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Chronic Suppurative Otitis Media with Complication of Brain Abscess: A Case Series Report

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ABSTRACT

Introduction & Objective: Chronic suppurative otitis media (CSOM) can lead to life-threatening intracranial complications that require prompt management. The recommended management consists of abscess evacuation through craniotomy followed by mastoidectomy. This case report aims to evaluate the differences in management approaches between two cases of CSOM complicated by brain abscess. **Methods:** Two patients diagnosed with CSOM with brain abscess were included. The diagnoses were established through history taking, and thorough examination. The first patient underwent craniotomy for abscess evacuation followed by mastoidectomy, whereas the second patient underwent craniotomy alone without mastoidectomy. **Results:** The first patient showed significant improvement two months postoperatively. The second developed recurrent abscess one month after initial craniotomy and subsequently underwent re-craniotomy with radical mastoidectomy, resulting in full recovery. **Conclusion:** CSOM with brain abscess requires rapid and aggressive multidisciplinary management, involving abscess evacuation through craniotomy followed by tympanomastoidectomy or radical mastoidectomy.

INTRODUCTION

Chronic suppurative otitis media (CSOM) is one form of chronic otitis media which is characterized by persistent ear discharge from the middle ear due to perforation of the tympanic membrane. CSOM can occur with or without cholesteatoma. This condition affects approximately 65–330 million people worldwide, with the highest incidence reported in developing countries. CSOM still remains an infectious disease with high prevalence.[1]

If left untreated, CSOM can lead to complications. Complications of otitis media are divided into extracranial and intracranial,

including hearing loss, facial nerve paralysis, extracranial complications, intracranial complications (such as meningitis, encephalitis, and brain abscess), and even death. A tertiary hospital in Turkey reported that complications occurred in 2.6% of CSOM patients based on 10-year data, where 47.1% were extracranial, 30.6% intracranial, and 22.3% a combination of both. Extracranial complications include mastoid abscess (28.3%), labyrinthitis (9%), facial nerve paralysis (8.4%), and Bezold abscess (1.3%). Meanwhile, intracranial complications include lateral sinus thrombophlebitis (19.5%), perisigmoid sinus abscess (13.5%), meningitis (9%), brain abscess (6.5%), and extradural abscess (4.5%).[1,2] Among intracranial complications, brain abscess is one of the most commonly encountered. Around 25% of brain abscess cases in children and more than 50% in adults are caused by otogenic infection. Brain abscess itself is a localized infection in brain tissue that develops into a collection of pus surrounded by a capsule, and it can be caused by bacteria, fungi, or protozoa.[3]

Risk factors for intracranial complications in CSOM include history of cholesteatoma, inadequate antibiotic use, poor ear hygiene, limited access to healthcare, as well as poor nutritional and immune status of the patient. In developing countries, delayed diagnosis and treatment become important factors that increase the risk of severe complications such as brain abscess. In addition, the destructive nature of cholesteatoma toward bone allows it to penetrate anatomical boundaries and cause extensive osteitis, which explains why cholesteatomatous CSOM has a much higher risk of intracranial complications compared to non-cholesteatomatous type.

The principle of CSOM management based on WHO guidelines is to eradicate infection and cholesteatoma, and to close the tympanic membrane perforation. If management is delayed, extracranial and intracranial complications may occur. Based on retrospective studies, there is evidence of success in reducing incidence after implementation of WHO recommendations. The study results show that the prevalence of CSOM decreased from 9% to 5.1% after treatment with broad-spectrum antibiotics and mastoid exploration surgery. Therefore, ENT specialists have an important role in the diagnosis and management of CSOM patients. The earlier the diagnosis is established, the more optimal the treatment can be, thus reducing the complication rate.

