

A case of brain abscess as complication of chronic suppurative otitis media

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Abstract. Brain abscess is a pyogenic reaction localized to brain tissue and focal intracerebral infections that begin as cerebritis and then become pus surrounded by brain capsules caused by a variety of bacteria, fungi and protozoa. There are several mechanism of germs entering the brain, namely direct expansion of the focal contact of infections originating from the sinuses, teeth, middle ear or mastoid, hematogenously, after open head injury and cryptogenic. The clinical symptoms of brain abscess such as fever, anorexia, malaise and elevation intracranial pressure and focal neurologic symptoms according to the localization of the abscess. This case report aim to explain that chronic suppurative otitis media is one of the factors causing brain abscess at Zainoel Abidin Hospital Banda Aceh. A woman 21 years old has slowly decrease consciousness, severe headache, fever, seizure and vomiting. The patients has history of left ear pain with a smelling discharge since six years ago and do not have regular treatment. Contrast CT scan shows abscess in the left temporal lobe and left occipital with broad cerebral edema covering the left temporoparietooccipital lobe and ventriculitis. Patient had craniotomy evacuation and pus abscess culture in the form of *Proteus Mirabilis* bacteria which is originating from an autogenic infection. Management of brain abscess must be done immediately because early management has an impact on improving the prognosis of the disease.

Keyword: brain abscess, chronic suppurative otitis media

Introduction

A brain abscess a localized pyogenic reaction in brain tissue and focal intracerebral infection that occurs starts as cerebritis and developed into a collection of pus surrounded by a capsule of the brain caused by a wide variety of bacteria, fungus and protozoa.^{1,2}

In Indonesia there are no exact data, but in the United States reported around 1500 - 2500 cases per year of brain abscess. Estimated prevalence of 0.3 to 1.3 per 100,000 / year. Number of patients with more men than women, which is a ratio of 2-3.^{1,2}

The mechanism of bacteria into the brain in several ways, that is direct expansion from the contact focus of infection (25% -50%) comes from the sinuses, teeth, middle ear or mastoid, haematogenous (30%) came from distant focus of infection such as bacterial endocarditis, an infection of primary lung and pleura, usually in the form of multiple brain abscess, after a head trauma or surgery on the dura and leptomening, cryptogenic (30%) which found no obvious source of the infection.^{2,3}

Clinical symptoms of brain abscess in the form of signs of infection include fever, anorexia and malaise, elevation of intracranial pressure and focal neurologic symptoms according localization of abscess.

General mortality rate (surgical and non-surgical) 33% -70%, while the mortality rate with operations ranging from 17% -54%.¹

Case Report

A woman (Ms.R) 21 years old has main complaint with slowly decrease consciousness, and the additional complaints with severe headache, fever, seizure and vomiting. Patients were brought to the awareness of the perceived decline gradually from 1 day before entering the hospital. Initially the patient looks dreamy, incoherent speech and often sleepy. Before patient in loss of consciousness condition, patients had severe headache, seizures, fever and vomiting. In the 14 days before loss of consciousness, patients are often complaint of headache like pressure and pulsed in moderate to severe intensity, headache in the left, become heavy in the morning, the pain has not diminished even though the patient relaxes, headache disappear if the patient is taking medication pain reliever. Headache initially moderate intensity becomes increasingly heavy in 1 day before the loss of consciousness. Before loss of consciousness, patient had seizure, first time at home, seizure of approximately for two minutes, spasms throughout the body and tonic clonic, after the seizure the patient is unconscious.

Patients also got vomiting four times. Fever is felt up and down for approximately 14 days.

Earlier, two months ago, the patient complained of pain left ear, yellow-green discharge, foul smelling. At that time the patient has a fever up and down, patients also experience seizures four times with a duration of less than two minutes, spasms throughout the body, and after the seizure the patient is unconscious so the patient was treated at the hospital for 3 weeks and after being treated for 10 days patients experienced improvement.

Patients had infection on ear since 6 years ago and had not routine of medical treatment. Patients never feel limb weakness, loss of speech, asymmetrical mouth, teeth and nose infection. Long stay cough, shortness of breath, weight loss, visual impairment denied and patients never lived outside the city.

At first physical examination in RSUZA, patients has somnolence consciousness. Vital signs of blood pressure 130/80 mm Hg, pulse 84 beats per minute, the same between the right and left, content enough, regular, respiratory rate 20 breaths per minute, symmetrical, regular, sufficient pervolume pressure, and temperature of 37.8 degrees Celsius. On neurological examination, GCS E3M5V4. There were no signs of meningeal stimulation (stiff neck, cheek sign, symphysis sign). On examination of the cranial nerves is not obtained paresis. The funduscopy, got papilledema orbital dextra impression with vague boundaries and comparison papil A: V: 2: 3. On the motoric strength there is no impression of lateralization. Normal physiological reflex on biceps, triceps, patellar, achilles dextra and sinistra. Pathological reflexes Babinski dextra and sinistra found, other pathological reflexes such as chaddock, openheim, gordon and schaeffer doesn't exist. Sensory testing can not be judged. Autonomous and vegetative within normal limits.

In the X-ray Thoracic AP (Image 1), impression: chest x-ray within normal limits. Head CT scan non-contrast has differential diagnose is the temporal mass with an abscess in the left temporal accompanied by perifocal edema (Image 2). Head CT scan contrast has abscess in the left temporal lobe and occipital left with extensive cerebral edema include temporoparietooccipital left lobe. Herniation subfalcine right to +/- 0.8 cm and Ventriculitis (Image 3). Temporal CT scan non-contrast has cholesteatoma (image 4).

Based on data obtained from history taking, physical examination, and supporting examinations, it can be concluded that Ms. R, 21 years old, suffered from brain abscess (late capsulated) with bacterial infections (*Proteus mirabilis*) originating from

chronic suppurative otitis media auricular sinistra with cholesteatoma.

Patients were treated for 25 days, from the beginning of the entry of patients with loss of consciousness and his suspected space occupying lesion. Early therapy given of antibiotic is ceftriaxone injection 2 gram per 12 hours and metronidazole injection 500 miligram per 8 hours, dexamethasone injection 10 miligram loading dose, then 5 miligram per 8 hours with tapering off. Patients undergoing VCT examination on the second day of treatment, and non-reactive results obtained in the examination. Then an evacuation craniotomy with pus culture was performed on the day-12 of treatment (image 5). Examination of pus from the evacuation abscess obtained *Proteus mirabilis*, that bacteria correspond to those from ear infections. Blood cultures from the evacuation abscess obtained no germs growth, the absence of bacterial growth due to the patient had receive antibiotic therapy and the time of taking blood of the patient is not during a fever (Table 1). Pathology Anatomy microscopic obtained muscle tissue appears as PMN inflammation cells (can be found in a abscess), and there are no sign of malignancy in that preparation.

In this patient after the 25 day of treatment, the patient was allowed to go outpatient while still being given oral antibiotics that is cefadroxil 500 mg 3x1 tablets and metronidazole 3 x500 mg for 1 month and patients were required to control at the neurology department and the patient be planned for surgery from the ENT section in the form of auricular sinus mastoidectomy radicals to prevent recurrent brain abscess.

This patient has a good prognosis because of the right and fast handling, a repeat head CT scan was performed to see the therapeutic response.

Conclusion

Chronic Suppurative Otitis Media is a source of infection in patients with brain abscess. A proper and thorough examination is needed in the diagnosis of brain abscess diagnosed. Handling quickly and precisely impact on a good prognosis.

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