

Spinal and Psoas Abscesses in a Patient with Diabetes Mellitus: A Case Report

Diabetes Mellituslu Bir Vakada Spinal ve Psoas Abseleri

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Summary

Diabetes mellitus predisposes to infections. We aimed to report a patient with psoas and epidural abscesses at the same time without discitis/spondylitis and osteomyelitis formation, and to discuss the treatment options. We report a 58-year-old insulin-dependent woman with sudden onset of low back pain and difficulty in walking after a traumatic event. The patient had neurological deficits including neurogenic bladder. Psoas abscess and epidural abscess were diagnosed using imaging methods. Percutaneous drainage of psoas abscess was performed. Growth of enterococcus species was observed. We treated the epidural abscess with antibiotics. The signs and symptoms of infection in the patient disappeared after cutaneous drainage and antibiotic therapy. Psoas and epidural abscesses can be seen at the same time in patients with diabetes mellitus, and drainage and antibiotic therapy are beneficial. *Türk J Phys Med Rehab 2010;56:43-6.*

Key Words: Psoas, epidural, abscess, diabetes mellitus

Özet

Diabetes Mellitus, enfeksiyona yatkınlığı artırmaktadır. Bu vaka takdiminde diskitis/spondilitis ve osteomyelitis oluşmadan gelişen, aynı zamanda psoas ve epidural abse tanısı konulan bir olgu ve onun tedavi yaklaşımı bildirilmektedir. Bir tıp merkezine travma sonrası ani gelişen bel ağrısı ve yürümede zorluk şikayetleriyle başvuran, insülin tedavisi alan 58 yaşında bir kadın olguda nörojenik mesaneyi de içeren nörolojik defisitler tespit edildi. Görüntüleme yöntemleriyle spinal abse ve psoas absesi tespit edildi. Psoas absesi için perkütan drenaj yapıldı. Kültürde Enterokokkus species üredi. Perkütan drenaj ve antibiotik tedavisi sonrası hastanın semptomları kayboldu. Epidural abse ve psoas absesi diyabetes mellitusu olan hastalarda eş zamanlı olarak bulunabilmekte ve drenaj, antibiyotik tedavisinden fayda görmektedir. *Türk Fiz Tıp Rehab Derg 2010;56:43-6.*

Anahtar Kelimeler: Psoas absesi, epidural abse, diabetes mellitus

Introduction

Impaired glucose metabolism in diabetes mellitus is associated with several complications such as dysfunction of white blood cells, including leucocyte adherence, chemotaxis, and phagocytosis, resulting in increase in the predisposition to infection process (1,2). Psoas (3-5) and spinal abscesses (6,7) have been reported, but the occurrence of both together in one and the same patient is uncommon, particularly in the absence

of spondylitis, discitis or osteomyelitis in the lumbar spine. According to the literature, few cases with psoas and spinal epidural abscesses, which occurred simultaneously, have been reported (8,9). Recently, a case report has been presented on a young diabetic patient with both psoas and spinal epidural abscesses caused by Staphylococcus aureus (10). We present an adult diabetic patient with bilateral psoas and spinal epidural abscesses caused by Enterococcus and without spondylitis, discitis and osteomyelitis.

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Case Presentation

A 58-year-old insulin-dependent diabetic (IDDM=type 1 DM) woman was admitted to a medical center due to acute onset of low back pain and difficulty in walking immediately after lifting a heavy subject from floor and was hospitalized with the initial diagnosis of acute lumbar strain. Magnetic Resonance Imaging (MRI) without contrast enhancement of the lumbar spine revealed central posterior protrusions at L3-4, L4-5, L5-S1 levels and decreased lumbar lordosis. A conservative therapy with non-steroidal anti-inflammatory (diclofenac sodium 150 mg/day intramuscular) and myorelaxant (thiocolchicoside 8 mg/day intramuscular) drugs was given. However, lumbalgia persisted and she started to complain of paresthesias in the lower extremity and of anuria 2 weeks later. The patient was then transferred to our hospital and hospitalized in the department of physical medicine and rehabilitation.

