

CASE REPORT

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Brain Abscess After Soft Tissue Infection

ABSTRACT

The brain abscess, which is a focal intracerebral infection, is one of the serious complications of the head infections. It generally occurs in the immunocompromised patients due to the spreading from another infection focus on the body. It can be seen with the findings such as fever, headache, nausea, vomiting, diplopia, dysarthria and paralysis. Imaging methods are used in the diagnosis. In its treatment, antibiotherapy and surgical methods can be used. Sometimes, as in our case, brain abscess can appear in a case which is thought to be a simple soft tissue infection. We think that especially, at the diagnosis and treatment stage of infections in head and neck region, physicians must be more careful and diligent.

Key Words: Soft Tissue, Infection, Brain, Abscess, Sequellae

Yumuşak Doku Enfeksiyonu Sonrası Beyin Absesi

ÖZET

Fokal intraserebral bir enfeksiyon olan beyin apsesi baş ve boyun enfeksiyonlarının ciddi komplikasyonlarından. Genellikle vücuttaki başka bir enfeksiyon odağından yayılımla ve genellikle immün sistemi zayıflamış kişilerde meydana gelir. Ateş, baş ağrısı, bulantı, kusma, diplopi, dizartri, paralizisi gibi çeşitli bulgular görülebilir. Tanıda özellikle görüntüleme yöntemleri kullanılır. Tedavisinde antibiyoterapi ve cerrahi yöntemler uygulanabilir. Bazen de bizim olgumuzda olduğu gibi basit bir yumuşak doku enfeksiyonu düşünülen vakanın altından beyin absesi çıkabilir. Özellikle baş ve boyun bölgesindeki enfeksiyonların tanı ve tedavi aşamasında daha dikkatli ve özenli olunması gerektiğini düşünmekteyiz.

Anahtar Kelimeler: Yumuşak Doku, Enfeksiyon, Beyin, Abse, Sekel

INTRODUCTION

As a result of today's developing antibiotherapy methods and localized infections' successful treatments, the brain abscesses are rarely encountered and still constitute 8% of the intracranial space-occupying lesions in the developing regions such as our country. This ratio is limited to approximately 1-2% in the developed countries (1,2).

About 90% of brain abscess result from pericranial infection (sinusitis, mastoiditis, otitis media) and many who are hematogenous-borne (those from bacterial endocarditis) are multifocal, especially from cyanotic congenital heart disease. In approximately only 10% of the cases, trauma and intracranial surgery initiatives can cause brain abscess (3). More rarely, focal infections such as pelvic infections, soft tissue infections, osteomyelitis and tooth abscess are responsible. Among the most frequent cerebral abscess pathogens, anaerobes, staphylococcus, aktinomyces, nocardia and fungi take place. In all abscessed patients, microbiological examinations are inevitable. An abscess can primarily appear in four basic syndromes: Focal mass expansion, intracranial hypertension, diffuse destruction, and focal neurological deficit. Clinical symptoms and signs may vary widely. The most common manifestations are headache, changes in level of consciousness, nausea and/or vomiting, and high fever (4,5).

We presented a case which was regarded as a soft tissue infection of the head, but was diagnosed as brain abscesses.

CASE

A seventeen-year old female patient applied to the different polyclinics with the headache, swelling on the forehead, fever, and fatigue complaints for approximately three months and used various treatments. On the last few days, her complaints increased. The patient applied to the state hospital emergency service with the complaints of tingling and numbness especially on the left leg. She was sent to our emergency service with the early diagnosis of peripheral artery emboli on the left leg. She was conscious (GKS: 15), oriented and cooperative. Other vital findings of the patient were normal except her fever of 38°C. On her forehead there was an edema (5x5cm), erythema and sensitivity. Her muscle strength of left lower extremity was 1/5 (muscle flicker, but no movement) and there was numbness on her left lower extremity. The pulse of the same extremity was weak, but Doppler ultrasound showed prominent pulse. In the patient's laboratory analyses, white blood cell was 22.000/UL, sedimentation was 70mm/h, and CRP was 320mg/L. In the brain CT, a defect was observed on the frontal middle part in the bony tissue (Figure 1). In the brain parenchyma on the frontal middle section, a view coherent with the abscess having

1x1 cm dimension and in the right interhemispheric region, a view coherent with the empyema were determined (Figure 2). After brain surgery consultation, lesion was emptied with the operation and from the pus, microbiological swab was sent. No reproduction occurred. Post-operative wide spectrum antibiotherapy was started. The patient was discharged from the hospital with minimal sequellae (low muscle strength of left lower extremity).

