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# A Case Report: Aseptic Meningitis

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**Case Report / Olgu Sunumu**

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ABSTRACT

Meningitis is an inflammation of the leptomeninges which surround the brain and the spinal cord. Depending on the organism, it is categorized as aseptic or bacterial meningitis. Cerebro-spinal fluid analyse and its culture are used for this categorization. Although it is thought to occur more frequent in paediatric population, 7.6 out of 100000 adults are affected by the disease. Some people may have sequels such as cognitive impairment, focal neurologic deficits and hearing loss. The mortality of viral meningitis is 4.5%, while it is 14.8% with bacterial meningitis. Headache, nausea and vomiting are the most seen complaints in the early stages of the disease. Because of that it can primarily be misdiagnosed with upper respiratory tract infections but also with other diseases. Therefore, some people may have a late diagnose. That increases the morbidity and the mortality.

This case report, describes a patient who was diagnosed with aseptic meningitis. The patient presented herself to our clinic with the complaints of headache, intermittent fever, stomach ache, and voiding difficulty.

Keywords: aseptic meningitis, Family Practice, vaccination

## Bir Olgu Sunumu: Aseptik Menenjit

ÖZ

Menenjit, beyin ve omuriliği saran leptomeninkslerin tutulduğu inflamatuar bir hastalıktır. Sebep olan organizmalara bağlı aseptik ya da bakteriyel şeklinde ikiye ayrılır. Bu ayrımda beyin-omurilik sıvısı incelemesi ve kültürü kullanılır. Her ne kadar pediatrik popülasyonu daha fazla etkilemekte gibi görünse de her 100.000 erişkin hastanın 7,6'sında karşımıza çıkabilmektedir. Bazı hastalarda hastalık sonrası kognitif fonksiyon bozukluğu, fokal nörolojik defisitler, işitme kaybı gibi sekeller kalabilmektedir. Hatta viral menenjitlerde mortalite %4,5 iken, bakteriyel menenjitlerde %14,8 oranında görülebilmektedir. Baş ağrısı, mide bulantısı hastalığın ilk dönemlerinde en çok karşılaşılan şikayetler olup başta üst solunum yolu enfeksiyonları olmak üzere birçok hastalıkla karışabilmektedir. Bu nedenle hastalar tanı almakta gecikmektedirler. Bu da mortalite ve morbiditeyi arttırmaktadır.

Yazıda baş, boyun ağrısı, aralıklı ateş, karın ağrısı, idrar yaparken zorlanma şikayetleriyle başvuran olgu üzerinden menenjit bulgularının ve tanısının tartışılması amaçlanmıştır.

Anahtar kelimeler: aseptik menenjit, Aile Hekimliği, aşılama

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## Introduction

Meningitis is an inflammation of the leptomeninges which surround the brain and the spinal cord. Depending on the organism, it is categorized as aseptic or bacterial meningitis. The precise diagnosis is made by cerebro-spinal fluid (CSF) analyse and its culture. Although it is thought to occur more frequent in paediatric population, it has also quite an impact on adults. Some studies in Europe have shown that 70 cases per 100000 children younger than one year, 5.2 cases per 100000 children between 1-14 years of age, and 7.7 per 100000 adults are affected by the disease. In worldwide, approximately 1.2 million bacterial meningitis cases are estimated every year. Some people may have sequels such as cognitive impairment, focal neurologic deficits, hearing loss after the disease. The mortality of viral meningitis is 4.5%, while it is 14.8% with bacterial meningitis (1,2). Headache, nausea and vomiting are the most seen complaints in the early stages of the disease. Because of that, it can primarily be misdiagnosed with upper respiratory tract infections but also with other diseases. Consequently, some people may have a late diagnose and that increases the morbidity and the mortality.

This case report, describes a patient who was diagnosed with aseptic meningitis. The patient presented herself to our clinic with the complaints of headache, intermittent fever, stomach ache, and voiding difficulty.

## Case

An 18 year old woman presented with headache, fever, stomach ache, nausea and voiding difficulty. She had headache starting from her neck, propagating to the fronto-temporal area for two weeks. She had intermittent fever reaching 39˚C and nausea. She had voiding difficulty and also realized that her urine quantity was less than normal. There were no remarkable findings in her medical history and family history. She had recurrent admissions to the emergency services and internal medicine departments in different hospitals. Her clinical findings and ultrasound images in those hospitals had shown no notable pathology. On her admission to our clinic, she was afebrile. Her physical examination revealed 100/60 mmHg blood pressure, 85/min beat per minute (bpm). She was conscious. Her neurological examination was normal but she had extensive pain during the abdominal examination. Her nuchal rigidity test, Kernig and Brudzinski signs showed suspected positive results. With a detailed examination report and preliminary diagnosis of meningitis, she was referred to the emergency clinic.

