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CASE REPORT

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Sigmoid Colon Perforation into an Infected Pelvic Lymphocele after Pelvic Lymphadenectomy and Radiotherapy for Recurrent Endometrial Cancer: a Rare Diagnostic and Therapeutic Challenge

Loizos HADJIGEORGIOU[a], Melina YEROLATSITE[b], Georgios LIANOS[a], Dimitrios SCHIZAS[c], Michail MITSIS[a, d], Konstantinos VLACHOS[a], Vasileios TATSIS[a, d]

[a]Department of General Surgery, University Hospital of Ioannina, Ioannina, Greece

[b]Department of Medical Oncology, University Hospital of Ioannina, Ioannina, Greece

[c]First Department of Surgery, National and Kapodistrian University of Athens, Laikon General Hospital, Athens, Greece

[d]Transplantation Unit, University Hospital of Ioannina, Ioannina, Greece

ABSTRACT

Introduction: *Lymphocele formation is a common complication after pelvic lymphadenectomy and is usually asymptomatic. In rare cases, secondary infection may occur and lead to severe complications.*

Case report: *We report the case of a 64-year-old woman who developed an infected pelvic lymphocele complicated by perforation of the sigmoid colon following pelvic lymphadenectomy and radiotherapy for endometrial cancer recurrence. The patient required emergency surgery, followed by targeted antimicrobial and antifungal therapy, which resulted in favorable clinical outcomes.*

Conclusion: *This case highlights a rare but life-threatening complication of pelvic lymphocele, emphasizing the importance of early recognition and timely surgical management.*

Keywords: lymphocele, intestinal perforation, pelvic infection, endometrial neoplasms, radiotherapy, surgical procedures, operative.

Address for correspondence:
Loizos Hadjigeorgiou. Department of General Surgery, University Hospital of Ioannina, Ioannina, Greece, 45500
Email: loizoshadjigeorgiou@gmail.com
Tel: +306998433913

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HIGHLIGHTS

- Initially sterile lymphoceles may become secondarily infected months after surgery, particularly in previously irradiated pelvises.
- Perforation of the sigmoid colon into an infected pelvic lymphocele is an exceptionally rare but potentially life-threatening complication following pelvic lymphadenectomy.
- Ultrasonography is the first-line technique for detecting pelvic lymphoceles, while contrast-enhanced computed tomography confirms the diagnosis and differentiates it from other postoperative collections.
- The coexistence of lymphocele infection and enteric communication represents a major therapeutic challenge requiring prompt surgical management.
- Timely surgical source control combined with culture-directed antimicrobial and antifungal therapy is crucial for achieving favorable clinical outcomes.

INTRODUCTION

Pelvic lymphocele is a well-recognized postoperative sequela of lymphadenectomy performed for gynecologic or urologic malignancies as well as after renal transplantation (1). Prospective cohort studies evaluating patients undergoing pelvic and/or para-aortic lymphadenectomy for gynecologic malignancies report an overall incidence of approximately 20% (1). Despite this relatively high incidence, most lymphoceles remain clinically silent and are detected incidentally during postoperative follow-up, whereas symptomatic lymphoceles occur in a considerably smaller proportion of patients, which is estimated at approximately 5–6% (1).

Progression of an infected lymphocele to fistulization with adjacent bowel is exceedingly rare. A previously reported case described a fistulous communication between a pelvic lymphocele and the sigmoid colon detected on computed tomography (CT) imaging two months after pelvic surgery (2).

In the present report, we describe a more severe clinical course in a previously irradiated pelvis, in which an infected lymphocele progressed to sigmoid rupture, necessitating emergency surgical source control.

CASE REPORT

Patient information

This case is presented in accordance with CARE (Case Report) guidelines (3).

A 64-year-old woman with a history of hypothyroidism and endometrioid endometrial carcinoma (grade 2, pT1a/FIGO stage IA), who underwent surgical treatment four years earlier, presented to the emergency department with a seven-day history of fever reaching 39.1°C and persistent left lower quadrant abdominal pain. Six months earlier, she underwent surgical excision of a vaginal cuff recurrence along with pelvic lymphadenectomy, which was followed by adjuvant pelvic radiotherapy consisting of seven fractions completed two months ago. Prior outpatient treatment with oral ciprofloxacin had resulted in only partial and temporary relief of symptoms.

Clinical findings

On admission, physical examination revealed mild abdominal distension and localized tenderness in the left iliac fossa, accompanied by reduced bowel sounds. There were no clinical signs of generalized peritonitis.

