

Case Of Chronic Suppurative Otitis Media in Adolescent Boy : Risk Factors Clinical Manifestations and Management.

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ABSTRACT

Background

Chronic Suppurative Otitis Media (CSOM) is a persistent infection of the middle ear. It is characterized by recurrent or continuous otorrhea through a perforated tympanic membrane. It remains a significant cause of preventable hearing impairment, particularly in developing countries. This report highlights the risk factors, clinical presentation, diagnosis, management and outcome of CSOM in an adolescent patient with identifiable modifiable risk factors.

Case Report

A 15-year-old male presented to the Ear, Nose and Throat outpatient clinic of Pelabuhan Hospital, North Jakarta with a two-month history of right-sided ear pain, ear discharge, aural fullness, tinnitus and progressive hearing loss. The patient reported frequent swimming and habitual ear cleaning with cotton swabs. Otoscopic examination revealed purulent otorrhea, hyperemia of the external auditory canal and a central perforation of the pars tensa with mucopurulent discharge. Pure-tone audiometry demonstrated mild-to-moderate conductive hearing loss in the affected ear, while the contralateral ear was normal. A diagnosis of right-sided tubotympanic (safe type) CSOM was made. Patient was managed with aural toilet, 3% hydrogen peroxide ear drops, topical ofloxacin, oral erythromycin. Additionally counseling regarding prevention of water entry particularly in affected ear and avoidance of ear canal manipulation was also done. At two-week follow-up, the patient showed marked symptomatic improvement, with significant reduction in otorrhea, otalgia, and tinnitus. Additionally subjective improvement in hearing was reported.

Conclusion

This case emphasizes the contribution of modifiable behavioral risk factors, particularly frequent water exposure and cotton-swab use, in the development of CSOM among adolescents. Early diagnosis, audiometric assessment, appropriate antimicrobial therapy and preventive education can result in favorable clinical outcomes and help prevent long-term auditory sequelae.

Keywords: Adolescent, Conductive Hearing Loss, Chronic Suppurative Otitis Media, Ear Canal Manipulation, Ofloxacin.

INTRODUCTION

Chronic Suppurative Otitis Media (CSOM) is a chronic infection of the middle ear which is characterized by persistent or recurrent otorrhea through a perforated tympanic membrane lasting anywhere from 2 weeks to over 3 months.¹ It remains one of the major causes of middle ear morbidity and preventable hearing loss particularly in developing countries. Globally, CSOM affects approximately 3.8% of the general population and its prevalence is more in low- and middle-income countries due to limited access to healthcare, environmental factors and recurrent upper respiratory tract infection. The condition often develops as a complication of untreated Acute Otitis Media (AOM) or from impaired defense mechanisms of the middle ear mucosa leading to chronic infection. Clinically, patients typically present with purulent ear discharge, hearing loss, ear fullness, tinnitus and occasionally pain. One of the important predisposing factors includes habit of ear-picking with cotton swabs or other sharp objects can injure the ear canal's epidermis and facilitate colonization by pathogenic bacteria.²

The diagnosis of CSOM is generally clinical, based on history and otoscopic examination. Audiometry is required for assessing the degree of hearing loss and determining further management strategies. Treatment aims to eradicate infection, control otorrhea and prevent further complications such as mastoiditis and permanent hearing loss.

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The management of CSOM primarily involves topical antibiotics, with fluoroquinolones being the treatment of choice due to their broad antimicrobial coverage and low ototoxic potential.³

Despite its relatively high global prevalence, reports describing CSOM in adolescents with behavioral and environmental risk factors such as frequent swimming and ear-cleaning habits remain limited in the Indonesian clinical literature. Present case provides a realistic picture of the clinical management of CSOM in primary healthcare facilities and reinforce the importance of prevention through behavioral modification and patient education.⁴

This case is important in illustrating the clinical presentation, risk factors, diagnostic approach and management of CSOM in an adolescent patient treated at the ENT Polyclinic of Pelabuhan Hospital, North Jakarta. This case also highlights the importance of early recognition, appropriate management and preventive education to reduce the risk of persistent infection and prevention of long-term hearing impairment.