CSOM condition not only affects quality of life due to permanent hearing loss, but also has significant mortality implication if it progresses into brain abscess. High morbidity in otogenic brain abscess cases is caused by delayed diagnosis, variation of antibiotic-resistant pathogens, and suboptimal initial management in primary healthcare facilities. Therefore, increasing clinical awareness of intracranial complication signs, such as persistent headache, altered consciousness, or focal neurological symptoms in CSOM patients, is very important for early detection.

The scientific objective of this case report is to discuss the importance of comprehensive diagnostic approach and multidisciplinary management in CSOM patients with brain abscess complication. By presenting two cases with similar clinical pattern but differences in the sequence of operative management, this report is expected to provide clinical learning regarding the impact of

incomplete therapy on recurrence risk, as well as to highlight the importance of complete eradication of the otogenic infection source, especially cholesteatoma.

CASE REPORT

Case 1

A 53-year-old female presented with a history of chronic otorrhea in the right ear and was admitted to Dr. Kariadi General Hospital with the main complaints of severe headache and progressive decreased consciousness since 3 days before admission. The patient initially complained of thick yellow, foul-smelling discharge from the right ear since 1 year ago. In the last three months, she experienced headache. The patient had previously sought treatment at a regional hospital and received antibiotics which were taken for 7 days, but the headache became worse and the patient became difficult to communicate, so she was referred to Kariadi Hospital.

On arrival, the patient appeared somnolent with a Glasgow Coma Scale (GCS) score of E3M4V3. Vital signs were blood pressure 129/78 mmHg, pulse 65 beats/minute, respiratory rate 20 breaths/minute, temperature 36.5°C, and SpO 99% on room air. Ear examination showed in the right external auditory canal mucopurulent discharge, yellow-green in color mixed with blood, and granulation tissue. The tympanic membrane and light reflex were difficult to evaluate. Neurological examination revealed signs of meningeal irritation without clear focal neurological deficits. Laboratory examination results showed elevated inflammatory markers supporting active infection. Multislice computed tomography (MSCT) of the head showed

Figure 1. Otoscopic examination of Case 1. Right ear (left), left ear (right).

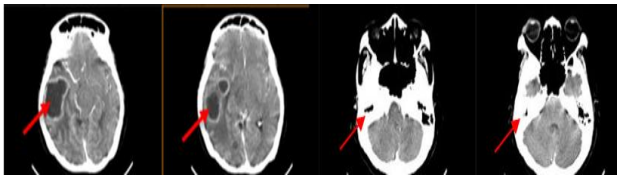

Figure 2. MSCT of Case 1. Multiple rim-enhancing cystic lesions with irregular shape, well-defined margins and irregular edges, accompanied by surrounding perifocal edema (red arrow), right chronic otomastoiditis (red arrow).

With contrast, it showed multiple cystic lesions with rim enhancement, irregular shape, well-defined margins and irregular edges in the right occipital and parietotemporal lobes, accompanied by surrounding perifocal edema. There were also signs of increased intracranial pressure and presence of right chronic otomastoiditis. Microbiological culture from ear discharge was taken to determine antibiotic therapy. The patient was consulted to Neurosurgery department and underwent combined surgery with ENT, including craniotomy for abscess evacuation. During surgery, aspiration puncture revealed thick green purulent abscess, followed by radical mastoidectomy to eradicate the infection source in the form of cholesteatoma. Broad-spectrum intravenous antibiotics were given empirically during perioperative period and later adjusted based on culture and sensitivity results.

Postoperative management included monitoring of general condition, vital signs, signs of bleeding, and signs of infection at the surgical wound. Facial nerve function was observed, ear

tampon was maintained for 2×24 hours, dressing was changed every 1 day or if leakage occurred, and waiting for anatomical pathology and culture results. The therapy given included intravenous ceftriaxone 2 g/24 hours, metronidazole 500 mg/8 hours IV, methylprednisolone 125 mg/12 hours IV, and ranitidine 50 mg/12 hours.

