Nervus Facialis Parese as Complication of Chronic Suppurative Otitis Media

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ABSTRACT

Background : CSOM is a chronic inflammation of the middle ear with tympanic membrane perforation and a history of discharge secretions from the ear (otorea) more than two months, either continuous or intermittent. CSOM has the potential to be very serious because of complications that threaten the health and can cause death. Parese Nervus facialis is a common extracranial Complication of CSOM. . **Subjective :** to give information about CSOM and its complication. **Case**: we reported a case female 30 y.o. with chief complain of otorrhea since her childhood and facial motion disorder for 1 year. After HRCT Mastoid examination we found cholesteatoma in tympani cavity. **Treatment**: On the clinical features and imaging findings, the disease is managed with Tympanomastoidectomy canal wall down followed by antibiotics and corticosteroid intravenous. **Conclusion**: Management of CSOM with complication and cholesteatoma in the ear are tympanomastoidectomy canal wall down which is effective to give a good prognosis.

Keywords: **CSOM, Cholesteatoma, Parese Nervus Facialis, Tympanomastoidectomy canal wall down.**

BACKGROUND

Otitis media is is a chronic inflammation of the middle ear with tympanic membrane perforation and a history of discharge secretions from the ear (otorrhea) more than two months, either continuous or intermittent. The prevalence of chronic suppurative otitis media (CSOM) around the world is around 65-330 million people, especially in developing countries, where 39-200 million people (60%) suffer from a significant decline in hearing function. It is estimated that there are 31 million new cases of CSOM per year, with 22.6% in children aged <5 years.[1] CSOM usually begins with otitis media which recurs from infectious factors that originating from the nasopharynx (adenoiditis, tonsillitis , rhinitis, sinusitis), reaching the middle ear through the eustachian tube. Abnormal eustachian tube function is the most important predisposing factor. [2]

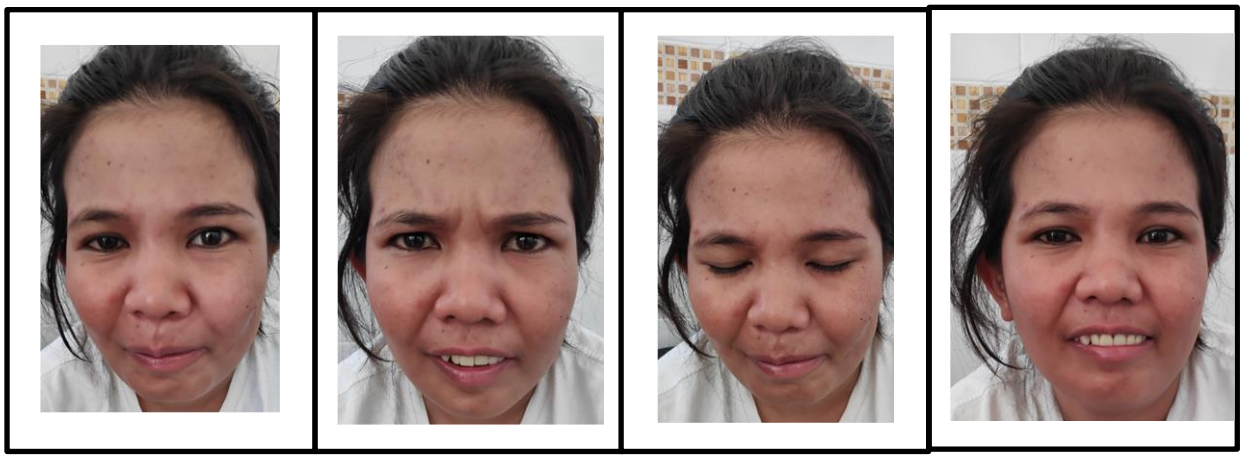
CSOM is a chronic infection in the middle ear with perforation of the tympanic membrane and secretions that come out from the middle ear continuously or arise that the process has been more than two months.[3] Secretions can be serous, mucus and purulent.[4] There are two types of CSOM, CSOM Benign type (without cholesteatoma) and malignant type (with cholesteatoma).[1] CSOM a potentially serious disease, especially for malignant type, because it can cause complications that can threaten the lives. According to the location,

complications of CSOM are intracranial complications such as extradural abscess, subdural abscess, sigmoid sinus thrombhoplebitis, brain abscess, meningitis, otitic hydrocephalus and Extracranial complications such as subperiosteal abscess (retro auricular abscess, zygomatic abscess, bezold abscess, pharyngeal abscess), facial nerve paralysis, temporal bone osteomyelitis.[3] Facial nerve paralysis can be showed by asimetrical face. [2]

