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Giant Iliopsoas Abscess Caused by *Morganella Morganii*

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

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Conflict of interest: None declared

Patient: Female, 74
Final Diagnosis: Iliopsoas abscess
Symptoms: Fever
Medication: —
Clinical Procedure: —
Specialty: Infectious Diseases

Objective: Rare disease

Background: While uncommon, iliopsoas abscesses can become the underlying cause of a fever of unknown origin. Even in such cases, it is considered rare for an iliopsoas abscess to extend into the subcutaneous space.

Case Report: A 74-year-old woman with a history of schizophrenia was referred to our hospital with a high-grade fever. The patient was unaware of her febrile status prior to admission. There was no previous hospital admission. Examination revealed a non-tender mass in the lower right back that the patient had been aware of for approximately 1 month. Initially, we considered a subcutaneous abscess; however, computed tomography (CT) detected a large mass in the right retroperitoneum, which extended into the adjacent subcutaneous space. Surgical drainage was performed. *M. morganii* was detected in fluid evacuated from the abscess and in a urine culture. Blood cultures were negative. A repeat enhanced CT revealed a right renal abscess with staghorn calculus. This iliopsoas abscess was considered to be due to a renal abscess. The combination of a minimally aggressive bacterial species and the absence of disease awareness resulted in uncontrolled abscess growth in this case. Surgical drainage and salvage nephrectomy was subsequently performed, and she was discharged to a nursing home.

Conclusions: *M. morganii* can lead to massive abscess formation without an underlying immunocompromised status. Iliopsoas abscesses can surreptitiously extend into the subcutaneous space; therefore, not all abscesses observable from the surface are necessarily subcutaneous in origin.

MeSH Keywords: *Morganella Morganii* • Psoas Abscess • Schizophrenia • Sepsis

Full-text PDF: <http://www.amjcaserep.com/abstract/index/idArt/902702>



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Background

Iliopsoas abscesses can become the underlying cause of a fever of unknown origin [1,2]; however, it is considered rare for an iliopsoas abscess to extend into the subcutaneous space [3,4]. *Morganella morganii* infection primarily occurs in patients who have succumbed to an immunocompromised state [5–8] or who have contracted the organism in a hospital setting [9]. Here, we report a case of a giant iliopsoas and renal abscess as a result of an *M. morganii* community-acquired infection without the presence of an immunocompromised state. We successfully treated the patient via a multipronged approach utilizing a combination of surgical drainage, salvage nephrectomy, and antibiotics, which culminated in a favorable outcome.

Case Report

A 74-year-old Japanese woman with a history of schizophrenia was referred to our hospital with a high-grade fever. The patient was unaware of her febrile status prior to admission. She did not report any chest pain, cough, dyspnea, palpitation, or any urinary or bowel complaints. There had no history of tuberculosis or malignancy and no previous hospital admissions. She denied smoking cigarettes, drinking alcohol, or using illicit drugs. She had no recent travel history.

Upon admission, her vital signs showed a high-grade fever of 39.1°C, pulse rate 110 beats/min, blood pressure 100/60 mmHg, respiratory rate 24 times/min, and 99% oxygen saturation at room air. Her level of consciousness was E4V4M6 using the Glasgow Coma Scale. Physical examination revealed a non-tender mass in the lower right back that the patient had been aware of for approximately 1 month (Figure 1). Cardiovascular and abdominal examinations were unremarkable. Initial laboratory investigations revealed the following: leukocytosis of 23 300 cells/mm³ with polymorphic neutrophil predominance (93.8%), hemoglobin 8.6 g/dL, platelet count 339 000/mm³, CPK 125 IU/L, blood urea nitrogen 23.3 mg/dl, creatinine 0.97 mg/dl, C-reactive protein (CRP) 15.26 mg/dl, blood sugar 116 mg/dl, and HbA1c (NGSP) 5.4% (normal range, 4.9–6.0%). An HIV test was negative. Urinalysis: +/- protein, 1+ nitrite, 2+ leukocyte. Urine glucose, occult blood, and ketones were negative by dipstick.

Initially, a subcutaneous abscess was suspected due to the fact that: 1) the abscess reached the adjacent subcutaneous space; and, 2) the mass was observable from the body surface. Prior to surgical drainage, an ultrasound examination was performed, which revealed a low echoic mass with penetration significant enough to reach the depth of the right kidney. A computed tomography (CT) detected a large mass in the right retroperitoneum, which extended into the adjacent



Figure 1. Physical examination revealed a non-tender mass in the lower right back.



