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Psoas Abscess: Evaluation of 15 Cases and Review of the Literature

Psoas Absesi: 15 Olgunun İncelenmesi ve Literatür Değerlendirilmesi

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What's known on the subject? and What does the study add?

Psoas abscess (PA) is a rare disease, presenting with high mortality and morbidity particularly when diagnosed late. PA should be considered in patients who had history of abdominal surgery and high fever resistant to treatment. Early diagnosis and treatment may decrease high mortality and morbidity rate. Contrary the literaure which stated that PA is more commen in patients younger than 20, we found the mean age as 58.5.

ABSTRACT

Objective

Psoas abscess (PA) is a rare disease, presentingwith high mortality and morbidity particularly when diagnosed late. We aimed to evaluate thepatients with PA in terms of etiological factors and treatment results.

Materials and Methods

Data of 15 patients diagnosed with PA between June 2008 and June 2014 were retrospectively analyzed. Patients who were diagnosed with PA by ultrasonography (US) and/or computed tomography (CT), and had all the relevant data available were included in the study.

Results

Among fifteen patients diagnosed with PA, 6 (40%) were women and 9 (60%) were men, and the mean age was 58.5 years (range, 41-75 years). All psoas abscesses were unilateral, and the right side was affected in 12 (80%), and the left in 3 (20%) cases. The average size of the abscesses was 8 cm (range, 4-30 cm). Five cases (33.3%) had a primary, and 10 (66.7%) had a secondary psoas abscess. All patients were given broad-spectrum antibiotics. Two cases (13.3%) were treated with percutaneous drainage and antibiotics while 13 (86.7%) patients underwent open surgical drainage and antibiotic therapy.

Conclusion

Psoas abscess is a rare disease, with non-specific clinical signs resulting in difficulty in diagnosis. However, early diagnosis and treatment may provide a high cure rate. PA should be considered in patients who had history of abdominal surgery and high fever resistant to treatment.

Key Words

Psoas abscess, infection, retroperitoneum

ÖZET

Amaç

Psoas absesi (PA) özellikle geç tanı konulduğunda yüksek mortalite ve morbidite oranları ile seyredebilen ve nadir görülen bir hastalıktır. Bu çalışmada PA tanılı hastalarımızın etyolojik faktörler ve tedavi sonuçlarını değerlendirdik.

Gereç ve Yöntem

Haziran 2008 ve Haziran 2014 tarihleri arasında PA tanısı alan 15 hastanın datalarını retrospektif olarak inceledik. Ultrasonografi (US) ve/veya bilgisayarlı tomografi (BT) tetkikleri ile PA tanısı konulan ve hastalalık ile ilgili gerekli dökümanları mevcut olan 15 hasta çalışmaya dahil edildi.

Bulgular

PA tanılı 15 hastanın 6'sı (%40) kadın, 9'u (%60) ise erkek idi. Ortanca yaş 58,5 (41-75) olarak bulundu. Bütün psoas abseleri tek taraflı saptanırken 12 (%80) hastada sağ taraf, 3 (%20) hastada ise sol tarafta PA mevcut idi. Absenin ortalama büyüklüğü 8 (4-30) cm olarak tespit edildi. Beş (%33,3) hastada primer PA saptanırken, 10 hastada (%66,7) ise sekonder PA gözlendi. Tüm hastalar geniş spektrumlu antibiyotik tedavisi aldı. İki (%13,3) hastaya antibiotik tedavisine ek olarak perkutan drenaj uygulanırken, 13 hastaya (%86,7) ise yine antibiotik tedavisine ek olarak açık cerrahi drenaj yapıldı.

Sonuç

Psoas absesi non-spesifik bulgular ile prezente olan ve bu nedenle teşhisinde zorluklar yaşanabilen, nadir görülen bir hastalıktır. Bununla birlikte erken teşhis ve tedavi mortalite ve morbidite oranlarını düşürebilir. Geçirilmiş batın cerrahisi öyküsü olan ve tedaviye dirençli yüksek ateşi bulunan hastalarda psoas absesi akla getirilmelidir.

Anahtar Kelimeler

Psoas absesi, enfeksiyon, retroperiton

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Introduction

Psoas abscess (PA) which was first described by Mynter in 1881 is an uncommon disease, with high mortality and morbidity in case of delay in diagnosis (1,2,3). The psoas muscle originates from the transverse processes and intervertebral discs of 12. thoracic and all lumbar vertebrae (3). It lies in close proximity to organs such as sigmoid colon, appendix, jejunum, ureters, abdominal aorta, kidneys and spine. Therefore infection of these organs may spread to the psoas muscle (4). The elderly are less likely to have psoas abscess, while it is more common in children and adolescents (5).

