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COMPLICATIONS OF CHRONIC CHOLESTEATOMATOUS OTITIS MEDIA AT THE UNIVERSITY HOSPITAL CENTER OF ANDOHATAPENAKA ANTANANARIVO MADAGASCAR

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ABSTRACT

Chronic cholesteatomatous otitis media is the particularly aggressive form of chronic otitis media. This ear infection can lead to functional impairment of the ear and exposes you to serious complications that can be life-threatening. The purpose of this work was to list the complications of cholesteatomatous otitis in our hospital center. **Patients And Method:** This is a descriptive retrospective study of cases of complicated cholesteatomatous otitis. The study was carried out within the university hospital center Andohatapenaka from January 2015 to December 2019 (5 years). Complications of chronic not cholesteatomatous otitis media have been ruled out. **Results:** The frequency of cholesteatomatous otitis media is 2.57%. It mainly affects patients between 10 and 20 years old with a male predominance. Extra-cranial complications are more frequent (78.94%) compared to intracranial complications. The circumstances of discovery are dominated by otorrhea (31.57%) and retro-auricular swelling (21.05%). The clinical signs are variable and depend on the complications. The otological history badly or not treated (60.52%) remains a predictive factor of these complications. Computed tomography has a very important place in the diagnostic component. **Conclusion :** Cholesteatomatous otitis media is always at risk of serious complications in the absence of well-adapted treatments. Complications can be functional which blames the hearing or vital following the endocranial extension.

INTRODUCTION

Chronic cholesteatomatous otitis media is an inflammation of the lining of the middle ear. It is characterized by the presence of a keratinized squamous epithelium within the middle ear cavity that has been evolving for more than 3 months [1]. It is a particularly aggressive form of chronic otitis media [2]. It is qualified as dangerous because of its progressive risks and its potentially serious complications. This ear infection can lead to considerable hearing loss and can lead to serious, sometimes fatal complications [3,4]. This is a diagnostic and therapeutic emergency [4]. Our objective was to list the epidemiological particularity of the complications of chronic cholesteatomatous otitis media.

PATIENTS AND METHOD

This is a descriptive retrospective study of cases of complicated chronic cholesteatomatous otitis media. This study was conducted over a period of 5 years from January 2015 to December 2019 at the University Hospital Center of Andohatapenaka Antananarivo Madagascar. Data were obtained from medical records, results of additional examinations and operative reports. Were selected, all patients with complicated chronic cholesteatomatous otitis media. Uncomplicated cholesteatomatous otitis as well as complications related to other forms of otitis were ruled out in this research. The parameters studied were age, gender, clinical data, paraclinical data and types of complications.

RESULTS

In our work, we listed 77 cases of chronic cholesteatomatous otitis media and among them, 38 cases presented complications, that is 49.35% of cases. Complications of cholesteatomatous otitis accounted for 2.68% of hospitalizations in our Otorhinolaryngology department. The most affected age group was between 10 and 30 years (52.64%) giving an average of 26.57 years. The extreme ages were 4 years and 85 years. The male gender represented 55.26% of cases with a sex ratio of 1.24. Fetid otorrhea was present in 26.31% of cases (table I). The majority of our patients consulted after several years of disease progression (Table II). The otoscopic result was dominated by a marginal tympanic perforation and the presence of a retraction pocket (Picture I). The computed tomography revealed lysis of the ossicles, but the majority of our patients had no imaging results (table III). Complications of cholesteatomatous otitis were extracranial in 78.94%, intracranial in 13.15% and combined in 7.89% of cases. Extra-cranial complications were mainly represented by mastoiditis and labyrinthine anomaly (Picture II). Meningitis and cerebral abscess were the forms of intracranial complications frequently encountered (Picture III).

DISCUSSION

The complications of cholesteatomatous otitis represented 2.68% of reason for hospitalization in our research. A study carried out by Osma reported a proportion of 3.2% of hospitalized patients [5]. For Abada, this frequency is higher compared to our study with a rate of 5.7% [6]. The authors concluded that complications of cholesteatomatous otitis are much more frequent in developing countries [5,6]. The lack of appropriate therapeutic means was a factor in the occurrence of complications of cholesteatomatous otitis.

In this work, among the subjects with cholesteatomatous otitis, 49.35% had complications. A research carried out by Skandor reported a result similar to ours with 40% of cases [7]. The natural evolution of cholesteatomatous otitis is always at risk of complications in more than two thirds of cases.

The age group of 10 to 30 years was frequently affected in our research with an average of 26.57 years. For Abada [6] the average age found was 25.2 years. Young age seems to be the age of predilection for complications of chronic cholesteatomatous otitis media.

