



Chronic Suppurative Otitis Media Accompanied by Facial Nerve Paresis: A Case Report

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A B S T R A C T

Introduction: Chronic suppurative otitis media (CSOM) is marked by ear discharge (otorrhea) that lasts for more than six to eight weeks, middle ear inflammation that doesn't go away, and a ruptured eardrum. The purpose of this study is to describe examples of CSOM with facial nerve paresis and how such cases are managed. **Case presentation:** A thirty-year-old man complained to the Mataram Community Health Center two days before admission that his mouth was turning to the left, despite the fact that he was still able to speak well. Additionally, for four months, the patient complained of a constant discharge from the right ear. The fluid that emerges from the ear is sticky, yellow, and odorous; blood is not mixed with it. Upon inspection, a cholesteatoma and a flat-edge attic perforation on the tympanic membrane were discovered, together with a purulent and odorous discharge in the ear canal of the right ear. After a facial nerve examination, it was discovered that the forehead wrinkles were uneven and that the face was asymmetrical, with the right eyebrow unable to be raised. The patient was identified as having peripheral facial nerve paresis and persistent suppurative malignant otitis media of the auricula dextra. The patient is being treated with irrigation of the ear canal with 0.9% NaCl, cleaning of the cholesteatoma, and antibiotic administration: two drops of ofloxacin ear drops given twice a day, three times a day ciprofloxacin tablets 500 mg, three times a day methylprednisolone 16 mg, and advice to undergo a mastoidectomy. **Conclusion:** Complications including hearing loss, facial nerve palsy, subperiosteal abscess, petrositis, meningitis, cerebral abscess, and labyrinthine fistula are indicated for mastectomy surgical therapy.

1. Introduction

Chronic suppurative otitis media (CSOM) is a condition characterized by persistent or intermittent discharge (otorrhea) from the ear for a duration of more than 6–8 weeks.¹ There is a rupture in the eardrum (tympanic membrane) and ongoing middle ear inflammation associated with it. The discharge may manifest as aqueous, viscous, transparent, or purulent and might result in auditory impairment. The prevalence of chronic suppurative otitis media (CSOM) is greater in developing nations compared to wealthy nations. The underlying causes are socioeconomic problems, inadequate hygienic practices, and

overcrowded living conditions. CSOM typically manifests in socioeconomically disadvantaged rural regions characterized by inadequate hygiene and nutritional conditions. Additional risk factors for chronic suppurative otitis media (CSOM) include recurrent upper respiratory tract infections, compromised immune systems, and exposure to secondhand smoke. In Indonesia, the rate of illness and impairment related to ear and hearing loss is significantly high, specifically at 18.5%. Additionally, the prevalence of chronic suppurative otitis media (CSOM) in Indonesia ranges between 3-5.2%, affecting around 6.6 million individuals.^{2,3} CSOM can result in

many and occasionally life-threatening problems, including auditory impairment, meningitis, cerebral abscess, mastoiditis, facial nerve weakness, cholesteatoma, granulation tissue, and subdural empyema.²⁻⁵ The objective of this study is to provide a detailed description of instances of chronic suppurative otitis media (CSOM) along with facial nerve paresis, as well as the strategies employed for their treatment.

2. Case presentation

A 30-year-old man came to the Community Health Center with a recent onset of leftward deviation of his mouth, which began two days ago. However, his speech remained unaffected and intelligible. The patient refuted any claims of limb weakness. The patient reported experiencing persistent discharge from the right ear for a duration of 4 months. The discharge from the ear is characterized by a yellowish color, a viscous consistency, and an odor, and it is devoid of any blood content. Additional grievances encompass diminished auditory capacity and tinnitus in the right auditory organ. The patient denied the presence of a fever. The patient reported experiencing symptoms of otorrhea several years ago. Patients frequently encounter respiratory infections such as coughs and colds. The patient also reported a complete absence of pharmaceutical usage. Patients typically cleanse the exudate using a cotton bud.

During the physical examination, the patient's overall health was assessed as moderately unwell, with a blood pressure of 110/80 mmHg, a pulse rate of 86 beats per minute, a respiratory rate of 22 breaths per minute, and a temperature of 36.7 °C. Upon inspection of the right ear canal, a discharge with pus and an unpleasant odor were observed. After cleaning, a cholesteatoma was discovered in the ear, along with a flat-edge attic perforation on the tympanic membrane. Upon assessment of the facial nerve, it was observed that the face displayed asymmetry, with the inability to raise the right eyebrow and uneven forehead wrinkles. Comprehensive blood testing, audiometry, and x-rays were not conducted. A partial paralysis of the facial nerve and chronic suppurative

malignant otitis media affecting the right ear were the patient's diagnoses.

The best thing to do for this patient is to flush the ear canal with a 0.9% NaCl solution, clean the cholesteatoma well, and give them the antibiotic that was prescribed. The patient is prescribed two drops of ofloxacin ear drops administered twice daily, ciprofloxacin pills of 500 mg taken three times daily, and methylprednisolone of 16 mg taken three times daily. Additionally, the patient is advised to have a mastoidectomy. Patients are instructed to prevent water from entering their ears during bathing and to avoid water-related activities, such as swimming, that may result in water entering the ears.