Psoas abscess is classified as primary and secondary. The etiology of the primary psoas abscess (pPA) is not well known (6). Constituting 30% of all psoas abscesses pPA usually develops as a result of hematogenous or lymphatic spread of bacteria from an unkown focus whereas secondary psoas abscess (sPA) constitute 70% of all cases and it occurs with the local spread from adjacent infected tissues (7). Broad-spectrum antibiotics and drainage whether percutaneously or via open surgery is the recommended treatment for PA (1). Despite these treatment modalities mortality rates can reach to 18.9% especially in secondary PA (2). In this retrospective study, we aimed to evaluate the patients diagnosed with PA in our clinic regarding etiological aspects and treatment results.

Materials and Methods

Fifteen patients diagnosed with PA in the period between June 2008 and June 2014 were included in the study. Patient records were analyzed retrospectively. The patients who were diagnosed with PA by ultrasonography (US) and/or computed tomography (CT), and having all the relevant data obtained were enrolled in the study. Patients with indefinite radiological imaging and incomplete clinical records were excluded. The demographic data, complaints at first admission, concomitant diseases, microbiological data including tissue culturesobtained during surgery, imaging techniques, treatment protocols and treatment results of patients were retrospectively obtained by evaluating patients records. In this study, patients without any detected source of infection were classified as pPA, while those with a distinct source of infection outside the psoas muscle were classified as sPA.

Results

Among 15 patients who were diagnosed with PA, 6 (40%) were women and 9 (60%) were men. The mean age was 58.5 years (range, 41-75 years). High fever was the most common symptom at the time of admission. Presenting symptoms are shown in Table 1.

Regarding laboratory findings, all patients had leukocytosis and high acute phase responses (erythrocyte sedimentation rate and C-reactive protein were considered as acute phase reactants). Four patients (28.5%) showed increased fasting blood glucose values (mean 240 mg/dL).

CT was the imaging method to confirm diagnosis of PA in 13 (86.6%) patients whereas US and magnetic resonance imaging (MRI) were diagnostic in one each (6.7%) patient (Figure 1).

Psoas abscess was unilateral in all patients. Right side was affected in 12 (80%) patients, while 3 (20%) patients had left side abscess. The average size of the abscesses was 8 cm (range, 4-30 cm). Five of the cases (33.3%) had a primary, and 10 (66.7%) had a secondary psoas abscess.

Comorbidities of the patients are shown in Table 2. Etiologic risk factors of the patients diagnosed with Secondary PA are shown in Table 3.

Tissue cultures obtaianed during surgery revealed Escherichia coli in two (13.3%), Staphylococcus aureus in three (20%), Klebsiella oxytoca in one (6.6%), Acinobacter baumani in one (6.6%) and Klebsiella pneumonia in one (6.6%) patient. Two different microorganisms

Table 1. Presenting symptoms

Presenting Symptoms	n	%
High fever	12	85.7
Side pain	10	71.4
Poor health status	10	71.4
Palpable mass	6	42.8

Table 2. Comorbidities of the patients

Comorbidities	Number of Patients n (%)
Diabetes mellitus (DM)	4 (26.6)
Heart failure	1 (6.6)
Hypertension	2 (13.3)

Table 3. Etiologic risk factors

Etiologic Risk Factors	Number of Patients n (%)
Appendectomy	1 (6.6)
Spinal surgery	2 (13.3)
Scrotal abscess	1 (6.6)
Urolithiasis	5 (33.3)
Prostate surgery	1 (6.6)

Figure 1. T2W Magnetic resonance image of a patient with psoas abscess in left iliac fossa

(Escherichia coli and Staphylococcus aureus) were isolated simultaneously in one patient. No bacteria wasisolated in eight (53.3%) patients. Patients with Staphylococcus aureus had primary psoas abscess, whereas all other cases had secondary PA.

All patients were given broad-spectrum antibiotics. Two patients (13.3%) were treated with percutaneous drainage and antibiotics while the other 13 (86.7%) patients underwent open surgical drainage and antibiotic therapy. All patients received three weeks course of antibiotic treatment. One patient who had a delay in thediagnosis was died due to sepsis. All patients were re-evaluated with control CT one month after the completion of treatment.

