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Midline extraperitoneal approach for bilateral widespread retroperitoneal abscess originating from anorectal infection



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ABSTRACT

INTRODUCTION: Anorectal abscess is one of the most common anorectal conditions encountered in practice. However, such abscesses may rarely extend upward and cause life-threatening medical conditions. **PRESENTATION OF CASE:** A 53-year-old woman presented with symptoms of anorectal abscess and evidence of severe inflammatory response and acute kidney injury. Computed tomography revealed a widespread abscess extending to the bilateral retroperitoneal spaces. Surgical drainage was performed via a totally extraperitoneal approach through a lower midline abdominal incision, and the patient had a rapid and uncomplicated recovery.

DISCUSSION: Although retroperitoneal abscesses originating from the anorectal region are rare, they are life-threatening events that require immediate treatment. Percutaneous abscess drainage has been recently evolved; however, surgical drainage is required sometimes that may be challenging, particularly in the case of widespread abscesses, as in our case.

CONCLUSION: The midline extraperitoneal approach reported here might be an effective surgical option for patients with bilateral widespread retroperitoneal abscesses.

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1. Introduction

Anorectal abscesses usually result from infections arising in the cryptoglandular epithelium lining the anal canal [1]. Most abscesses develop below the level of the levator muscles and may drain and resolve spontaneously. The infection occasionally may spread into the levator muscles [2]. However, the infection spreading into the retroperitoneal space is an extremely rare event. We report a case of anorectal abscess widespread to retroperitoneal spaces and that was treated successfully by emergency surgery and intensive therapy.

2. Presentation of the case

A previously healthy 53-year-old woman presented to our hospital with a 1-month history of progressive anal pain and general fatigue. She had no significant comorbidities or history of previous surgeries. On physical examination, her vital signs showed mild tachycardia with a heart rate of 118 beats/min, low blood pressure of 80/60 mmHg, respiratory rate of 18 breaths/min, oxygen saturation of 94% on room air, and temperature of 37.6°C. She had

significant redness and swelling in the perianal region and had diffuse lower abdominal tenderness. Laboratory tests showed a significantly elevated white blood cell count of 20,400/mm³ and C-reactive protein level of 55 mg/L, and there was evidence of acute kidney injury, including very high levels of urea nitrogen (65.8 mg/L) and serum creatinine (5.51 mg/L). History and perianal findings suggested that the infection originated from the anorectal area. However, all examination results suggested that the infection extended more deeply. Abdominal computed tomography (CT) revealed a bilateral widespread retroperitoneal abscess reaching to the upper abdomen (Fig. 1).

Surgical intervention was chosen on admission day without attempting a conservative treatment beforehand, because percutaneous drainage was assumed to be insufficient in improving the patient's condition. A vertical lower incision was made in the lower abdomen and the extraperitoneal space was exposed upward bilaterally (Figs. 2 and 3). On entry into the extraperitoneal cavity, copious pus was drained from the deep spaces, and we were able to adequately drain and irrigate the entire infected retroperitoneal space without an unnecessary peritoneal incision. Three double-lumen sump drains were placed into the abscess cavity, and the surgical wound was closed primarily. Subsequently, incision and drainage of the perianal abscess was performed in a standard manner. The patient was admitted to the intensive care unit (ICU) immediately after the surgery and received continuous

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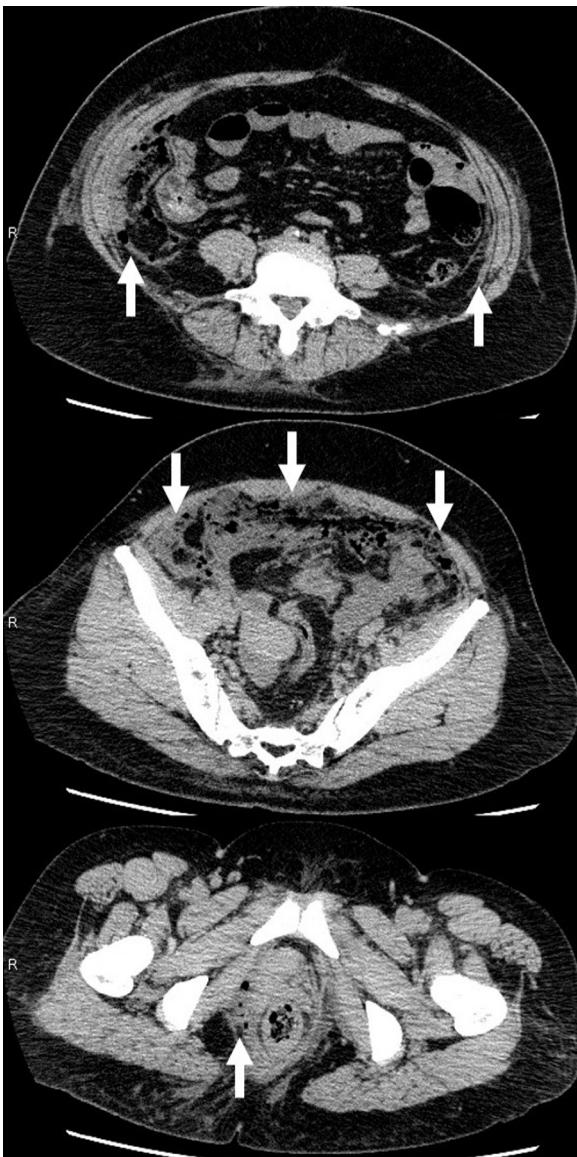