First follow-up (postoperative day 1), postoperative pain VAS 3, patient was still mostly sleeping, no blood leakage, no facial paralysis, no nausea or vomiting. On day 2, complaints were similar, ear pain VAS 2 and no blood leakage from CAE. On day 3, pain decreased to VAS 1, patient was fully conscious and able to communicate, with clear, odorless discharge from the ear. On day 4, postoperative pain remained the same (VAS 1), patient was fully conscious, able to communicate, and could sit, eat, and drink well. On day 12, the patient was discharged and continued routine follow-up at ENT clinic every 1 week with oral ciprofloxacin 500 mg/12 hours for 4 weeks.

Histopathological examination concluded chronic suppurative inflammation from temporal abscess capsule sample. Culture examination from mastoid cholesteatoma tissue showed Gram-positive Diplococcus, while antibiotic sensitivity test from temporal pus sample showed *Enterococcus avium* sensitive to ampicillin, ciprofloxacin, erythromycin, levofloxacin, linezolid, tetracyclines, tigecycline, and vancomycin.

The patient was followed up for 2 months after surgery and currently has no complaints and is able to perform normal daily activities.

Case 2

A 36-year-old male with history of chronic otorrhea in the left ear. The patient had history of discharge from both ears for approximately 5 years. In the last 2 months, the patient complained of headache and increased ear discharge, foul-smelling and sometimes mixed with blood. One week before hospital admission, the patient experienced severe headache, then went to a regional hospital and underwent CT scan, which showed multiple cystic lesions with rim enhancement in the left temporal lobe. The patient then underwent craniotomy for abscess evacuation.

One month after surgery, the patient complained of recurrent headache, and was then referred to Kariadi Hospital for further management. On initial examination, the patient was fully conscious and well oriented, but still had localized headache in the left temporal region.

Head examination showed surgical scar on left temporal area, wound was good, no pus, no active bleeding. Otoscopic examination showed chronic suppurative otitis media of the left ear, with yellow-green mucopurulent discharge in the left external auditory canal (CAE). There was subtotal perforation of the right tympanic membrane, while the left tympanic membrane was difficult to evaluate with presence of granulation tissue. No tragus tenderness or auricular traction pain was found. Retroauricular region showed no abnormality. Nose, throat, and neck were within normal limits.

Neurological examination showed no focal deficits. Routine blood laboratory examination was within normal limits. MSCT of the head with contrast showed multiple cystic lesions with rim enhancement in the left temporal lobe, with left mastoiditis, erosion and destruction of auditory ossicles, and destruction of scutum up to the left tegmen tympani. Microbiological culture from ear

discharge was taken as basis for antibiotic adjustment. The patient was then scheduled for re-craniotomy for abscess evacuation. During surgery, aspiration puncture revealed thick green purulent abscess, followed by radical mastoidectomy to eradicate the infection source in the form of cholesteatoma.

Figure 3. Otoscopic examination of Case 2. Right ear (left), left ear (right).

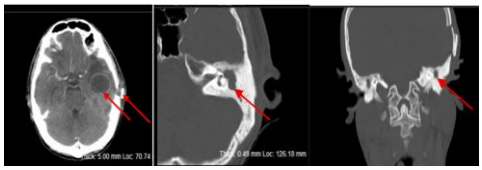

Figure 4. MSCT of Case 2 Multiple rim-enhancing cystic lesions in the left temporal lobe, left otomastoiditis with erosion of the left auditory ossicles and destruction of the scutum extending to the left tegmen tympani (red arrow).

Postoperative management included monitoring of general condition, vital signs, signs of bleeding, and signs of infection at the surgical wound. Facial nerve function was observed, ear tampon was maintained for 2×24 hours, dressing was changed every 1 day or if leakage occurred, and waiting for culture results. The therapy given included intravenous ceftriaxone 2 g/24 hours, metronidazole 500 mg/8 hours IV, methylprednisolone 125 mg/12 hours IV, and ranitidine 50 mg/12 hours.

