15.6
Total	64	100

4. Comments and Discussion

4.1. Aspect Hospital Frequency

In our study, 135 cases of chronic purulent otorrhea were collected at the ENT department of the CHU Gabriel Toure during this period out of 9368 consultations, either approximately. Our rate seems low. Indeed, the real frequency of this disease is difficult to specify in our working conditions where health establishments, qualified personnel and technical platforms are limited [8]. Therefore, there is under-reporting of cases in our setting.

4.2. Age

The average age of our patients was 29.27 years and the standard deviation was 18.33 with extremes ranging from 5 years to 85 years. The most represented age group was from 16 to 25 years old, either 37.0% of cases. The literature review did not allow us to find data on chronic purulent otorrhea in general; however, there are specific data based on certain etiologies. Thus Gyebre in Burkina Faso [8] found an average age of 21 years; on the other hand, Zarhnoun K in Morocco [9] found an average age of 10.5 years. Practically, all socio-professional strata are found in our series. But the highest percentage goes to pupils and students in 36.3%. We believe that this high percentage is justified by the level of education of this social stratum which allows them to understand the need for early medical consultation.

4.3. Clinical Aspects

In our study, 37.8% of cases of chronic purulent otorrhea were localized to the right ear; 38.5% were localized on the left and 23.7% were bilateral without our having any explanation for this. Our results are comparable with those of Zarhnoun K [9] in Morocco who found 53.3% on the right, 40% on the left, and 6.6% bilateral. We noted a duration of evolution greater than 2 years in 54.8% of our patients, which is equivalent to the study carried out by Y. M. C. Gyebre in Ouagadougou [8], of which 25% of the patients had had their first consultation more than 10 months. This delay in consultation is reported through the literature [8] [10] in developing countries; it may be due to the absence of a family doctor but above all the low socio-economic level of the parents, who are often poorly adapted to self-medication. To this could be added the low impact of the symptoms of this disease, which constitutes a factor of trivialization in our regions [8]. The associated otological signs were hearing loss in 68.1%, otalgia in 48.1% and tinnitus in 42.2%.

These three are followed by ear pruritus, vertigo and facial paralysis in 25.2%, 13.3% and 5.2% of cases respectively. The ear being the organ of hearing and balance, the first discomfort is usually that of hearing loss. The most common causes in our study were dominated by mucous CMO with open eardrum in 55.5%, otomycosis in 17.8%, chronic oto-mastoiditis in 11.8%, cholesteatomatous CMO in 8.1%. Secondarily, superinfected post-traumatic tympanic perfora-

tion was found in 3% of cases, followed by otomastoiditis complicated by meningoenzephalitis in 2.2%, malignant otitis externa 0.7%, otorrhea on a trans-tympanic aerator 0.7%. In our context, the use of poorly known and unsuitable traditional auricular products seems to maintain its chronicity pictures. Unfortunately, the low purchasing power of patients, the influence of socio-cultural factors and ignorance of the risks incurred induce this therapeutic use.

4.4. Therapeutic Aspects

The medical treatment was prescribed to all our patients according to the microbiological data and their sensitivities to antibiotics from previous studies of the service and those of the literature [6] [7] [11]. The goal is to dry up otorrhea, restore hearing, prevent or treat superinfection, and improve ventilation of the middle ear or in preparation for surgery. The established protocol was systemic antibiotic therapy based on amoxicillin + clavulanic acid, and local antibiotic therapy based on ciprofloxacin.

