Iliopsoas Muscle Abscess Secondary to Sacral Pressure Ulcer Treated with Computed Tomography-Guided Aspiration and Continuous Irrigation: A Case Report

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Iliopsoas abscess is an aggressive infection usually associated with Crohn’s disease, spinal tuberculosis, a septic hip joint (including hip replacement), and spinal cord injury. It rarely occurs secondary to sacral pressure ulcer. The infection requires immediate surgical debridement or drainage. The case of a 78-year-old woman with high fever and severe inflammation caused by iliopsoas abscess secondary to a sacral pressure ulcer is reported. The patient was treated with a computed tomography-guided aspiration; Escherichia coli was isolated from the pus of the ulcer and abscess sites. The abscess completely resolved within 2 weeks but another abscess developed. Following surgery and daily cleansing, the drainage tube was removed after 1 week. Once granulation tissue formation was sufficient, the sacral wound was covered with gluteal fasciocutaneous rotation flaps 6 weeks after admission. The wounds closed and the patient made a full recovery within 2 months. Early recognition followed by immediate drainage of pus and appropriate antibiotic therapy are essential to the treatment of these wounds. Experience confirms that computed tomography-guided aspiration is useful and may be less damaging than surgical debridement.

KEYWORDS: iliopsoas abscess, pressure ulcer, computed tomography-guided aspiration

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Iliopsoas abscess is a life-threatening infection usually associated with urinary tract infections, Crohn’s disease, spinal tuberculosis, or a septic hip joint.1-4 Secondary iliopsoas abscess tends to develop in spinal cord injury patients because hip joint infection sometimes occurs as a result of a deep ischial pressure ulcer. Rubayi et al1 reviewed the records of 72 patients with iliopsoas abscess; nine were spinal cord injury patients. When iliopsoas abscess develops secondary to a pressure ulcer, it usually is caused by an ischial pressure ulcer because ischial infection can extend to the hip joint and iliopsoas muscles. Thus, iliopsoas abscess originating in a sacral pressure ulcer is considered unusual.1,2

To increase knowledge of this infrequent but challenging condition, a case study is presented of a 78-year-old bedridden, malnourished woman with iliopsoas abscess secondary to a sacral pressure ulcer that was successfully treated with computed tomography (CT)-guided aspiration, wound drains, and antibiotics.

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The guided aspiration is thought to have decreased risk for surgical and postsurgical complications and can be considered a viable option in fragile iliopsoas patients.

**Case Report**

**History.** Ms. K was a 78-year-old woman who had been referred to an emergency unit of the National Hospital Organization Nagasaki Medical Center and subsequently referred to the Department of Plastic and Reconstructive Surgery for treatment of a high fever and a sacral pressure ulcer of 2 months' duration. She had been bedridden at home due to senility; she had no other comorbidities other than her body was succumbing to old age and inactivity. She presented at a local clinic with a temperature of 39° C of 2 days’ duration and was admitted for 3 days. Before transfer to the hospital, computed tomographic (CT) examination in the clinic demonstrated an iliopsoas abscess.

During the first examination in the hospital, Ms. K was found to be malnourished (body weight, 35 kg) and febrile (39.4° C). She had a sacral pressure ulcer with a subcutaneous cavity 20 cm in diameter (see Figure 1). She was taken to the emergency unit and provided treatment with high-dose intravenous antibiotics (clindamycin — 600 mg every 12 hours and cephazolin— 2 g every 12 hours) and immunoglobulin. A second CT scan was performed immediately after arrival in the authors' unit that showed destroyed sacral bone and abscesses in the iliopsoas muscle and beneath the gluteal muscles (see Figure 2a, b). These abscesses seemed to be interconnected through fistulae. Hematological studies revealed a white blood cell...
(WBC) count of 11.6x10^9/L and a marked increase in C-reactive protein (CRP) level (11.2 mg/dL), indicating severe inflammation.

**Treatment.** The infected right buttock skin was immediately incised and yellowish pus was aspirated (see Figure 3). The infected muscle and subcutaneous soft tissue were debrided and the wound cleansed with saline. Computer tomography-guided aspiration of the iliopsoas abscess yielded 20 mL of pus. Remaining purulent fluid was drained continuously though a drainage tube inserted into the cystic cavity of the abscess (see Figure 4). *Escherichia coli* was isolated from the buttocck and the iliopsoas abscess. The iliopsoas abscesses were irrigated with 2 L saline twice a day for 2 weeks. The condition of the wound and the patient's general health improved as reflected by her laboratory data (see Figure 5). Subsequent CT scan revealed that the abscess had almost completely resolved within 2 weeks (see Figure 6).

