

Profile of Patients with Complicated Chronic Suppurative Otitis Media in Dr. Hasan Sadikin General Hospital Bandung, Indonesia January–December 2011

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Abstract

Background: The prevalence of chronic suppurative otitis media (CSOM) is still high in developing countries. According to the World Health Organization (WHO), the prevalence of CSOM is 2-4%. In 1994-1996, the prevalence of CSOM in various provinces in Indonesia is diverse, with general prevalence of 3.9%. Chronic suppurative otitis media can also lead to various complications. The objective of this study was to determine the profiles of CSOM patients with complications in Dr Hasan Sadikin General Hospital Bandung.

Methods: Secondary data was obtained from 117 medical records of the period January-December 2011 in Dr Hasan Sadikin General Hospital Bandung. Out of 117 medical records, 43 medical records consisted of CSOM patients who had complications. Data of patients' demography, risk factor, chief and accompanying complaints, infected ears, pathological findings, complications, and treatments were collected and were analyzed with frequency distribution.

Results: There was 36.75% CSOM patients with complications, 55.8% are male, 30.3% were 30-39 years old, 62.8% level of education of patients was primary education. Ear discharge (otorrhea) was the most common chief complaints (95.3%) and hearing loss was the most dominated accompanying symptom (53.5%), Upper Respiratory Tract Infection (URTI) was the most common risk factors. Most of the cases had unilateral complication (93%) and intratemporal (72%). Both intratemporal and extratemporal was only 26% cases. Granulation tissue was the most common intratemporal complication (32.5%). The most common procedure given was Mastoidectomy without tympanoplasty (51.2%) followed by pharmacotherapy

Conclusions: Percentage of CSOM with complication is still high in Dr. Hasan Sadikin General Hospital Bandung.

Key words: Chronic suppurative otitis media, complication, profile.

Introductions

Chronic suppurative otitis media (CSOM) is an infection that occurs in the middle ear it is chronic and ongoing. In this type of otitis, the inflammation of the middle ear mucosa occurs for ≥ 2 months, and is accompanied by perforation of the tympanic membrane. In addition, there is an ear discharge (otorrhea) in CSOM. The discharge can be clear, viscous, or purulent, and persistent or intermittent.¹ Based on the World Health Organization (WHO) regional classification in 2004, the prevalence of CSOM in developed countries is very low, in the United Kingdom (UK) for example, it is only 0.9%. However, the prevalence in developing countries is still high,

at around 2-4%.² A total of approximately 164 million (90%) of the total cases of hearing loss in developing countries is due to CSOM.²

A survey conducted by the Ministry of Health in 1994-1996, showed that the prevalence of CSOM in various provinces in Indonesia varies, with a general prevalence of 3.9%.^{3,4} In H. Adam Malik Hospital, Medan, Indonesia⁵ the number of CSOM patients in 2008 was 154 patients, or 1.4% of the total patients visiting the Otorhinolaryngology clinic.

Hearing impairment may occur in CSOM cases, and reducing the patients' quality of life. Patients usually come with chief complaint of otorrhea accompanied by hearing loss. Inquiries should be performed about the potential risk factors, such as history of the

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Upper Respiratory Tract Infection (URTI), recurrent Acute Otitis Media (AOM) and allergies.³ The most common causative agent found on CSOM are *Staphylococcus aureus*, and *Pseudomonas aeruginosa* or mixed flora.^{3,6} It also found perforation of the tympanic membrane, either in the attic, the central and/or the marginal part of the membrane.⁷ Complications of CSOM occur when the infection has spread to structures surrounding the middle ear, which is normally confined to the bone.⁷ Complications usually occur in malignant type of CSOM, which are accompanied by the formation of pathological tissue called cholesteatoma.¹ The infection can spread from the middle ear to adjacent structures, in several ways, such as hematogenous, through bone erosion, or through the already established way (such as fracture of the skull, etc).⁷ Those complications cause burdens for the patients.⁸

There are various classifications of complications, this study used the Souza *et al.*⁷ classification which divides the complications into intratemporal and extratemporal complications. The complications which are classified as intratemporal complication, includes mastoiditis, labyrinthitis, facial nerve paralysis (FNP) and petrositis. While complication such as meningitis, extradural abscess, subdural abscess, brain abscess, Bezold's abscess, otitic hydrocephalus, sinus thrombophlebitis and retroauricular abscess are classified as the extratemporal complication.⁷ The treatment in cases with complications require a mastoidectomy procedure beside pharmacotherapy.^{3,7} The objective of this study was to determine the profiles of CSOM patients with complications in Dr Hasan Sadikin General Hospital Bandung.