CASE REPORT

A 15-year-old male came to the Ear, Nose and Throat (ENT) outpatient clinic of Pelabuhan Hospital, North Jakarta. The presenting complaints included right-sided ear pain and ear discharge for two months. The discharge was yellowish and odourless. The patient also reported a sensation of ear fullness, intermittent tinnitus and progressive hearing loss in the affected ear. Hearing loss had become more pronounced during the week prior to presentation. There was no history of high-grade fever, vertigo or facial weakness. The patient denied any previous episodes of chronic ear disease, ear surgery, or head trauma. Further history revealed that he attended swimming lessons twice weekly and frequently cleaned his ears using cotton swabs.

On general physical examination, the patient appeared well and was fully conscious. Vital signs were within normal limits. Otoloscopic examination of the right ear demonstrated purulent otorrhea within the external auditory canal, hyperaemia of the canal skin and a central perforation involving the pars tensa of the tympanic membrane with surrounding congestion. The tympanic membrane appeared dull with loss of the normal cone of light reflex. Mucopurulent discharge was also observed to be emerging through the perforation. No granulation tissue, cholesteatoma or postauricular swelling was identified. Examination of the left ear revealed a normal external auditory canal and an intact pearly-gray tympanic membrane with a preserved light reflex. Examination of the nose and paranasal sinuses was unremarkable.

Based on the history, clinical features and otoscopic findings a diagnosis of right-sided Chronic Suppurative Otitis Media (CSOM) of tubotympanic type (safe type) was made. Pure-tone audiometry was done to assess hearing impairment, its type and severity. Pure-tone audiometry demonstrated conductive hearing loss in the right ear with an average air-conduction threshold of 38 dB HL and an air-bone gap of 22 dB, while hearing thresholds in the left ear remained within normal limits.

The patient was advised to use earplugs during bathing and swimming. Aural toilet was performed followed by administration of 3% hydrogen peroxide ear drops for three days to facilitate cleaning of the ear canal. Topical ofloxacin 0.3% ear drops were prescribed at a dosage of five drops twice daily in the affected ear. Oral erythromycin 500 mg was also given according to institutional treatment protocol.

At the time of two-week follow-up there was significant improvement in symptoms. Otalgia and tinnitus were reported to have markedly decreased and the amount of ear discharge had significantly reduced.

Repeat otoscopic examination demonstrated a cleaner ear canal with decreased middle ear discharge. Patient reported subjective improvement in hearing and there were no complications reported. The patient was advised to continue regular follow-up for monitoring healing of the tympanic membrane. The overall clinical outcome was found to be highly favorable with improvement in hearing function and complete resolution of active infection which was anticipated with continued treatment adherence and regular follow-up care.

DISCUSSION

This case illustrates the classical presentation of CSOM in an adolescent patient. CSOM in this case was characterized by persistent otorrhea, otalgia, tinnitus, aural fullness and conductive hearing loss. On examination safe type of tympanic membrane perforation was seen. The patient's history of frequent swimming and habitual ear cleaning with cotton swabs represented an important predisposing factor that may contribute to chronic middle ear infection. Similar observations were reported by Lasisi AO et al⁵ and Schilder AG et al⁶ who identified environmental exposure, recurrent ear infections, poor middle ear ventilation and local trauma to the ear canal as significant risk factors to the development and persistence of CSOM. These authors emphasized that repeated exposure to contaminated water and mechanical irritation of the external auditory canal can predispose to bacterial colonization and consequent chronic inflammation of the middle ear. The present patient's regular swimming activities may have increased moisture within the ear canal whereas repeated cotton-swab use could have disrupted the protective epithelial barrier thereby creating favorable conditions for infection. The coexistence of these behavioral risk factors supports current evidence that suggests that the modifiable environmental and personal hygiene practices play an important role in CSOM pathogenesis. Furthermore, the adolescent age of the patient is noteworthy because although CSOM commonly begins in childhood, untreated or recurrent infections may persist into adolescence.