She admitted to a tertiary care hospital. After her examination, papilledema was found and lumber puncture (LP) was performed. LP showed high CSF pressure, high microprotein and %95 lymphocyte. She was hospitalized with the preliminary diagnosis of aseptic meningitis.

## Discussion

Aseptic meningitis is distinguished from bacterial meningitis with CSF evaluation and the absence of bacterial growth in its culture. Some studies have shown that viral agents cause 70%-80% of aseptic meningitis. The most common agents are enteroviruses (3,4). Etiology of non-viral aseptic meningitis can be systemic diseases, medicines or any other pathologic reasons (5).

In general, patients are admitted to the clinics with the complaints of headache, neck pain, dizziness, nausea, vomiting, photophobia. Severe cases may have cognitive impairment. Children may present with convulsions. On physical examination, fever, nuchal rigidity, positive Kernig and Brudzinski signs, body rash may be seen. Clinicians should always keep in mind that Kernig and Brudzinski signs have more than 90% sensitivity if there is a suspicion of meningitis (5,6,7).

Although it is thought the opposite, in paediatric population meningitis occurs more with atypical symptoms. In the study of Shukla et. al with 509 children and adults, it was noted that the children presented more with the complaints of headache, nausea, vomiting, neck stiffness compared to the adults. In the same study, 98.8% of 404 adults and 60% of 105 children presented with headache, 74.8% of the adults and 63.8% of the children had nausea and

vomiting. In addition, the signs of meningeal irritation were in higher rate in the adults than the children (7). Abuhandan et al. also reported a study with 92 children, 91.3% of them presented with fever, 87% of them presented with vomiting, 20.7% of them presented with convulsion (8). In our case, the patient admitted with the complaints of fever, fronto-temporal headache, neck pain, nausea and voiding difficulty. Nuchal rigidity was mildly positive. Kernig and Brudzinski signs were also suspiciously positive.

In some rare cases, acute urinary retention secondary to aseptic meningitis can occur and it is called as meningitis-retention syndrome. It is not precisely described in the literature and its prevalence is unknown (9). Ntzoria et. al reported a case with urinary retention secondary to aseptic meningitis and they found HSV IgM (+), EBV IgM (+) in the patient's serology tests (10). Kim et al. described an aseptic meningitis case with severe suprapubic pain and voiding difficulty on the second day after his admission. The patient was consulted to the urology department and he was evaluated as acute urinary retention but the pathogenesis was not defined (11). In our case, our patient complained about voiding difficulty and less urination at her admission.

Former studies have shown the lymphocyte dominance in aseptic meningitis CSF samples (5,8). In our case, CSF evaluation showed 95% lymphocyte dominance. Likewise, Mount et al. stated that protein levels in CSF evaluation of aseptic meningitis cases (more frequently viral), may be seen as normal or slightly increased (1). The CSF evaluation of our case was made at the tertiary care hospital and the CSF microprotein was found higher than normal. Also, tuberculosis meningitis was investigated in CSF culture but there was no growth signal.

Depending on the causing agents, aseptic meningitis progress more self-limiting than bacterial meningitis. It can be more severe in newborns. In the study of Mount et. al it was shown that 83.6% of children did not show any complication but 34-50% of adults developed a focal neurological deficit (1,5). In our case, no sequelae was observed after the treatment.

Vaccination against meningitis infections is very important. In our country, there are three types of conjugated meningitis vaccines which contain A, C, Y, W serogroups. Children can be vaccinated twice in the age range of nine months to two years and adolescents can be vaccinated once between 11-18 years. It is not in the routine vaccination schedule of the Ministry of Health but high-risk patients can be vaccinated without any charge.

Asplenic patients, people who live in a crowded environment (such as military recruits, school dorm residents, etc.) and at the risk of occupational exposure, people who tend to travel to the areas where meningitis is hyperendemic or endemic should be routinely vaccinated (12). Excessive smoking and alcohol consumption, history of splenectomy, HIV infection, history of immunodeficiency or malignancy, having a cochlear implant also increase the risk of meningitis (13).

Our patient did not have any of these risk factors mentioned above and she had not had meningococcus vaccination.

In conclusion, in the early stages of meningitis, due to the similar signs and symptoms with other diseases (such as gastroenteritis), diagnosis can delay. Therefore, morbidity and mortality rate is rather high. Patients present themselves to primary care services with undifferentiated symptoms and illnesses. Being able to differentiate, it is quite important to record their complaints and medical history and combine them with the physical examination outcomes. It should always be kept in mind that patients with fever, headache, neck pain, nausea symptoms may have meningitis. All suspected patients should be urgently referred to the emergency service.

Additionally, if the meningococcus vaccine is added routinely in our vaccination schedule, we think that the rate of meningitis will decrease.

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