At first follow-up (postoperative day 1), postoperative pain was VAS 3, the patient was still mostly sleeping, no blood leakage, no facial paralysis, no nausea or vomiting. On day 2, complaints were similar with ear pain VAS 2 and no blood leakage from CAE. On day 3, pain decreased to VAS 1, the patient was fully conscious and able to communicate. On day 4, postoperative pain had decreased (VAS 1), the patient was fully conscious, able to communicate, and could sit, eat, and drink well. On day 12, the patient was discharged and continued routine follow-up at the ENT clinic every 1 week with oral ciprofloxacin 500 mg/12 hours for 4 weeks.

MSCT examination 2 weeks after surgery showed that the edema had decreased compared to preoperative MSCT, and there were no longer signs of increased intracranial pressure. From antibiotic sensitivity culture using temporal pus sample, *Pseudomonas aeruginosa* was identified, which was sensitive to cefepime, ceftazidime, ciprofloxacin, meropenem, and piperacillin/tazobactam. The patient was followed up for 2 months after surgery, and currently there are no complaints and the patient is able to perform normal daily activities.

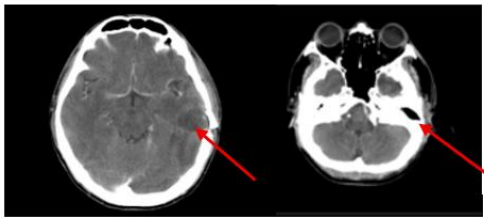

Figure 5. MSCT evaluation 2 weeks after surgery in Case 2. Edema has decreased compared to preoperative MSCT, no signs of increased intracranial pressure are seen, and no cholesteatoma tissue is observed in the left mastoid.

RESULTS AND DISCUSSIONS

This report uses a descriptive case report approach on two patients diagnosed with chronic suppurative otitis media (CSOM) with complication of brain abscess treated at Dr.

Kariadi General Hospital Semarang. Data were collected retrospectively from patient medical records, including history taking, physical examination, laboratory and radiological investigations, microbiological culture results, as well as intraoperative and postoperative records. History taking focused on chronic otorrhea, headache, decreased consciousness, and previous ear infection history. History of foul-smelling and mucopurulent otorrhea for one year indicates chronic inflammatory process in the middle ear with possible tympanic membrane perforation and persistent infection in tympanic cavity or mastoid. Severe headache with progressive decrease of consciousness suggests spread of infection into intracranial space, such as brain abscess or otogenic meningitis, which are severe complications of CSOM.

ENT physical examination includes otoscopic evaluation of tympanic membrane, ear discharge, and presence of cholesteatoma. Physical examination in both patients supported the diagnosis, showing mucopurulent discharge mixed with blood and granulation tissue in the external auditory canal (CAE), indicating active infection process with granulation tissue due to chronic inflammation. Difficulty in assessing tympanic membrane strengthens suspicion of perforation and destruction of auditory ossicles. General condition of patient who was somnolent with Glasgow Coma Scale (GCS) E3M4V3 and presence of meningeal irritation signs without focal deficit indicates involvement of central nervous system, most likely due to spread of infection from middle ear or mastoid to subdural space or brain parenchyma. Neurological examination was performed to assess consciousness level and possible focal deficit. Overall, this clinical picture is consistent with active cholesteatomatous CSOM with intracranial complication, most likely temporoparietal brain abscess or otogenic meningitis. This condition requires multidisciplinary management between ENT and neurosurgery, including eradication of infection source in ear (mastoidectomy), brain abscess drainage, and broad-spectrum intravenous antibiotics to prevent progression of neurological damage and reduce mortality.