Her past medical history included diabetes mellitus for fifteen years. She was treated with insulin glargine. On admission, the patient presented with poor condition with severe pain in the lumbar region, she was not able to stand up and did not give permission for physical examination because of severe lumbar pain at day 1. The axillary temperature was 37.5 °C. The patient was not responsive to trans-cutaneous electrical nerve stimulation. We implicated phentanyl 50 mcg/hour transdermal patch on the lateral side of her arm.

On the second day, her temperature has risen up to 38.5°C. To find out the source of infection, blood and urine samples were collected.

On the third day, the lumbar pain began to subside and we could examine the patient. The positive findings of physical examination were paravertebral muscle spasm in the lumbar region, restriction of lumbar range of motion in all planes, decreased touch sensation below L2, decreased proprioception and vibration senses bilaterally, absence of patella reflexes and decreased achilles reflex, and motor weakness. The muscle



Figure 1. Lumbar MRI with gadolinium demonstrated epidural abscess (arrows).

strength of lower extremity muscles were 4/5, except for the hip flexion, according to the results of manual muscle strength test. The contraction of the hip flexors against resistance was weak due to excruciating pain. The patient had urinary incontinence.

The initial laboratory investigations showed elevated blood glucose level (184 mg/dL) and impaired liver function. Urinalysis was normal. Haemoglobin level was 12.5 g/dL (13.6-17.2). There were leukocytosis ($17 \times 10^3/\mu\text{L}$), elevated segmented neutrophil count (%81) and elevated C-reactive protein (67.8 mg/l). Rose Bengal and Brucella agglutination tests were negative. The blood and urine cultures were negative for any bacteria.

Although, abdominal ultrasound was found to be normal, computed tomography of the abdominal cavity showed bilateral psoas abscess that extended to pectineus muscle and also involved the iliopsoas muscle on the right. The abscess sizes were 55x65x160 mm and 55x65x105 mm on the left and right sides, respectively. Due to the positive findings in neurological examination and the presence of incontinence, we performed contrast-enhanced MRI of the spine in search of evidence of spinal cord involvement. The contrast-enhanced MRI of the spine revealed an extramedullary and extradural localized abscess extending from T10/11 level to L4/5 level (Figure 1) and a bilateral psoas abscess (Figure 2). The abscess extended to paravertebral region via right neural foramen and at this level it spread over the spinal channel.

Urodynamic analysis was performed to determine the type of urinary incontinence and areflexic bladder was found.

The treatment with phentanyl was stopped. Her insulin dose was increased because of elevated glucose level. Intermittent catheterization was performed four times a day for neurogenic bladder. Radiologist performed percutaneous drainage of the psoas abscess bilaterally and inserted 14 F drainage catheters. Figure 3, demonstrates the psoas abscesses during cavitography. Surgical decompression was not thought by the neurosurgeon. Abscess cultures grew Enterococcus species. Antibiotic therapy with ampicillin 6 g/day iv was initiated for one month by infectious diseases specialist.

The catheters were removed four weeks later when the drainage ceased. Pain relief was provided. The patient was discharged on intermittent catheterization. The follow-up computed tomography, performed two weeks after the removal of catheters, demonstrated no abscess in psoas region. Six months later, the follow-up MRI scan also revealed no abscess in the spinal and psoas regions. Bladder function was restored after the treatment and no post-void residual volume was detected.



Figure 2. Lumbar MRI with gadolinium demonstrated psoas abscess (arrows).

Discussion

Diabetes mellitus is a predisposing condition for any type of severe infection (11). Increased susceptibility to infections has been attributed to defects in both cell-mediated and humoral immunity (12). In this regard, diabetes mellitus is a predisposing factor also for psoas and spinal epidural abscesses (13,14).

Psoas abscess is a relatively uncommon condition that can present with vague clinical features (13). The classical clinical triad consisting of fever, back pain, and limp is present in only 30% of patients with iliopsoas abscess (15). Acute presentations are observed in a minority of patients (16). Its insidious onset and occult characteristics can cause diagnostic delay, resulting in high mortality and morbidity (13). Our patient had only acute low back pain as presenting symptom and also had trauma history which led to misdiagnosis. Infection was considered only after fever and elevated inflammation markers were added to the clinical picture.