3. Discussion

The diagnosis of chronic suppurative malignant otitis media auricula dextra with peripheral facial nerve paresis was obtained based on the findings from the history and physical examination. The patient exhibits clinical symptoms of ear discharge persisting for four months and the presence of a perforated tympanic membrane, leading to a diagnosis of chronic suppurative otitis media. Chronic suppurative otitis media (CSOM) refers to a condition when there is a hole in the eardrum and discharge from the middle ear persists for a period of more than 6-8 weeks. Chronic discharge may develop with or without the presence of cholesteatoma. CSOM is categorized into two types: tubotympanic or benign CSOM, also known as the safe type, and atticointral or malignant CSOM, also known as the harmful type.⁶⁻⁸

The patient was diagnosed with malignant chronic suppurative otitis media (CSOM) due to the presence of purulent and malodorous discharge from the right ear, as well as attic perforation and cholesteatoma. Cholesteatoma is a benign cystic tumor that develops due to the aberrant proliferation of squamous epithelium, along with the accumulation of debris and possible inflammation in the temporal bone. This pathological proliferation is characterized by a gradual and infiltrative nature, resulting in the degeneration of the osseous structures inside the middle and inner ear. Cholesteatoma is classified into two categories based on the origin of the disease: congenital

cholesteatoma and acquired cholesteatoma. The migration of epithelial cells into the middle ear through a ruptured tympanic membrane is what causes acquired cholesteatoma. This migration is typically a result of infection, trauma, or medical procedures.^{9,10}

The patient had a prior medical record of frequently experiencing coughs and colds. Chronic or repeated infections of the upper respiratory tract, known as acute respiratory infections (ARI), result in the swelling and blockage of the auditory tubes. Acute respiratory infections (ARI) induced by viruses lead to the reproduction of bacterial infections and result in heightened inflammation in the nasopharynx and auditory tube. This is a contributing factor for persistent otitis media. Additional variables that can increase the risk of chronic suppurative otitis media (CSOM) include nasal septum deviation, TB, chronic tonsillitis, and enlarged adenoids.¹¹⁻¹³

In order to ascertain the kind and extent of a patient's hearing impairment, it is necessary to conduct a comprehensive assessment using a tuning fork and audiometry examination. The most common consequence in CSOM is auditory impairment. Conductive deafness in CSOM is a result of the blockage of sound wave transmission from the middle ear to the inner ear due to the presence of fluid (pus) and a hole in the eardrum, which prevents sound conduction to the inner ear. The persistent infection of the middle ear leads to swelling of the lining, a hole in the eardrum, and harm to the auditory bones, resulting in a conductive hearing loss of 20-60 dB. CSOM can result in sensorineural hearing loss as a consequence of inner ear (cochlear) injury, particularly affecting the nerve pathways responsible for transmitting signals from the inner ear to the brain.¹⁴

The patient found the mouth tilted to the right and was unable to raise the right eyebrow, so the patient could be diagnosed with peripheral facial nerve palsy. Facial nerve palsy is one of the complications of CSOM. The onset of facial nerve palsy associated with CSOM can be sudden or gradual. Sudden onset is usually caused by exacerbation of acute infection in CSOM, while gradual onset occurs due to compression of cholesteatoma or granulation tissue. The exact

etiology of facial nerve palsy in chronic ear infections is not completely known; however, direct inflammatory involvement of the facial nerve through compression of the tube due to edema is influential in the pathophysiology of facial nerve palsy. Other theories believe that cholesteatoma can cause facial nerve palsy through the neurotoxic substances it produces or cause bone damage through various enzyme activities.^{12,14}

Treatment for patients is in the form of conservative therapy, namely ear toilets and the administration of antibiotics and corticosteroids. This patient underwent ear irrigation with 0.9% NaCl. Toilet or ear cleaning is done to keep the ears clean and dry. Ear toilets can use sterile cotton swabs or suction to remove pus and debris. Ear toilets can be done 2-3 times per day. Combination therapy of topical and systemic antibiotics is given to CSOM patients with complications. The topical antibiotic given to the patient is ofloxacin ear drops, two drops twice a day. The quinolone group is the main choice of topical antibiotics because they have low side effects and are better than aminoglycosides. Quinolones are effective against *P. aeruginosa* bacteria and do not cause side effects such as cochleotoxicity and vestibulotoxicity. The patient was given the systemic antibiotic ciprofloxacin 500 mg three times a day. Ciprofloxacin and a mix of vancomycin and trimethoprim-sulfamethoxazole are the best antibiotics for *P. aeruginosa* and methicillin-resistant *S. aureus* (MRSA), which are the most common germs that cause CSOM. Methylprednisolone (16 mg) is given three times a day as initial therapy to prevent complications and further damage to the facial nerve before surgery is performed.^{14,15}

Surgery to remove the mastoid bone is needed for problems like hearing loss, facial nerve palsy, subperiosteal abscess, petrositis, meningitis, cerebral abscess, and labyrinthine fistula. Other recommended operative therapies are myringotomy and facial nerve decompression. To treat edema and nerve compression, decompression is used along with the removal of cholesteatoma, or infected tissue. Patients are educated to avoid getting water into the ear (keep

the ear dry) to reduce disease recurrence and increase the severity of the disease.

The patient's prognosis is determined from the onset of facial nerve paralysis until surgery. Long durations may cause more severe damage to the facial nerve and poor surgical results. Tympanic membrane perforations can close spontaneously, but mild to moderate hearing loss can still persist. Complications can happen less often if the tumor is treated properly and effectively, but the prognosis is not good because the tumor is eroding and spreading.^{10,12}

4. Conclusion

Chronic suppurative otitis media refers to a persistent infection in the middle ear that involves a hole in the eardrum and the continuous discharge of fluid from the middle ear for a duration of more than 6–8 weeks. Facial nerve paresis is a common consequence of CSOM. Malignant chronic suppurative otitis media (CSOM) with complications requires both conservative and surgical therapy.

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