Methods

Secondary data were collected from 117 medical records of the period January–December 2011 in Dr Hasan Sadikin General Hospital Bandung. Out of 117 medical records, 43 medical records consisted of CSOM patients who had complications (intratemporal or extratemporal). Data of the patients' demography (sex, age, education level), risk factor, chief complaint and accompanying complaints, infected ears (unilateral or bilateral), pathological findings (granulation tissue and/or cholesteatoma), complications (intratemporal or extratemporal), and treatments, were collected. Intratemporal complications consisted of mastoid abscess, petrositis, labyrinthitis, and FNP.

Moreover, extratemporal complications consisted of meningitis, extradural abscess, subdural abscess, brain abscess, sinus thrombophlebitis, Bezold's abscess and otitic hydrocephalus. Cases with acute exacerbation episode of CSOM with complications were excluded from this study. This study was approved by the Ethical Committee of Dr. Hasan Sadikin Hospital Bandung. Data were analyzed with frequency distribution.

Results

Based on this study, there were 43 patients of CSOM with complications out of 117 CSOM patients, this shows that the rate of complication in CSOM patients in DR. Hasan Sadikin Hospital Bandung was as much as 36.75%. The characteristics were obtained from 43 patients, 24 (55.8 %) were male and 19 (44.2%) female. Most of the patients

Table 1 Distribution of CSOM with Complications in Patients by Age and Sex

Age Group (year)	Sex				Total	
	Male		Female		Number	Percentage
	n=24	%	n=19	%		
10–19	3	7.0	3	7.0	6	14
20–29	7	16.3	5	11.6	12	27.9
30–39	7	16.3	6	14.0	13	30.3
40–49	2	4.7	2	4.7	4	9.4
50–59	4	9.3	1	2.3	5	11.6
>60	1	2.3	2	4.7	3	7.0

Table 2 Clinical Symptoms in CSOM patients with complication

Complaints	Number (of person)	Percentage (%)
Chief complain		
- Ear discharge (otorrhea)	41	95.3
- Ear pain (otalgia)	2	4.7
Accompanying condition		
- Hearing loss	23	53.5
- Ear pain (otalgia)	9	20.9
- Sense of fullness in the ear	5	11.6
- Headache	3	7.0
- Vertigo	1	2.3
- Pain behind the ear	1	2.3
- Tinnitus	1	2.3

were 30-39 years old (30.3%) (Table 1). According to the level of education most of the patients have entered primary education (elementary and junior high school) (62.8%).

The clinical symptoms of all the patients were varied. Ear discharge (otorrhea) was the most common chief complaint (95.3%) and hearing loss was the most dominated accompanying symptom (53.5%), followed by ear pain (20.9%) and sense of fullness in the ear (11.6%) (Table 2).

In this study, URTI was the most common risk factor that occurred in 19 patients (44.2%), only 16.3% was acute otitis media (AOM), followed by allergy (11.6%).

According to complications, most of the CSOM patients had unilateral complication

(93%) and intratemporal complication (72%). Both intratemporal and extratemporal complications only occurred in 26% cases. Granulation tissue was more commonly formed (32.5%), followed by both granulation tissue and cholesteatoma (20.9%). Meanwhile, only 6.9% Cholesteatoma were found.

From the complications, mastoiditis was the most frequent complication found, followed by a combination of Retroauricular fistule and Mastoiditis.

All the cases were given treatment, and the most common procedure given was Mastoidectomy without tympanoplasty (51.2%) followed by pharmacotherapy (Figure 1).

Table 3 Distribution of complications

Complications	Frequency (Person)	Percentage (%)
Extratemporal	1	2.3
Retroauricular abscess	1	2.3
Intratemporal	31	72.1
Mastoiditis	30	69.8
Facial Nerve Paralysis	1	2.3
Extratemporal and Intratemporal	11	25.6
Bezold abscess, Retroauricular fistule and Mastoiditis	1	2.3
Retroauricular abscess and Mastoiditis	1	2.3
Retroauricular fistule and Mastoiditis	8	18.6
Meningitis and Mastoiditis	1	2.3