According to gender, the male subject was frequently

affected by the complications of chronic cholesteatomatous otitis media. A predominance of the male gender was also noted by Nowak and Milha with a sex ratio respectively 1.6 and 2 [8, 9]. Even if the male gender predominated in our research, gender inequality does not seem to be a predictive factor for the occurrence of complications. Some authors have reported a predominance of the female gender [10].

The circumstances of discovery of complications of cholesteatomatous otitis were variable. Fetid otorrhea was a reason for consultation frequently encountered in our work. A study by Ouadghiri [11] found that otorrhea was the constant sign of consultation in all patients. Cholesteatomatous otitis is a purulent otological infection and the various complications are related to this trailing suppuration.

Complications of cholesteatomatous otitis were noted after several months of evolution of this condition. In our research, the chronicity of otitis before the onset of complications was between 2 to 4 years in most cases. In the literature, this evolution was 10 years for Abada and 5 years according to Tall [6,12].

Although chronic cholesteatomatous otitis media is considered a serious infection, the progression to severity was slow. Moreover, we have found that the administration of anti-infective treatments delays the onset of complications.

During complicated cholesteatomatous otitis, tympanic perforation was almost always marginal in our research. Same structural lesion has been mentioned in the literature [6,13]. The authors claimed that the type of tympanic abnormality does not predict the development of a complication [13]. Some authors stipulated that the marginal localization of the tympanic perforation constitutes the aggressive character of this type of otitis. In addition, this marginal tympanic anomaly facilitates the infectious invasion of the various structures of the ear and then damage to the surrounding organs by contiguity [6].

Among the morphological assessments, cerebral or petrous tomodensitometry is essential during cholesteatomatous otitis. Its role is to specify the extension of the cholesteatoma and to look for its complications [14]. In our series, this examination was performed in 31.58% of cases. In Mustafa's work, only 24% of his patients benefited from a CT scan [15]. In our series, computed tomography was requested only in subjects with clinical manifestations of complications. This version corroborates that of Trijolet [16], whose suspicion of intracranial complications was the main indication for computed tomography. Moreover, this type of examination was not always within the reach of most of our patients. According to some authors, the scanner was systematic in cases of cholesteatomatous otitis [2].

The complications of cholesteatomatous otitis can be extracranial (mastoiditis, labyrinthitis, facial paralysis, Bezold's abscess) or intracranial (meningitis, cerebral abscess, thrombophlebitis). They can be indicative of cholesteatomatous otitis. It is the complications that make the seriousness of this potentially fatal pathology. It is customary to differentiate between intracranial complications and extracranial complications given the very different evolutionary and prognostic aspect [17].

Extracranial complications were frequently encountered in our research with a proportion of 78.95% of cases followed by intracranial complications and associations of two types of complications respectively 13.16% and 7.89% of cases. Mostly extracranial complications were also listed by Abada with a rate of 68% [6]. In a series of 32 patients, Dupey identified 56.2% of intracranial complications and 43.7% of associated complications [18].

The clinical manifestations related to the extracranial complications are already uncomfortable for the patients and which justifies the consultation. The occurrence of intracranial complications is almost always secondary to extracranial complications, hence the discovery of complications of cholesteatomatous otitis at the stage of extracranial complications.

Among the extracranial complications ; in our work, mastoiditis was the usual form of this unfavorable evolution. The predominance of this complication was also mentioned by various authors [19,20]. According to Tall and Osma, mastoiditis was the classic complication of cholesteatomatous otitis with a rate of 68.25% and 64.12% of cases respectively [5,12].

The frequency of mastoiditis during cholesteatomatous otitis can be explained by the anatomical location of the mastoid cavity which is directly related to the cavity of the middle ear. Labyrinthitis was the second extracranial complication of cholesteatomatous otitis in our study. In the literature, this kind of complication was rarely found with a rate of 6.3% for Abada and 5.7% according to Portier [6,21]. Labyrinthine involvement is mostly secondary to mastoid disease; and patients come for consultation well before the appearance of signs of labyrinthitis. The appearance of facial paralysis during cholesteatomatous otitis was not negligible.

It is one of the extracranial complications with a rate of 7.89% in our study. This type of complication was much more represented in the literature. It occupied second place according to Abada with a rate of 25% and a frequency of 12.8% in the work of Osma [5]. The natural mechanism incriminated is the direct bone destruction of the facial canal by cholesteatoma, known for its significant osteolytic property [16].