Figure 2. CT (axial view) showed a large decreased attenuation mass in the right iliopsoas muscle and retroperitoneum, which extended into the adjacent subcutaneous space.

subcutaneous space, and a staghorn calculus (Figures 2, 3). Surgical drainage was subsequently performed. The patient was admitted to the intensive care unit due to post-procedural septic shock.

M. morganii was detected in fluid evacuated from the abscess and in a urine culture. Blood cultures were negative. A repeat CT with intravenous contrast revealed a right renal abscess with a staghorn calculus, but the retroperitoneum abscess showed signs of improvement (Figure 4). The iliopsoas abscess was likely a result of the renal abscess and urinary tract infection spreading in an uncontrolled fashion. Susceptibility testing of *M. morganii* isolates in this case showed sensitivity to piperacillin/tazobactam, meropenem, cefmetazole, gentamycin, amikacin, and levofloxacin, but not to cephalosporins and ampicillin. Meropenem was immediately administered because the patient was in septic shock. A salvage nephrectomy was performed since surgical drainage and antibiotic therapy were ruled to be insufficient. Post-operative recovery was exceptional. The patient was administered intravenous meropenem (0.5 g every 8 h) for a period of 2 weeks. The patient



Figure 3. CT (sagittal view) showed a large decreased attenuation mass in the right iliopsoas muscle and retroperitoneum, which extended into the adjacent subcutaneous space, and a staghorn calculus.

responded well to initial treatment and was later placed on a de-escalated regimen using oral levofloxacin (250 mg) for a period of 4 weeks. The patient was discharged to a nursing home.

Discussion

It is considered rare for an iliopsoas abscess to extend into the subcutaneous space. There have been some case reports of similar giant iliopsoas abscesses; however, most were attributed to tuberculosis [3,4,10]. *Mycobacterium tuberculosis* is a slowly progressive pathogen, giving it the unique ability to spread undetected and over a broad area. The present case is rare in that it involved a giant iliopsoas abscess not attributed to tuberculosis, which could be readily observed from the body surface.

M. morganii is a gram-negative rod that is commonly found in the environment and in the intestinal tracts as part of the normal flora. Despite its broad distribution, it was widely believed that this pathogen rarely causes disease in healthy individuals. *M. morganii* has been reported as a cause of urinary tract infections [11], renal abscesses [12], skin and soft tissue infections [13], liver abscesses [14], and central nervous system



Figure 4. Post-surgical drainage enhanced CT (coronal view) revealed a right renal abscess and staghorn calculus.

infections [15]. The vast majority of these cases are documented in patients with an underlying immunocompromised state [5,6,8], in the post-operative setting, or who have been admitted to the hospital [9]. However, a recent study by Lin et al. reported on the clinical manifestations of *M. morganii* in a broader spectrum of patients not limited to those identified above (n=109) [11]. The rate of community-acquired *M. morganii* bacteremia was 75% and the most common underlying conditions were hypertension (62%) followed closely by a bed-ridden state (56%). The average age was 73 years. The urinary tract (43%) was the major portal of entry. *M. morganii* infection can occur in patients without an immunocompromised state. Physicians should consider *M. morganii* as a potential cause of urinary tract infection, especially in elderly and bed-ridden patients.

In our case, *M. morganii* initially caused a urinary tract infection, which led to the renal abscess formation due to the existence of an underlying staghorn calculus. *M. morganii* directly spread to the iliopsoas muscles and further extended into the adjacent subcutaneous space in a gradual and asymptomatic fashion. An iliopsoas abscess may be classified as primary or secondary. Primary iliopsoas abscess occurs as a result of hematogenous spread of an infectious process from an occult source in the body [2]. Secondary abscesses result from the spread of an infective focus into surrounding structures. Conditions like Crohn's Disease, colon diverticulitis, urinary tract infections, septic arthritis, and vertebral osteomyelitis are usually associated with secondary iliopsoas abscesses [2,16]. In the present case, abscess formation was considered to be a direct result of secondary causes.

This is the first report describing an iliopsoas abscess due to this pathogen. The combination of a minimally aggressive bacterial species and the absence of disease awareness due to schizophrenia resulted in the formation of a giant abscess in this case.

Conclusions

M. morganii can lead to massive abscess formation without any underlying immunocompromised status. Iliopsoas abscesses can non-symptomatically extend into the subcutaneous space; therefore, not all abscesses observable from the surface are necessarily subcutaneous in origin.

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Conflict of interests

The authors declare no conflict of interests for this article.