Diagnostic assessment

Laboratory evaluation demonstrated leukocytosis, with a white blood cell count of 13.25×10^9/L and neutrophil predominance (91.6%), as well as markedly elevated C-reactive protein levels (331 mg/L). Urinalysis was unremarkable. Contrast-enhanced CT of the abdomen and pelvis revealed a large hypodense fluid collection measuring 10.8 × 11.1 × 12.6 cm in the left pelvis, with a thin enhancing wall and close anatomical proximity to the iliac vessels and sigmoid colon (Figure 1). The collection exerted mild compression on the left ureter without causing hydronephrosis and was associated with inflammatory changes in the surrounding fat. At the time of imaging, the patient was approximately six months post-lymphadenectomy and two months after completion of pelvic radiotherapy.

On hospital day 3, CT-guided percutaneous drainage of the collection was performed, yielding clear yellow fluid, and a drainage catheter was placed. Biochemical analysis of the aspirated fluid did not demonstrate clinically significant differences compared to serum values

(urea: 28 mg/dL, creatinine: 0.73 mg/dL, triglycerides: 16 mg/dL, amylase: <10 IU/L, total bilirubin: 0.2 mg/dL, total protein: 1.8 g/dL). Initial microbiological cultures yielded no growth, while cytological examination demonstrated lymphocytes, histiocytes and neutrophils, without evidence of malignant cells. Despite initial treatment, follow-up ultrasonography performed on hospital day 9 demonstrated persistence of a thick-walled septated collection.

On hospital day 10, feculent material was observed in the drainage catheter. Repeat CT following oral and intravenous contrast administration revealed a residual abscess cavity measuring 7.2 × 5.0 × 7.9 cm in the left iliac fossa, along with a fistulous communication between the sigmoid colon and the collection, consistent with sigmoid perforation into the infected cavity (Figure 2).