CASE REPORT

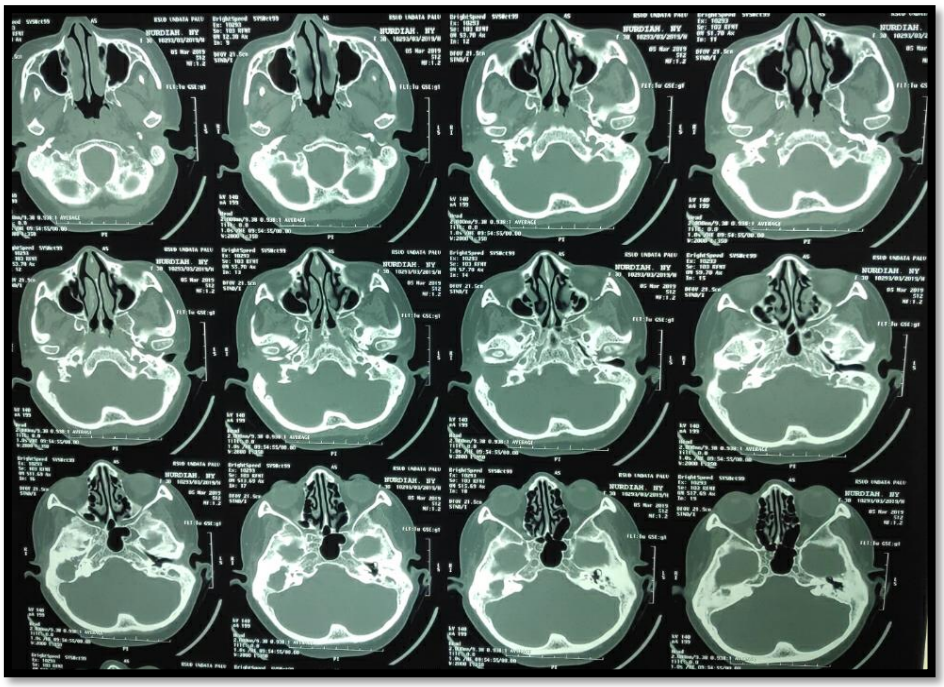
A 30-year-old woman came with chief complaints of discharge from the right ear which was felt since childhood period. The discharge was purulent, smell and sometimes mixed with blood. Patient also also complained about ringing in the right ear, ear pain and hearing loss. In 1 last year, patient complained disorder of moving the right side of the face, mouth sticking to the left, pain, swelling and hiperemis behind the ear. Patients also have a history of bronchitis. There is no other family member that has same complaint. Physical examination of the right ear canal, we found purulent and smelling discharge and granulation tissue. Examination of the facial nerves using the House-Brackmann system, we found mild dysfunction. Picture.1.

House – Brackmann System	Mild dysfunction	• Little weakness, seen at a close inspection. There is a little syncinesis. • At rest, symmetrical and in harmony. • The movement of the forehead is good • Close eyes with minimal effort • There is a bit of asymmetry in the mouth while moving.