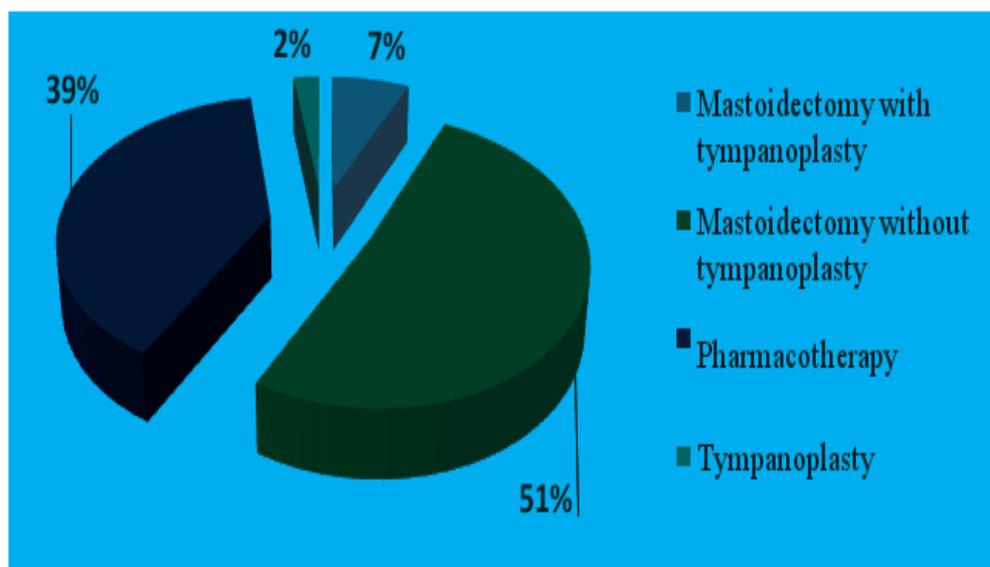


Figure 1 Distribution of treatment given to CSOM patients with complications

Discussions

Patients with complications in Dr. Hasan Sadikin General Hospital Bandung were mostly aged between 30-39 years, as much as 13 patients or 30.3%. The results are consistent with the results of other studies, at the H. Adam Malik, Hospital in Medan, which showed that most CSOM patients were aged >20 years (71.2%).⁹ with a composition of 24 male patients (55.8%) and 19 female (44.2%), thus male was more dominant than female. Also, the same study in H. Adam Malik, Hospital in Medan⁹, showed similar results, with 30 male and 29 female patients.

In this study, the majority (62.8%) of CSOM patients with complications only had primary education. Primary education in this study refers to 9-year compulsory education in Indonesia, which includes elementary and junior high school. This is consistent with results of a study conducted by Periasamy¹⁰ at H. Adam Malik Hospital, which states that most CSOM patients have a low education level. Based on the data above, it can be concluded that the CSOM tends to occur in people with a low education level, or knowledge. As we know, knowledge can affect behavior, so perhaps one of the causes of the high incidence of CSOM with complications is because the patient seeks for medical treatment when the complication has already arisen.

In this study URTI is the highest risk factor which is consistent with the result of Lasisi *et al.*¹¹ in Nigeria, which showed that the most

common risk factor in CSOM patients was URTI by 45%. This study also found other risk factors, such as AOM and allergies by 16.3% and 11.6% respectively. As much as 41 CSOM patients were with complications (95.3%), with ear discharge (otorrhea) as their chief complaint. The most common accompanying complaint was hearing loss in 23 patients or as much as 53.5%. This result is consistent with other studies conducted in Pakistan.¹² This is also consistent with a study in The Republic of Congo, where otorrhea became the chief complaint along with hearing loss as the accompanying complaint.¹³

Most CSOM patients developed unilateral complications. This result is consistent with another study conducted by Ghonaim *et al.*¹⁴ in children patients with CSOM in Egypt in 2011. In this study, we found that granulation tissue was formed on 14 patients (32.5%), while cholesteatoma on 3 patients (6.9%). This result is different from another study, conducted by Hossain *et al.*¹⁵ in Mymensingh Medical College Hospital in Bangladesh, who found cholesteatoma in all CSOM patients with complications.

In this study intratemporal complications are more prominent than extratemporal complications (Table 3). The most common intratemporal complication is mastoiditis found in 35 patients (97.7%). This result is consistent with other studies conducted in H. Adam Malik Hospital, Medan, which also shows that 25.4% of the complications that occurs in CSOM patients, was mastoiditis.⁹ In Cairo,

Egypt and in Marocco, mastoiditis was also the most common intratemporal complication by 65%.^{16,17}

Further, from 12 patients with extratemporal complications, retroauricle fistule was the most common complication in 9 patients (20.9%). This result was different from a study conducted by Ceylan *et al.*¹⁸ in Turkey. In that study, retroauricle fistule occurred only in 7 patients or 7.3% out of 97 CSOM patients with complications. Also, multiple complications occurred in 11 patients or as much as 25.6%. This result is consistent with a study conducted in Turkey by Yorgancilar *et al.*¹⁹

The most treatment given on CSOM patients with complications in Dr. Hasan Sadikin General Hospital Bandung is mastoidectomy (Figure 1). This result is consistent with the result of another study in The Republic of Congo¹³, where mastoidectomy was performed on majority of CSOM patients with complications.

The limitation of this study is the data are obtained only from one teaching hospital in Indonesia and should be compared to other teaching hospitals in Indonesia. Percentage of CSOM with complication in Dr. Hasan Sadikin General Hospital Bandung is still high. Data collected from other hospitals in West Java should still be obtained so that a broader scope of this disease could be achieved.

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