Fig. 1. Abdominal CT scans showing the bilateral widespread retroperitoneal abscess extending from the anorectal region.

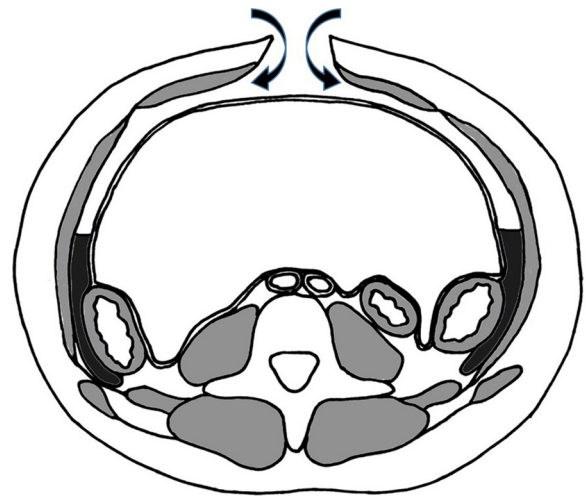


Fig. 3. Illustration of the midline extraperitoneal approach to the retroperitoneal space.

renal replacement therapy in conjunction with endotoxin adsorption until the following day. Consequently, her general condition improved rapidly, and she was discharged from the ICU to a general ward at 5 days postoperatively. *Bacteroides ovatus* and *Streptococcus milleri* were isolated from the abscess culture, and the initial antibiotic therapy of meropenem was subsequently changed to oral metronidazole. The retroperitoneal cavity was irrigated continuously for several days postoperatively, during which the effluent from drains was clear. Postoperative CT scans demonstrated near complete disappearance of the retroperitoneal abscess (Fig. 4). The drains were removed sequentially until 3 weeks following the surgery, and the infection did not recur. The patient was discharged from the hospital in good condition at 1.5 months postoperatively.

3. Discussion

Retroperitoneal abscesses are unusual clinical problems that often pose a significant diagnostic and therapeutic challenge [3]. Their rarity and insidious clinical manifestations can lead to a delay in diagnosis, which may lead to a worse outcome. Most patients present insidiously with nonspecific symptoms, such as malaise, fever, nausea, and weight loss. Treatment should include the drainage of abscesses and use of intravenous antibiotics. In some cases, anatomical difficulties may preclude adequate drainage of the abscess. In recent years, percutaneous abscess drainage has

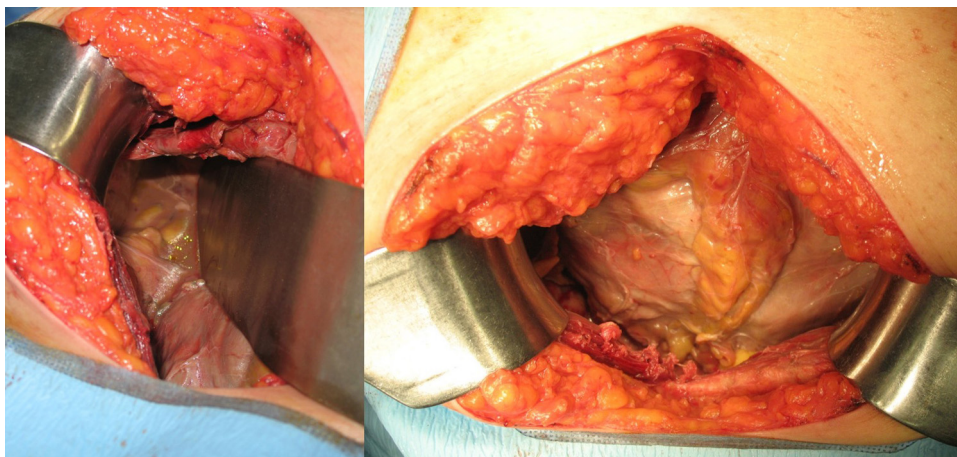


Fig. 2. Intraoperative photograph shows that the retroperitoneal space was approached through a lower abdominal midline incision.