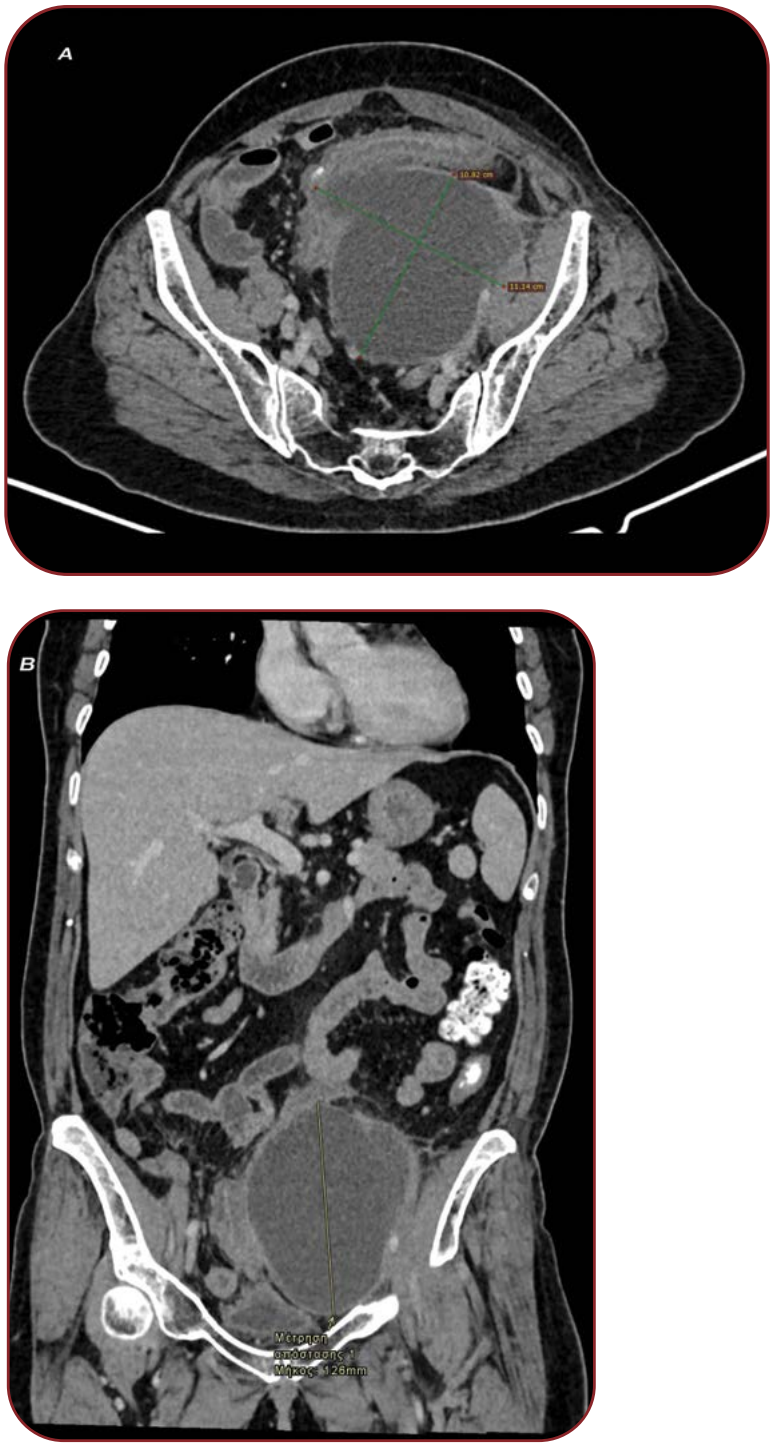

FIGURE 1. (A) Axial and (B) coronal contrast-enhanced computed tomography (CT) images of the abdomen and pelvis showing a lymphocele (10.8 × 11.1 × 12.6 cm) in the left pelvis, in close proximity to the iliac vessels and sigmoid colon

Therapeutic intervention

Empirical broad-spectrum intravenous antibiotic therapy with ceftazidime–avibactam and metronidazole was initiated upon admission. Due to persistent low-grade fever, antimicrobial therapy was subsequently escalated to meropenem. Computed tomography-guided percutaneous drainage was performed on hospital day 3 as an initial source control strategy.

Following the identification of enteric communication, emergency laparotomy was performed on hospital day 10. The surgical procedure included sigmoidectomy with Hartmann's procedure, peritoneal fenestration (marsupialization), drain placement, and peritoneal lavage.

Follow-up and outcomes

Postoperative cultures obtained from operative specimens and drainage fluid grew vancomycin-resistant *Enterococcus faecium* and *Candida glabrata*. Targeted antimicrobial and antifungal therapy with linezolid and fluconazole was initiated following consultation with the infectious disease team. Antimicrobial and antifungal therapy was administered for 14 days intravenously followed by six days of oral treatment. The patient demonstrated gradual clinical and laboratory improvement, with normalization of inflammatory markers. Drain output remained consistently around 400 mL/day. The drain was clamped on postoperative day 8 and remained closed for two consecutive days. On postoperative day 11, it was reopened, yielding 100 mL, and subsequently removed. The patient was discharged in good clinical condition on the 16th postoperative day.