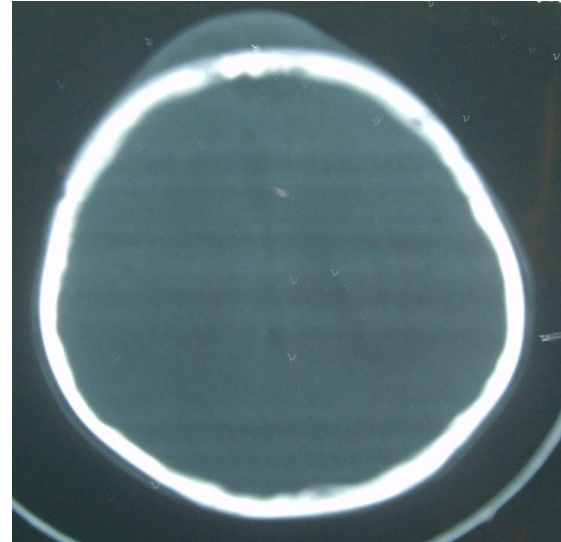


Figure 1. Brain BT bone window

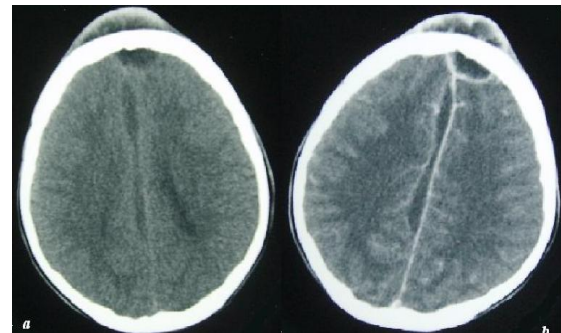


Figure 2. a. Brain BT No contrast: parenchyma,

Figure 2. b. Brain BT with contrast: parenchyma

DISCUSSION

The brain abscess is one of the most serious complications of the head and neck infections. The abscess, which is a focal intracerebral infection, starts as a local cerebritis and progresses to pus accumulation with a well-vascularized capsule. Always a predisposing condition is available (6,7,8). In 1994, Erşahin et al. determined that in 36% of their brain abscess cases were due to meningitis, in 27% of cases it was due to otitis, in 6% of cases penetrant head trauma and in 9% of cases the reason was congenital heart disease. In 29% of the patients they declared that multiple abscesses were observed (9). In the retrospective study of 49 brain abscessed cases by Carpenter et

al., it was asserted that only in 12% of the cases, the abscess was spread through neighbor tissues (4). In our case, there was a soft tissue abscess in the forehead region which may be a source of the infection in the brain. And there was no history of a medical situation that may predispose to the brain abscess like immune suppression. In our patient, the focal findings appeared after long term soft tissue infection. Later, gradually increase and progress to neurological sequellae appeared. This may show that the infection progressed from local soft tissue infection to the brain.

In the diagnosis of brain abscess, neurological imaging methods are used. If magnetic resonance imaging (MRI) cannot be realized, computerized brain tomography (BBT) or cerebral arteriography should be preferred diagnosing methods (4). Other auxiliary laboratory techniques are peripheral blood count, erythrocyte sedimentation rate, BOS examinations and culture antibiograms. If the abscess is not opened to ventricular system, BOS culture results are negative. In 15-33% of the cases after lumbar puncture, neurological deficit develops, thus this examination method is not required for the diagnosis (10,11). We also used brain CT and supporting laboratory techniques in the diagnosis of our patient and did not apply lumbar puncture.

When Schwartz et al. examined 221 lesions with contrast enhanced borders in MRI, they determined that 40% of them were gliomata, 30% of them were metastasis, 8% of them were abscess and 6% of them were demyelinating disease (12). Although in their series, 45% of the metastasis and 77% of the gliomata were single lesions, they declared that in 75% of the abscesses and 85% of the multiple sclerosis; more than one lesion was observed. Generally in the cortical and sub-cortical region, the necrotic metastasis and hematogenous spreading abscesses radiologically appear as cavitating lesions (12). When the lesions with contrast enhanced borders are multiple and located cortically and sub-

cortically, etiology is generally infectious (12). In our case, the lesion with contrast enhanced borders in the frontal lobe was compatible with the abscess formation.

In the patients with brain abscess, bacteriemia mainly accompanies the event. The disease characteristically follows a biphasic progress. A nonspecific prodromal period such as fever, headache, nausea, vomiting is followed by the progressive asymmetrical cranial nerve paralysis, diplopia, dysarthria, cerebellar findings, hemiparesis and/or hemihypoesthesia and disruption in consciousness. In 41% of the patients, respiratory insufficiency can develop (12,13). In our patient, headache, fatigue, fever, left hemiparesis and loss of muscle strength of left lower extremity was seen. Biochemical parameters revealed elevated white blood cells, elevated sedimentation and CRP levels. In some studies, it was mentioned that 9-63% of the pus samples taken from the central nervous system, the abscesses were sterile (14). In the swab culture taken during the operation of our case, there was no growth.

While in the cases in which the abscesses cannot be treated surgically due to brain stem localization, the mortality was observed at a rate of 90%; and in the surgically treated ones, the mortality was 30-51%. In the survived patients, serious neurological sequellae remained (15,16). Our case was discharged from the hospital with minimal sequellae after operation and antibiotherapy.

The skin and soft tissue infections generally regarded as cases with easy diagnosis and treatment. Sometimes these local infections can cause much more serious situations such as brain abscesses in which diagnosis and treatment are more complicated and prognosis is worse. Therefore, we should bear in mind that special attention is required in all local infections especially if they are localized in head and neck region.

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