Supporting investigations play an important role in establishing diagnosis and determining management in intracranial complications of CSOM. The main modality used is contrast-enhanced Multislice Computed Tomography (MSCT) of the head, because it has high sensitivity and specificity for detecting otogenic brain abscess. This examination not only confirms location, size, number, and characteristics of abscess lesion (such as well-enhanced capsule with perilesional edema), but also provides important information regarding involvement of temporal structures, such as mastoid bone destruction, erosion of tegmen tympani, and continuity between tympanic cavity–mastoid and intracranial space. These findings are important to determine the route of infection spread and to plan appropriate surgical approach between ENT and neurosurgery teams.

In addition to imaging, microbiological culture examination from ear discharge was also performed to identify causative microorganisms and determine antibiotic sensitivity. This helps to adjust empirical antibiotic therapy given initially into more targeted (definitive) therapy. Common causative organisms in otogenic brain abscess include *Pseudomonas aeruginosa*, *Proteus*

mirabilis, *Streptococcus*, and *Bacteroides*, which are consistent with pathogenic flora in unsafe type CSOM.[1]

Both patients received empirical broad-spectrum intravenous antibiotics from the beginning of treatment. The first patient underwent craniotomy for abscess evacuation followed by radical mastoidectomy in a single-stage surgery, while the second patient initially underwent craniotomy without mastoidectomy, then experienced recurrence and finally underwent re-craniotomy with radical mastoidectomy.

Postoperative evaluation was performed up to two months after intervention, focusing on improvement of clinical symptoms, neurological function, follow-up imaging results, and absence of recurrence signs. All data were compiled and analyzed descriptively to assess the relationship between sequence of surgical procedures and clinical outcomes. Patient identities were anonymized to maintain confidentiality according to medical research ethics principles.

Both patients in this report are cases of chronic suppurative otitis media (CSOM) with brain abscess complication confirmed by clinical, radiological, and microbiological examinations. Although they have similar clinical presentation, the main difference lies in the sequence and completeness of surgical management, which influenced clinical outcomes. The first case was a 53-year-old female with history of chronic right ear otorrhea for more than three months, accompanied by severe headache and progressive decrease of consciousness in the last three days before admission. Physical examination showed somnolent condition with GCS E3M4V3. Otoscopy showed yellow-green mucopurulent discharge, while tympanic membrane was not clearly visible due to granulation and debris. Contrast MSCT showed multiple cystic lesions with irregular rim enhancement and perifocal edema in the right parietotemporal lobe, along with chronic right otomastoiditis with mastoid bone destruction. Based on these findings, the patient was diagnosed with cholesteatomatous CSOM complicated with multiple brain abscess.

The patient underwent craniotomy for intracranial abscess evacuation by neurosurgery team, followed by radical mastoidectomy by ENT team in one operative session. During surgery, extensive cholesteatoma with destructive mastoid granulation was found. Broad-spectrum intravenous antibiotics were given preoperatively and adjusted according to culture results. Two months after surgery, the patient showed significant clinical improvement, without headache, otorrhea, or residual neurological deficit. Follow-up MSCT showed complete resolution of abscess.

The second case was a 36-year-old male with history of left ear CSOM and chronic headache. The patient previously underwent craniotomy for brain abscess evacuation without mastoidectomy. One month after surgery, the patient experienced recurrence of headache and mucopurulent otorrhea. At referral to Dr. Kariadi Hospital, the patient was fully conscious without neurological deficit, but still had discharge in left CAE and subtotal tympanic membrane perforation. Contrast MSCT showed recurrent abscess in left temporal lobe with otomastoiditis accompanied by erosion of scutum and tegmen tympani.

The patient then underwent re-craniotomy for evacuation of recurrent abscess combined with

radical mastoidectomy to eradicate the otogenic infection source (cholesteatoma). Intraoperative course was good without complications. Evaluation two months after surgery showed complete abscess resolution, improvement of headache, and no sign of recurrent infection on otoscopic examination.