Fourteen days after admission, an abscess developed on Ms. K's left hip, previously healthy when initially examined (see Figure 7). Her WBC count increased to 12.3x10^9/L and her CRP level increased to 11.2 mg/dL, indicating an acute relapse of infection. Emergency surgery was performed immediately to remove all purulent fluid and infectious tissue on the left hip. The entire cavity was left widely open and cleansed every day per previous protocols while Ms. K received an intravenous antibiotic (imipenem; 0.5 g every 8 hours) according to antimicrobial susceptibility tests — ie, continuous provision of cephazolin and clindamycin had no effect when infection relapsed.

Ms. K's condition improved after these treatments and the iliopsoas drainage tube was removed 1 week later. After a clean granulating wound bed was achieved, the sacral wound was covered with gluteal fasciocutaneous rotation flaps 6 weeks after admission to close the largest wound as quickly as possible (Figure 8). The clinical course is shown in Figure 5.

All of the wounds closed and Ms. K made a full recovery within 2 months (see Figure 9). She was discharged 10 weeks after admission and has been living at home without relapse for 1 year.

**Discussion**

Iliopsoas abscess is an aggressive and potentially life-threatening infection, usually associated with urinary tract infections, Crohn's disease, spinal tuberculosis, or a septic hip joint including infection of the hip replacement. The mortality rate is reported to be 18% to 20%. Patients with spinal cord injury are at increased risk for developing iliopsoas abscess because of the potential for deep bursae of ischial pressure ulcers.
The patient presented here had a sacral pressure ulcer in the absence of spinal cord injury and ischial pressure. It was unusual for an iliopsoas abscess to have originated from a sacral deep pressure ulcer that caused severe osteomyelitis of the sacrum and coccyx. Clinicians theorized that the direct destruction of these bones allowed infection to spread to the pelvic space and cause the iliopsoas abscess.

Iliopsoas abscess caused by hip joint infection cannot be treated easily — ie, by debriding only the original wound alone. Treatment must include drainage or resection of the abscess. Rubayi et al reported that of five patients with iliopsoas abscess secondary to a hip joint pressure ulcer they studied, two underwent open surgical debridement and three underwent CT-guided aspiration, a method used to localize an iliopsoas abscess and to direct percutaneous drainage, thereby avoiding risk of injury to neurovascular structures and the bowel. In Rubayi’s patients, CT-guided aspiration of the abscess was performed and drainage catheters placed, followed by myocutaneous flap coverage. All five patients improved quickly with no differences in outcome between both open surgical debridement and CT-guided aspiration. However, the two patients who underwent surgical debridement lost a substantial amount of blood and required blood transfusion. Thus, CT-guided aspiration provides lower morbidity than conventional surgical treatment and is recommended especially for the patients in poor general condition.

Ms. K’s general condition was poor at the first examination owing to sepsis and malnutrition but the iliopsoas abscess required immediate drainage. Computed tomography-guided aspiration of the abscess was chosen instead of an open procedure to minimize surgical risk, including general anesthesia and blood loss. With the pus drained, Ms. K’s intra-abdominal infection soon resolved and her condition improved.

Infection. Secondary iliopsoas abscess is usually caused by enteric bacteria, including *E. coli*, *Streptococcus* species, *Enterobacter* species, and *Salmonella enteridis*. Zervos reviewed the etiology of pelvic infections and recommended combination therapy, such as an intravenous cephalosporin plus clindamycin, as a parenteral regimen for severe intra-abdominal or pelvic infection. Ms. K’s clinicians followed this regimen, treating her with cephalozolin and clindamycin, which contributed to the healing of the abscess.

Early recognition followed by immediate drainage of pus and provision of appropriate antibiotic therapy are essential and represent the only treatment for these aggressive infections. This case study confirms earlier reports that computer tomography-guided aspiration of the abscess is effective.
Conclusion

An unusual iliopsoas abscess that developed secondary to a sacral pressure ulcer was treated successfully with a CT-guided aspiration instead of radical surgery. Early diagnosis followed by immediate drainage of pus and appropriate antibiotic therapy are essential when treating iliopsoas abscess. Computed tomography-guided aspiration is a useful, effective, and less-invasive procedure and can be a viable option for patients in poor general condition.

References


Figure 6. A CT scan on day 14 showed the abscess had completely resolved.

Figure 7. A CT scan on day 14 showed that another abscess had developed on the left gluteal muscle (arrow).

Figure 8. Sacral wound view 6 weeks after admission showing granulation tissue over the entire wound bed.

Figure 9. View of the buttock 2 months after admission. Gluteal fasciocutaneous rotation flaps had been used to cover the pressure ulcer.