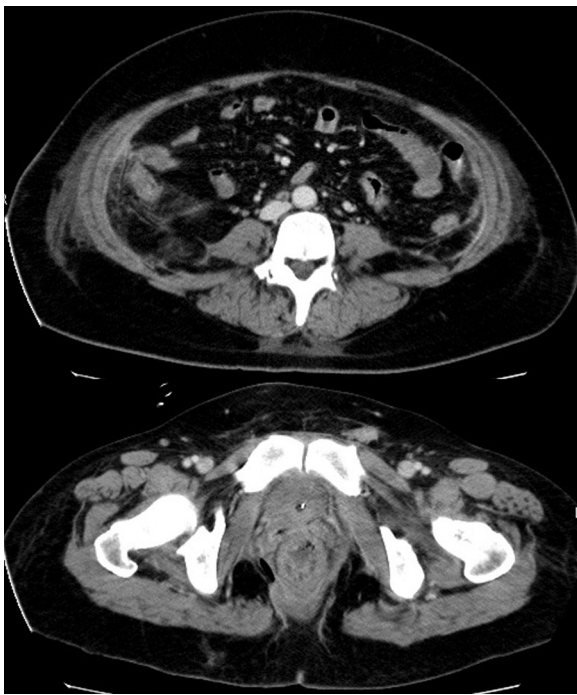


Fig. 4. Postoperative CT scans demonstrate near complete disappearance of the retroperitoneal abscess.

been evolved, replacing open surgical drainage in all the cases except for the most difficult ones [4].

Retroperitoneal abscesses can develop because of the spread of an infection from the adjacent organs. Known causes of retroperitoneal abscesses include renal infections [3], osteomyelitis [5], colon carcinoma [6], diverticulitis [7], Crohn's disease [8], pancreatitis [9], and appendicitis [10]. Anorectal abscesses resulting from anal gland infection are usually located below the puborectalis muscle, which exerts a strong pressure preventing superior extension of the abscess. If left untreated, an anorectal abscess may extend upward to the supralelevator space [2]. The incidence of supralelevator abscess was reported to be 0–7.5% in several large series [11–14]. However, the potentially lethal spread of the infection into the retroperitoneum is an extremely rare consequence of anorectal abscesses; thus, only sporadic cases have been reported [2,15].

Our patient developed bilateral upward spread of an anorectal abscess into the retroperitoneal spaces. Percutaneous drainage was considered inadequate because of widespread infection, and therefore, we performed surgical drainage. The surgical approach to a retroperitoneal abscess is usually performed via an extraperitoneal flank incision with the patient in the lateral decubitus position [3]. Transperitoneal drainage should be avoided as contamination of the peritoneal cavity would lead to generalized peritonitis. We used the totally extraperitoneal approach through a single midline vertical incision in the lower abdomen. This anterior retroperitoneal approach is typically used for lumbar spine procedures [16] and also for reconstruction of the abdominal aorta and iliac arteries [17], repair of obturator hernia [18], retroperitoneal lymph node dissection [19], and urinary tract surgery [20]. In our case, the anterior midline approach enabled us to drain and irrigate extensively the bilateral retroperitoneal abscess without intra-abdominal manipulation. Surgical wound infection was not observed, probably because of the distance between the incision site and the area of abscess. To the best of our knowledge, drainage of a retroperitoneal abscess using this approach has not been reported previously. This

method may be useful particularly in cases of bilateral retroperitoneal abscess requiring surgical drainage.

4. Conclusion

Retroperitoneal abscesses are potentially life-threatening conditions that must be treated by effective abscess drainage. Although percutaneous drainage has gained popularity in recent years, some difficult cases are required to be drained surgically. The midline extraperitoneal approach reported here might be an effective surgical option, particularly for bilateral widespread retroperitoneal abscesses.

Conflicts of interest

All authors have no conflict of interest.

Funding

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Ethical approval

Ethical approval not required.

Author's contribution

Koji Okuda was a clinician in charge, and wrote the manuscript. Yuka Oshima, Kentaro Saito, Takahiro Uesaka, Yasunobu Terasaki, Hironori Kasai, Nozomi Minagawa, Takahiro Oshima, Yumi Okawa, and Kazuhito Misawa were clinicians in charge.

Consent

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

Guarantor

Koji Okuda.

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