Spinal epidural abscess is a rare and severe infection requiring prompt diagnosis and intervention. Classical symptoms include spinal pain, fever and neurological deficits (14). The initial presentation can be insidious. The diagnosis can be very challenging for the clinician. We considered spinal cord pathology when neurological deficits and neurogenic bladder were detected. However, in our case there was no accompanying discitis or spondylitis, which is common and generally initiates spinal lesions in the setting of spinal epidural abscesses (17).

We diagnosed bilateral psoas abscess in connection with spinal epidural abscesses. The psoas muscle lies in close proximity to the spinal column. Psoas arises from the lumbar vertebrae and inserts at the thoracic vertebra. Based on the radiological appearance and the clinical findings, the epidural and psoas collections were likely to be a continuation of each other due to the close proximity of these structures, but we could not conclude whether the psoas abscess originated from



Figure 3. The cavitography was obtained after administering contrast from catheters (arrows) at the prone position. Psoas abscess at the right side extended to the caudal femoral region.

the spinal epidural abscess or vice versa. We also considered the possibility that both infections might be secondary to other infection sources. It is well known that predominating organisms in the secondary psoas abscesses are mostly enteric organisms (16,18) and secondary psoas abscess are seen more frequently in elderly persons (19). However, the patient's urine, stool and blood analysis and cultures did not point out any microbial causative agent, and also the patient was not an old person. The only possible etiology that might have caused a liability to abscess formation was diabetes mellitus.

It is reported that no source can be identified in 30-40% of the cases with spinal epidural abscess, thus silent bacteraemia seeding in the epidural space and diabetes mellitus seem to be predisposing factors in 15-46 % of patients with spinal epidural abscess (14).

After the percutaneous drainage of psoas abscess and the administration of proper antibiotic regimens, the patient dramatically improved and low back pain diminished significantly. Considering the treatment options in spinal epidural abscess, there is no general agreement on treatment protocol. Treatment options include proper antibiotics, directed towards the cultured organisms, and percutaneous drainage of the abscess or surgical decompression. However, recent publications suggest that the antibiotic treatment might be the first treatment option for spinal abscess, but surgical decompression might be thought if there is worsening in the neurological status or there is no improvement in neurological deficit, despite the proper antibiotic regimens (20). In our case, percutaneous drainage of psoas abscess was performed, but no surgical intervention was thought for the spinal abscess, because after drainage of the psoas abscess and administration of proper antibiotic regimens, the patient recovered dramatically and her low back pain diminished significantly. The improvement after drainage of psoas abscess supported the suggestion that these two abscesses were in connection with each other.

In the literature, there are cases having psoas and spinal epidural abscesses at the same time. Oblak et al. (8) reported a diabetic case with recurrent infections at different locations for three years. In the above-mentioned case, spinal epidural abscess occurred after psoas abscess formation. The interval period was approximately two years. Bang et al. (21) also reported a paraplegic patient with psoas and epidural abscesses after acupuncture. In this case, we could not find any source of infection. Mückley et al. (22) reported six cases with unilateral psoas abscesses associated with spinal infections. Spine was the primary source of the infections in those patients. In their patients, microbiology results showed *Peptostreptococcus* species, *Escherichia coli*, *Staphylococcus aureus*, *Mycobacterium tuberculosis* as causative agents. In our case, *Enterococcus* species were the possible pathogen of the abscesses. According to the literature, *Enterococcus* species are rare pathogens and are found in 1% of patients with spinal epidural abscess (14). Flavin et al. (10) presented an 18-year-old female case with fever, pain and limp. Psoas and spinal epidural abscesses were diagnosed and percutaneous drainage of psoas abscess was performed, as we did in our case. But, in that case abscess fluid grew methicillin-resistant *Staphylococcus aureus* and vancomycin was started.

In this sense, what makes our case interesting is the acute presentation of symptoms, the diagnosis of psoas and spinal abscesses at the same time without any obvious sign of discitis and/or spondylitis in a patient with diabetes mellitus.

In conclusion, epidural and psoas abscesses can be encountered together in patients with diabetes mellitus. The symptoms and neurological deficits including neurogenic bladder may disappear after percutaneous drainage and antibiotic treatment.

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

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