Overall, these two cases demonstrate the importance of comprehensive management in intracranial complications of CSOM. In both patients, craniotomy for brain abscess evacuation provided significant clinical improvement, marked by improved consciousness and resolution of neurological symptoms after surgery. However, clinical outcomes differed significantly: the first patient who underwent craniotomy combined with radical mastoidectomy achieved complete recovery without recurrence, while the second patient who initially underwent only craniotomy without mastoidectomy developed recurrent brain abscess one month later.

This difference emphasizes that mastoidectomy is an essential component in eradicating the otogenic source of infection, especially cholesteatoma. In CSOM with intracranial complications, brain abscess is usually formed due to direct spread of infection from mastoid or middle ear through temporal bone erosion or emissary venous pathways.[2] If only abscess evacuation is performed without removing the primary infection focus in the ear, the risk of persistence or recurrence remains high because bacteria can spread again through the same pathway.

Chronic suppurative otitis media (CSOM) remains a major health problem, especially in areas with limited medical facilities, where delayed diagnosis can lead to serious complications such as intracranial brain abscess.[1] Among these complications, otogenic brain abscess is one of the most dangerous due to high morbidity and mortality. Although modern antibiotics and advances in surgical techniques have reduced incidence, intracranial complications like brain abscess are still significantly reported in referral centers, including in Indonesia. These two cases show successful multidisciplinary management in limited setting, emphasizing the importance of early recognition, team coordination, and aggressive surgical intervention to prevent neurological damage and further complications.[1]

Brain abscess is a localized infection in brain tissue that develops into encapsulated pus collection due to invasion of microorganisms into brain parenchyma. The formation mechanism involves early stage of focal encephalitis (localized cerebritis), followed by brain tissue necrosis and fibroblastic capsule formation within 10–14 days. In otogenic cases, abscess usually forms in temporal lobe or cerebellum due to anatomical proximity with middle ear and mastoid. CSOM with cholesteatoma increases complication risk because of its osteolytic nature, producing proteolytic enzymes such as collagenase and acid hydrolase which cause bone destruction and open pathway for infection spread to intracranial structures.[2]

A systematic review of more than 1,300 patients with otogenic brain abscess found that 55% of abscess occurred in temporal lobe and 28% in cerebellum, with mortality of 8.1% despite most patients receiving combined antibiotic and surgical therapy.[3] A recent meta-analysis of 1,650 patients

showed similar results, where purulent otorrhea was found in 84%, headache in 65%, and combined surgical-conservative therapy used in 84.3% of cases, but mortality still reached 11.1%.[4] These findings confirm that otogenic brain abscess remains a clinical challenge, especially in areas with delayed diagnosis and limited multidisciplinary access, where prognosis depends on speed of diagnosis and eradication of infection source.

Pathogenesis of otogenic infection reaching intracranial space can occur through several mechanisms, such as direct spread due to temporal bone or tegmen tympani erosion by cholesteatoma, perivascular spread and thrombophlebitis through sigmoid sinus or emissary veins, and hematogenous spread from distant infection worsened by chronic ear infection. In both reported cases, abscess pattern follows anatomical spread from mastoid and middle ear. In the first case, multiple abscess appeared in parietotemporal lobe corresponding to side of chronic otorrhea; in the second case, recurrent temporal abscess occurred despite previous neurosurgical drainage, consistent with common anatomical and pathophysiological pattern.[3]

Diagnosis of otogenic brain abscess is often difficult because early symptoms are non-specific, such as fever, headache, nausea, vomiting, or decreased consciousness. High suspicion is needed in CSOM patients with new neurological symptoms or altered consciousness. Imaging modalities such as contrast CT scan and MRI are main examinations for diagnosis confirmation. Contrast CT shows typical hypodense lesion with rim enhancement and perifocal edema, while MRI has higher sensitivity in detecting small multiple abscess and early encephalitis stage. These findings help determine indication for craniotomy and radical mastoidectomy simultaneously.