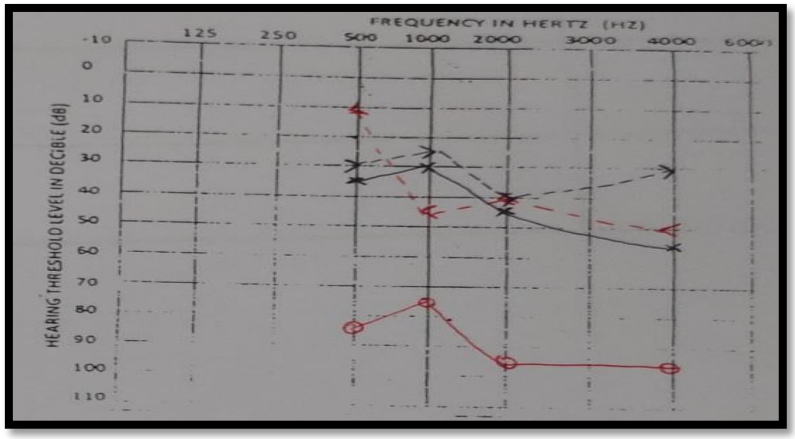


Picture. 1. Examination of facial movements

HRCT scan mastoid examination showed isodens lesion in tympanic cavity extends to mastoid cellula and destruction of posterior the external auditory canal. Ossicula auditiva could not been identified. Figure.2. Audiometry examination showed Mixed hearing loss severe degree on right ear and Sensori nueral hearing loss on left ear. Figure.3. The diagnosis of the patient is chronic suppurative otitis media malignant type with parese facial nerve. We performed a canal wall down tympanomastoidectomy and intravenous antibiotic and corticosteroids therapy. Durante surgery we found cholesteatoma and granulation filled the mastoid celulae, the facial nerve was identified but not intact. We continued the surgery by removed all of the cholesteatoma and its matrix and reconnected the facial nerve.



Picture. 2. Overview of HRCT scan Mastoid



Picture. 3. Audiogram results

DISCUSSION

Chronic suppurative otitis media is a chronic inflammation of the middle ear with tympanic membrane perforation and a history of discharge from the ear (otorrhea) for more than 2 months, either continuously or intermittent. Secretions may be serous, mucous or purulent.[4] Patients in this case report, complaints of discharge from the right ear which was felt since childhood period. The discharge was purulent, smell and sometimes mixed with blood. Patient also complained about ringing in the right ear, ear pain and hearing loss. Last year, patient complained disorder of moving the right side of the face, mouth sticking to the left, pain, swelling and hiperemis behind the ear. Patients also have a history of bronchitis. There is no other family member that has same complaint. Physical examination of the right ear canal, we found purulent and smelling discharge and granulation tissue. Examination of the facial nerves using the House-Brackmann system, we found mild dysfunction.

The patient was diagnosed with malignant type of CSOM because the clinical features and result of mastoid HRCT that showed cholesteatoma in the middle ear. Cholesteatoma is a noncancerous cystic lesion that contains desquamation of the epithelium.[3] Cholesteatoma is formed from abnormal growth of epithelium creatine and desquamation that continues form then accumulates so that cholesteatoma increases in size and sometimes with an inflammatory reaction in the temporal bone. This abnormal growth is progressive, invasive and causes destruction of the bone structure in the middle ear and inner ear. Cholesteatoma is divided into two based on the pathogenesis that is congenital cholesteatoma and acquired cholesteatoma. Acquired cholesteatoma occurs secondary to epithelial migration to the middle ear through the tympanic membrane which is perforated due to infection, trauma, iatrogenesis.[5] CSOM accompanied by cholesteatoma is often referred as malignant CSOM, as suffered by patients in this case report.

Patients have a history of recurrent coughing cold. Chronic or recurrent infections of the upper airway (ARI) cause edema and eustachius tubal obstruction. This is a predisposing factor for the chronicity of otitis media. Other conditions that can be risk factors for CSOM are nasal septal deviation, chronic tonsillitis and adenoid enlargement. [5] Patients also complain of hearing loss. To determine the type and degree of hearing loss, pure tone audiometry examination is a must. The patient has performed an audiometry examination with results Mixed hearing loss severe degree on right ear and Sensorineural hearing loss on left ear. Hearing loss is the most frequent complication in CSOM. Conductive hearing loss in CSOM is caused by obstruction of sound waves transmission from the middle ear to the inner

ear due to the presence of fluid (pus) and perforation of the tympanic membrane. Chronic infection of the middle ear causes edema of the middle ear layer, perforation of the tympanic membrane and damage to the auditory ossicle which causes 20-60 dB degree down in sound hearing level. CSOM also can cause sensorineural hearing loss due to damage of the inner ear (cochlea), especially in the nerve pathways that carry signals from the inner ear to the brain. [5.6]