Discussion

Psoas abscess is an uncommon infectious disease without any specific clinical features which may require advanced imaging techniques for diagnosis. Severe complications may be observed during the course of disease (8,9).

In the literature although it has been reported that 70% of the PA patients are under 20 yearsof age, recent studies have determined the mean age as over forty same as in our study (7,10). PA is more common in men (1,6,7,10,11). We also determined male predominance in our study with male/female ratio as 9/6.

Fever and side pain are the most frequent symptoms observed in PA (5,12). In our study these two symptoms were also the most common symptoms. Consistent with the literature leukocytosis, elevated sedimentation rate and anemia were the laboratory findings commonly observed in our patients (1,7,10).

CT has a high sensitivity, as much as 100% in the diagnosis of PA. CT can depict the depth and location of the lesion, as well as it's exact dimensions (1,10). The diagnosis was confirmed by CT in 86% of our cases. Other radiological examinations such as plain abdominal radiographs, US and MRI have not been shown to be superior to CT regarding PA diagnosis.

PA is mostly reported to be unilateral in the literature (95-97%). All psoas abscessesdeveloped unilaterally in our cases. Also right side dominance (80%) of PA in our patients was consistent with the literature which showed 57-60% ratio for right side dominance (7,10,13).

Among all psoas abscess, 30% is classified as primary, and 70% as secondary abscess (1,7,10). In our study, 66% of patients were diagnosed as secondary PA. Although Crohn's disease has been reported as the most important cause of sPA (3,8,10), none of our cases was secondary to Crohn's disease or any other gastrointestinal disease. In addition to inflamautuary bowel diseases, surgical interventions especially abdominal surgeries have been reported as a common cause of PA (7,10,14). Prior abdominal surgery existed in 33% of our cases. Urolithiasis which was also defined as an etiologic factor for PA was identified in 33% of our sPA cases (7).

Diabetes mellitus (DM) appears as a common comorbidity accompanying to PA (1,7). Particularly, uncontrolled serum glucose levels in DM has been claimedto facilitate infection by inhibiting the effects of neutrophils, cell-mediated immunity and decreasing serum opsonic levels which can compromise host defense mechanism (1). We also found diabetes mellitus as the most common comorbidity (26.6%) and the mean serum glucose level was determined as 240 mg/dl in our cases with DM.

While the most frequently isolated microorganism has been reported as Staphylococcus aureus in 80% of primary psoas abscess, enteric bacteria are usually isolated in secondary PA (1,14,15). In our study Staphylococcus aureus and E. coli were the most frequently detected bacteria in primary and secondary PA, respectively. No microorganisms could be isolated in some studies as it was the case 53.3% of our patients (7,10).

Broad-spectrum antibiotics and drainage whether percutaneously or via open surgeryis the recommended treatment for PA (1,5,7,15). Percutaneous drainage was first described in 1984 (16), and today it is presented as the first treatment option. There are fewreports which presents PAcases responded to antibiotic therapy alone (4,17). CT-guided drainage has been reported to achieve a success rate of 70-90% (18,19). Open drainage which has as a more limited practice generally recommended when percutaneous drainage fails (10). Although percutaneous drainage appears to be effective, open drainage can achieve a success rate of 97% in deteriorated patients requiring fast and precise response. Therefore, surgical drainage should be the first preferred management for these patients (20). Percutaneous drainage and open drainage was performed to 13.3% and 86.7% of our patients, respectively. Patients with deteriorated general health status and delayed diagnosis were referred to our hospital which is a tertiary center. This might be the reason for high preference of open drainage method in our clinic.

Psoas abscess is a life-threatening infection. While mortality is known to be 2.4% in primary psoas abscess, it can reach to 18.9% in secondary PA (2). The cause of mortality isrelated to septic complications in patients with delayed diagnosis and treatment (4). One (6.6%) of our patients died due to sepsis. History of previous urolithiasis surgery via flank incision was present in this patient who was referred to our hospital with complaint of high fever and lumber pain. Open drainage was performed and Staphylococcus aureus was detected after the evaluation of tissue cultures obtained during surgery. Despite the open drainage and antibiotic treatment mortality caused by sepsis in the postoperative day of seven.

It is noteworthy that there is a significant increase in cases of PA in recent years, this may be attributed to early and accurate diagnosis rather than an increase in the number of cases. Although PA is a rare disease which can be difficult to diagnose due to nonspecific clinical signs, high cure rate can be achieved with early diagnosis and treatment.

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