In addition to imaging, microbiological culture from ear discharge or abscess aspiration is very important to determine targeted antibiotic therapy. The most commonly isolated pathogens include *Proteus mirabilis*, *Pseudomonas aeruginosa*, and *Staphylococcus aureus*, although culture results may be reduced due to prior antibiotic therapy. Broad-spectrum intravenous antibiotics are given perioperatively and adjusted according to culture results. Standard therapy includes broad-spectrum IV antibiotics (such as third-generation cephalosporins or carbapenems plus metronidazole if resistant pathogens are suspected), then adjusted after culture results are available.[6] Duration of antibiotic therapy varies between 4–8 weeks depending on clinical response and follow-up imaging. Switching to oral antibiotics after 2 weeks of IV therapy can provide clinical outcomes comparable to IV-only therapy.[7] In both cases above, broad-spectrum antibiotics were given, in this case ceftriaxone injection with addition of metronidazole, which is a third-generation cephalosporin effective against most common pathogens in CSOM, while metronidazole increases effectiveness especially in resistant pathogens.

Management of otogenic brain abscess consists of two main components: eradication of intracranial abscess and management of otogenic infection source. This combination must be done in multidisciplinary approach between neurosurgery and ENT to prevent recurrence. Surgical approach includes craniotomy for abscess evacuation, which provides direct access for pus

drainage and necrotic tissue debridement, as well as radical mastoidectomy to remove cholesteatoma and infected mastoid tissue.

In the first case, this combination was performed in one stage and resulted in rapid clinical improvement without recurrence. In contrast, the second patient who initially underwent only craniotomy without mastoidectomy developed recurrent abscess. Both patients in this report eventually underwent craniotomy and radical mastoidectomy, confirming findings from institutional case series suggesting that single-stage combined procedure improves outcomes.

Single-stage surgery combining craniotomy and mastoidectomy has been shown to provide better outcomes compared to staged procedures. A study in Indonesia showed that patients with CSOM and brain abscess who underwent combined surgical therapy had faster neurological recovery and lower recurrence risk compared to those receiving conservative therapy or craniotomy alone.[1]

Prognostic factors determining treatment success include initial level of consciousness (GCS), location and size of abscess, timing of intervention, and eradication of otogenic infection source. Patients with GCS < 8 at diagnosis have mortality up to 30%, while patients treated before severe neurological deficit have much better prognosis.[11]

During several days of postoperative monitoring, patient condition showed progressive clinical improvement without complication signs. On day 1–2, patient still complained mild–moderate pain and decreased hearing, likely due to tissue edema or tampon effect in external auditory canal, but no active bleeding, discharge, or facial nerve paralysis was found. Systemic symptoms such as nausea, vomiting, and weakness were minimal and improved by day 2. By day 3–4, pain intensity decreased, patient was fully conscious, able to communicate, eat and drink well, and no ear discharge or wound dehiscence was observed. Overall, these findings indicate good postoperative healing process without local or systemic complications.

Long-term follow-up showed very good postoperative outcome. At two months follow-up, patient had no complaints of pain, hearing disturbance, or other symptoms such as tinnitus and otorrhea. Surgical wound healed completely without infection or dehiscence, and patient returned to normal daily activities. These findings indicate optimal healing process and absence of late complications such as infection, secondary bleeding, or facial nerve dysfunction. Therefore, surgical management can be considered successful in providing significant clinical improvement and preserving patient hearing function.

CONCLUSION

Otogenic brain abscess remains a serious and potentially fatal complication of chronic suppurative otitis media, especially in areas with limited resources where diagnosis is often delayed and management is not optimal. The two cases reported here show that early imaging examination, combined intervention between neurosurgery and ENT, and appropriate antibiotic therapy are very important to eradicate infection and achieve good clinical outcomes.

This report provides evidence that aggressive multidisciplinary management gives good results in recovery and prevention of recurrence, particularly with surgical approach of

craniotomy for abscess evacuation followed by radical mastoidectomy

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