Surgical treatment depends on etiologies. For simple CMO surgery, the authors discuss the choice between tympanoplasty with or without mastoidectomy [4] [12]. Tabchi B *et al.* [13] conducted a comparative study between myringoplasty with or without mastoidectomy in patients with simple CMO and concluded that there was no statistically significant difference between these 2 methods (success rate of grafts eardrums and postoperative auditory functional recovery). But according to Balyan FR *et al.* [14], statistics have shown that myringoplasty with mastoidectomy was preferred by a large number of surgeons. In our series, antrotomy + myringoplasty and antro-atticotomy + myringoplasty were performed in most cases (24 cases). Surgical treatment meets a dual objective of drying up the otorrhea and improving or even recovering the hearing loss. Even if it is established that there is no statistically significant difference between these 2 methods, the general trend is in favor of myringoplasty associated with mastoidectomy in the surgical treatment of simple CMO. For the surgical treatment of cholesteatomatous CMO, we performed a hollow cavity + Tympanoplasty in all cases. Elsewhere, various authors have long discussed the choice between open and closed techniques [15] [16]. Despite today the difficulty of choosing between tympanoplasty in the open technique and tympanoplasty in the closed technique, we will note that the data from the clinical examination, the audiometric assessment and the imaging most often make it possible to plan the most appropriate surgical strategy adapted [15].

4.5. Evolutionary Aspects

The evolution in our study was favorable in 86% of cases. However, postoperative complications were noted, represented by 4 cases of tinnitus (6.2%), 3 cases of tympanic reperforation (4.7%), 2 cases of revision surgery. We have not encountered in our series of cases labyrinthine fistula. In long-term follow-up, many

authors have encountered the problems of follow-up loss. In our series, we noted 31% loss of sight. This high percentage could be explained by the favorable evolution under treatment (the patients no longer see the benefit of seeing their doctor again), and the lack of patient awareness. The specific aspect of cholesteatoma has been the subject of several studies on the postoperative follow-up of patients. The outcome of loss of sight in 11 years of follow-up reported by Brahim *et al.* [16] was 28%. Given the potentially recurrent nature of cholesteatoma, there is reason to worry about the future of these patients.

4.6. Limits and Constraints of the Study

We recorded files that did not provide answers to all the items of the questionnaire. These shortcomings are inherent in any retrospective study.

The feasibility of additional examinations (scanner and functional explorations of the ear): these examinations cannot be carried out at any time due to the organization of the service on the one hand and their financial accessibility on the other.

Thus functional auditory explorations are not systematic in the diagnosis of chronic purulent otorrhoea.

The many loss of follow-up of patients after treatment limits the discussion on the evolutionary aspects.

5. Conclusion

Chronic purulent otorrhea is the most common ear discharge in ENT consultation. It can occur at any age; young people are the most represented in both sexes combined. The main pathology involved is chronic otitis media, the most serious of which is dangerous chronic otitis. The key to diagnosis is given by otoscopy. If the diagnosis of CMO seems easy thanks to a good clinical examination, the therapeutic approach of this affection is still the subject of often difficult difficulties, especially in its cholesteatomatous form. The treatment is medical or medico-surgical.

Conflicts of Interest

The authors declare no conflict of interest regarding the publication of this article.

References

- [1] Tankéré, F. and Bodénez, C. (2008) Conduite à tenir devant une otorrhée chronique. *EMC-Traité de Médecine Akos*, **11**, 1-4.
- [2] Ezzahoum, M.S. (2012) Profil bactériologique des otorrhées chroniques. Université Mohamed V Faculté de Médecine et de Pharmacie de Rabat, Rabat.
- [3] Njifou, A., Nsom, P., Vodouhe, U., Mpressa, E., Moho, A., Kuiffo, C., *et al.* (2019) Les Otites Moyennes Aigues à Douala: Aspects Epidémiologiques, Cliniques et Therapeutiques à propos de 120 cas. *Health Sciences and Diseases*, **20**, 82-86.
- [4] Tran Ba Huy, P. (2018) Otites Moyennes Chroniques. Histoire Naturelle et Formes