The clinical manifestations observed in this patient are consistent with the typical presentation seen in tubotympanic (safe) type of CSOM. Persistent mucopurulent otorrhea through a central perforation of the pars tensa is the hallmark diagnostic feature of this type of perforation. Acuin J⁷ and Morris P⁸ reported that chronic ear discharge accompanied by hearing loss is the most frequent clinical presentation among patients with CSOM. This hearing loss is usually conductive in nature which results from disruption of the sound-conducting mechanism secondary to tympanic membrane perforation and middle ear inflammation. In the present case, otoscopic examination revealed a central tympanic perforation, hyperaemic canal skin and mucopurulent discharge without evidence of cholesteatoma or granulation tissue. These findings are characteristic of the mucosal form of CSOM. The absence of vertigo, facial nerve dysfunction, postauricular swelling or intracranial symptoms further supported the diagnosis of uncomplicated tubotympanic disease. Importantly, the patient experienced progressive hearing loss which has also been reported by previous studies. This demonstrates that prolonged middle ear inflammation can significantly impair hearing thresholds. Early recognition of subtle hearing loss is important because delayed diagnosis may allow likelihood of irreversible auditory damage and its psychosocial consequences in adolescents.

Audiometric assessment in the present case showed mild-to-moderate conductive hearing loss in the affected ear. Audiometric assessment of contralateral ear was found to be

normal. This finding corresponds closely with reports by Eason RJ et al⁹ and Rosario DC¹⁰ who described conductive hearing impairment as one of the most common functional consequences of CSOM. Any hearing loss in adolescents may adversely affect communication skills, academic performance and quality of life. The subjective improvement in hearing reported by the patient during follow-up suggests that successful management of middle ear infection can restore part of the conductive mechanism even before complete closure of the tympanic membrane perforation occurs. This makes audiological evaluation an integral component of CSOM management. This is important not only from the perspective of documenting baseline impairment but also for monitoring treatment response and determining the need for future reconstructive procedures such as tympanoplasty.

Management in this case consisted of aural toilet, topical antiseptic cleansing with hydrogen peroxide, topical ofloxacin ear drops, systemic erythromycin therapy and patient education regarding water precautions. The favorable clinical response observed after two weeks supports current evidence emphasizing the effectiveness of topical antibiotic therapy in CSOM. Panchasara A et al¹¹ and Suzuki K et al¹² demonstrated that ofloxacin is highly effective in reducing otorrhea and achieving clinical improvement in cases of CSOM. Similarly, Macfadyen CA et al¹³ and Brennan-Jones CG et al¹⁴ reported that topical quinolone antibiotics are superior to placebo and may be more effective than topical antiseptics in achieving resolution of ear discharge. Although systemic antibiotics remain commonly prescribed in some settings, particularly when bacterial culture facilities are unavailable, increasing evidence suggests that topical therapy is often sufficient for uncomplicated CSOM. Nevertheless, local antimicrobial resistance patterns continue to influence therapeutic decisions explaining the inclusion of oral erythromycin in this case.

An equally important aspect of management is patient education which was aimed at addressing modifiable risk factors and preventing recurrence. The patient was advised to avoid water entry into the affected ear and to use earplugs at the time of swimming and taking bath. Similar recommendations have also been emphasized by Bhutta MF et al¹⁵ who highlighted the value of aural hygiene, ear protection, and regular follow-up in achieving long-term disease control.

CONCLUSION

This case highlights the role of modifiable risk factors particularly water exposure and habitual ear canal manipulation as risk factors for development of Chronic Suppurative Otitis Media in adolescents. Early diagnosis and appropriate medical management is important. Routine audiometric evaluation for assessing the severity of hearing impairment is an essential part of management of the cases with CSOM. It also helps in monitoring treatment response and guiding long-term management to prevent permanent auditory sequelae and associated functional consequences particularly in adolescent age group.

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