HRCT scan mastoid examination showed isodens lesion in tympanic cavity extends to mastoid cellula and destruction of posterior the external auditory canal. Ossicula auditiva could not been identified. The advantage of HRCT scan mastoid is shows more clearly the presence or absence of erosion / atypical lateral wall destruction, adhesion of the antrum, erosion of the ossicles, labyrinthine fistula and tympanic tegmen erosion.[7]

The patient has complaint of disturbing to move the right side of the face, mouth sticks to the left and the patient cannot raise the right eyebrow, and the patient needs more strength to close his eyes, when a facial nerve is examined using the House-Brackmannd system showed mild dysfunction, visible weakness on close inspection, small amount of syncinesis, at rest, symmetrical and aligned, moderate forehead movement is good, closing eyes with minimal effort, there is a bit of asymmetry in the mouth when it moving. Patients can be diagnosed with peripheral facial nerves parese. The facial nerve parese is one of the complications of CSOM. The facial nerve lesions associated with CSOM can be sudden or gradual. Sudden onset is usually caused by an exacerbation of acute infection in middle ear, whereas gradual onset occurs due to compression of cholesteatoma or granulation tissue.[3,5] Facial nerve parese is an extracranial complication in malignant type of CSOM. Nerve weakness can be observed in branches that supply the facial muscle muscles namely temporalis ramus, zigommaticus, bucal, mandibular and cervical, usually the degree of weakness determines the reversibility of the paralysis. Facial nerve parese in CSOM patients with cholesteatoma can be caused by one of four things, that are suppression of the facial nerve, edema and hiperemis in certain segments, segments undergoing fibrosis and disconnected segments. Some experts also say that paresis in patients with cholesteatom can be caused by cholesteatom itself through neurotoxic substances secreted and cause bone damage through enzymatic reactions. [7]

Definitive theraphy for malignant CSOM with complications is surgery, as in this patient a timpanomastoidectomy canal wall down is performed. Surgery can be performed 24-72 hours after administration of maximal antibiotics, in patients with life-threatening complications. In non-life-threatening complications, surgery can be done after 7-10 days of

drug administration. This is to reduce the duration of surgery and the risk of anesthesia. [6] Emergency tympanomastoidectomy is indicated in coalescent mastoiditis patients with worsening infections or severe neurological deficits after 48 hours of treatment.[8] Patients in this case are followed by intravenous antibiotic and corticosteroid therapy. Giving a combination of broad-spectrum antibiotics with a permeable brain barrier such as cephalosporins three or four generation is very adequate in the management of CSOM complications, even though the culture results have not yet emerged. Giving corticosteroids can increase the cure rate. Giving corticosteroids can also reduce neurological sequelae and hearing loss. [7,9] Surgery for patients with facial nerve parese with cholesteatoma is focused on two aspects, complete eradication of disease and decompression or repair of facial nerves. In the patient's operation, durante surgery we found cholesteatoma and granulation filled the mastoid cellulae. The facial nerve is identified and not intact. we removed the cholestheatoma and its matrix. We continued to reconnection the facial nerve.

Early intervention in facial paresis can provide optimal improvement in nerve function. Long duration of paresis causes a decrease nerve function and decrease the success of surgery. CSOM patients with facial nerve paresis must be operated immediately. In one study surgery was carried out on day 15 or more after the onset of paresis. The results obtained varied and it was concluded that long-term infection of nerve fibers caused irreversible damage.[10] Other studies performed decompression surgery on day 15 and 73% of patients experienced complete improvement within a few months after surgery.[7] The prognosis in these patients is quite good because the patient is handled with proper management even though it is too late. It is best to treat CSOM malignant type as early as possible to prevent permanent nerve damage.

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