- Cliniques. *EMC-Oto-Rhinolaryngologie*, **13**, 1-23.
- [5] Koné, F.I. (2014) Complications des Otites Chroniques: Aspects épidémiologiques, diagnostiques et thérapeutiques. Faculté de médecine et d'odontostomatologie Bamako, Bamako.
 - [6] Guindo, E. (2012) Otites Moyennes Aigües: Etude Bactériologique sur les otites moyennes aiguës suppurées chez les enfants de 6 mois à 12 ans dans le service OR de l'Hôpital Gabriel TOURÉ de Bamako, Mali. Faculté de Médecine, de Pharmacie et d'Odonto-Stomatologique, Mali.
 - [7] Sacko, H.B. Dembélé, R.K. Diallo, A.O. and Coulibaly, M.S. (2014) Bacteriologie De L'otite Moyenne Suppuree Chronique De L'enfant Au Mali [Bacteriology of the Chronic Suppurative Otitis Media in Children in Mali]. *Journal Tunisien d'ORL*, **31**, 34-36.
 - [8] Gyebre, Y.M.C., Ouedraogo, R.W.-L. and Elola, A. (2013) Epidemiological and Clinical Aspects and Therapy of Chronic Otitis Media in the "ENT" and Cervicofacial Surgery Ward in the University Hospital of Ouagadougou. *International Scholarly Research Notices*, **2013**, Article ID: 698382. <https://doi.org/10.1155/2013/698382>
 - [9] Zarhnoun, K. (2013) Les otites moyennes chroniques cholestéatomateuses chez l'enfant à propos de 15 cas et revue de la littérature. Université Cardi AYYAD Faculté de Medecine et de Pharmacie Marrakech.
 - [10] Castro, O., Perez-Carro, A.M., Ibarra, I., et al. (2013) Myringoplasties in Children: Our Results. *Acta Otorrinolaringologica*, **64**, 87-91. <https://doi.org/10.1016/j.otoeng.2013.04.002>
 - [11] Tesfa et al. (2020) Bacterial Otitis Media in Sub-Saharan Africa: A Systematic Review and Meta-Analysis. *BMC Infectious Diseases*, **20**, Article No. 225. <https://doi.org/10.1186/s12879-020-4950-y>
 - [12] Agrawal, A. and Bhargava, P. (2017) Comparative Evaluation of Tympanoplasty with or Without Mastoidectomy in Treatment of Chronic Suppurative Otitis Media Tubotympanic Type. *Indian Journal of Otolaryngology and Head & Neck Surgery*, **69**, 172-175. <https://doi.org/10.1007/s12070-016-1038-5>
 - [13] Tabchi, B., Rassi, S., Haddad, A., Nehme, P. and El Rassi, B. (2000) Les otites moyennes chroniques suppurées: Une expérience de 140 cas colligés à l'hôtel-Dieu de France. *Journal Medical Libanais*, **48**, 152-156.
 - [14] Balyan, F.R., Celikkanat, S., Aslan, A., Taibah, A., Russo, A. and Sanna, M. (2000) Mastoidectomy in Non Cholesteatomatous Chronic Suppurative Otitis Media: Is it Necessary? *Otolaryngology—Head and Neck Surgery*, **117**, 592-595. [https://doi.org/10.1016/S0194-5998\(97\)70038-X](https://doi.org/10.1016/S0194-5998(97)70038-X)
 - [15] Ayache, D., Schmerber, S., Lavielle, J.P., Roger, G. and Gratacap, B., et al. (2006) Cholestéatome de l'oreille moyenne Middle ear cholesteatoma. *Annales d'Otolaryngologie et de Chirurgie Cervico-faciale*, **123**, 120-137. [https://doi.org/10.1016/S0003-438X\(06\)76653-1](https://doi.org/10.1016/S0003-438X(06)76653-1)
 - [16] Brahim, B., Mehdi, C., Karrim, N. and Mountassir, M. (2014) Cholestéatome de l'oreille moyenne: Étude rétrospective à propos de 145 cas. *Pan African Medical Journal*, **17**, Article 163. <https://doi.org/10.11604/pamj.2014.17.163.3670>