During our research, we identified five cases of intracranial complications. These complications represented the dangerous evolution of cholesteatomatous otitis and which can be life-threatening in the immediate future. This complication was represented by meningitis in 5.26% of cases or 40% of intracranial complications. It is the most frequent meningo-encephalic complication of cholesteatoma according to the authors [17,18]. According to Abada, among the intracranial complications of cholesteatomatous otitis, meningitis was found in more than half of the cases [6]. This kind of complication is related to the presence of cholesteatoma which would be in contact with the dura mater after lysis of the tegmen tympani [19].

The unfavorable evolution of cholesteatomatous otitis was also marked by a cerebral abscess. It is the most formidable complication of chronic otitis media, which requires early diagnosis to institute specific and effective treatment [6]. It accounted for 40% of intracranial complications in our series. Its frequency varied according to the authors. Rupa [20] reported a rate of 57.4% of cases and 33% of cases for Abada [6]. In practice, the occurrence of a cerebral abscess on cholesteatomatous otitis is a less common situation but the prognosis is still poor. Multidisciplinary care would be desirable and imaging is essential before the therapeutic decision.

In our research, we found a case of lateral sinus thrombophlebitis which accounted for 20% of intracranial complications. This proportion was comparable to that of Kuezkowski [22] who reported a rate of 19%. It should be noted that thrombophlebitis was rare but it remains the most frequent venous complication of chronic otitis media.

CONCLUSION

The complications of chronic cholesteatomatous otitis media are subdivided into 2 categories, namely intracranial complications and extra-cranial complications. During our

research, the unfavorable evolution of cholesteatomatous otitis was dominated by the extra-cranial form. These complications engage the auditory functional prognosis while intracranial complications are at risk of catastrophic vital prognosis.

Table 1: Circumstances of discovery of complications of cholesteatomatous otitis

Clinical signs	Number (n)	Percentage (%)
Post-auricular swelling	9	23,69
Otorrhea	10	26,31
Hypoacusis	5	13,15
Headache	3	7,9
Vertigo	5	13,15
Association of signs	3	7,9
Otalgia	3	7,9
Total	38	100

Table 2: Duration of evolution of cholesteatomatous otitis before complications

Duration of evolution (years)	Number (n)	Percentage (%)
< 1 year	3	7,89
2-4	18	47,37
5-9	4	10,53
>10	13	34,21

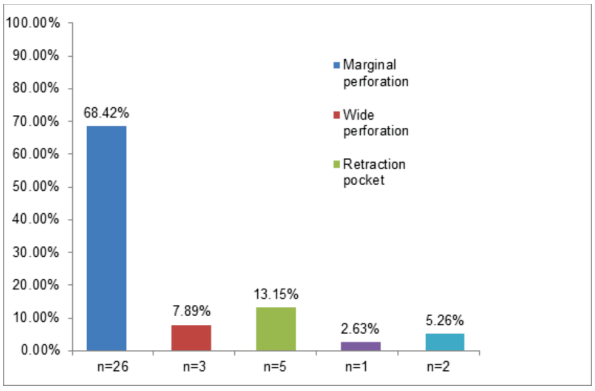

Figure I: Otoscopic aspects of complicated cholesteatomatous otitis

Table 3 : Results of cerebral and petrous computed tomography

Computed tomography results	Number (n)	Percentage (%)
Osteolysis of the ossicles	5	13,15
Semicircular canal lysis	2	5,26
Pictures of brain abscess	1	2,63
Filling of mastoid cells	3	7,89
Pictures of cerebral thrombophlebitis	1	2,63
No imaging	26	68,42

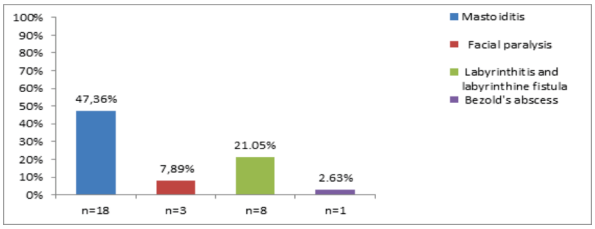

Figure II : Extracranial complications

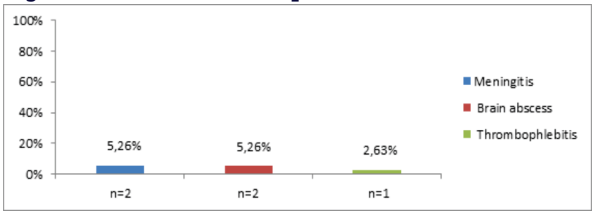

Figure III : Intracranial complications

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