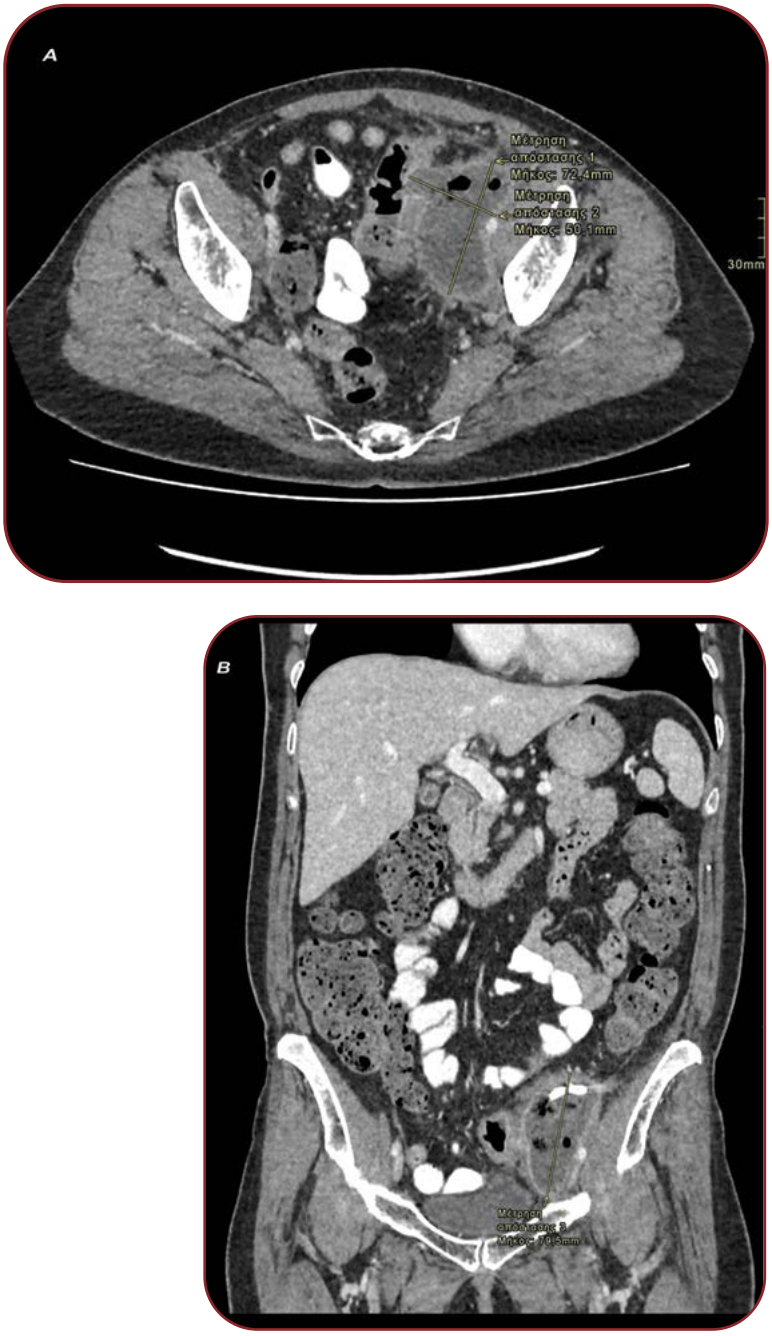

FIGURE 2. (A) Axial and (B) coronal contrast-enhanced computed tomography (CT) images of the abdomen and pelvis, seven days after percutaneous drainage of the collection, showing a residual abscess cavity (7.2 × 5.0 × 7.9 cm) in the left iliac fossa with a fistulous communication between the sigmoid colon and the collection, consistent with sigmoid rupture into the infected cavity

Timeline

The patient underwent primary surgical treatment for endometrial cancer four years earlier. Six months earlier, she underwent surgery for vaginal cuff recurrence combined with pelvic lymphadenectomy, followed by completion of pelvic radiotherapy two months earlier. Computed tomography-guided drainage was performed on hospital day 3. Persistent collection was noted on ultrasound on hospital day 9. On hospital day 10, feculent drainage prompted repeat imaging and emergency surgical intervention. The patient was discharged on the 16th postoperative day.

DISCUSSION

Pelvic lymphoceles are most commonly located along the pelvic sidewall, particularly on the left side along the external iliac vessels. Symptomatic collections tend to become clinically apparent earlier than asymptomatic ones, usually within the first postoperative months (1). When symptomatic, lymphoceles may cause significant postoperative morbidity or delay the continuation of oncologic treatment by exerting compressive effects on adjacent structures – such as the ureters, urinary bladder, rectum, or major pelvic vessels – leading to pain, hydronephrosis, urinary symptoms, or thrombotic complications. Secondary infection represents the most serious complication and may result in severe intra-abdominal infection requiring invasive management (1).

Several factors have been associated with an increased risk of developing symptomatic lymphoceles after lymphadenectomy, including extensive lymph node dissection, removal of a large number of lymph nodes, radical hysterectomy – particularly in patients with cervical cancer – and lymphadenectomy performed for ovarian malignancy. Additional contributing factors include insufficient ligation of lymphatic vessels, lymph node metastases, perioperative radiotherapy and the use of anticoagulants, although the available evidence remains inconsistent (1, 4).

Ultrasonography is typically the initial imaging modality for the detection of pelvic lymphoceles, while cross-sectional imaging – particularly CT – plays a central role in confirming the diagnosis, differentiating lymphoceles from other postoperative fluid collections (such as urinoma, hematoma, or abscess), identifying complications and guiding image-directed drainage when required (5).

The present case illustrates a rare but severe complication following pelvic oncologic surgery,

namely an infected pelvic lymphocele complicated by rupture of the sigmoid colon. In our patient, the initial drainage yielded clear, yellow-colored fluid with no significant biochemical abnormalities compared to serum values, negative cultures and cytological findings showing inflammatory cells, consistent with an initially sterile lymphatic collection. These findings support previous observations that lymphoceles may become secondarily infected weeks or months after surgery (6).

The appearance of feculent material in the drainage catheter represented a key clinical turning point and repeat CT imaging confirmed the presence of communication with the bowel. Fistulization between pelvic lymphoceles and the sigmoid colon has been reported only in isolated case reports, emphasizing the rarity of this complication (2).

In urological surgery and renal transplantation, laparoscopic peritoneal fenestration (marsupialization) is often considered a definitive treatment for symptomatic lymphoceles, as it creates a permanent communication between the lymphocele cavity and the peritoneal space, allowing continuous fluid absorption (7, 8). However, a fundamental requirement for this technique is the absence of infection, since internal drainage of an infected collection may lead to peritonitis (7, 9). In the present case, a major therapeutic challenge was the need for surgical management in the setting of an already infected lymphocele with enteric communication, which significantly increased management complexity.

The recommended initial management of symptomatic or complicated lymphoceles begins with image-guided percutaneous drainage, followed by sclerotherapy and/or surgical marsupialization, which are reserved for persistent, recurrent, or complicated cases (5, 10). In the present case, percutaneous drainage was appropriately performed initially; however, once enteric communication developed, emergency surgery was required to achieve adequate source control, which remains the cornerstone of treatment for complicated intra-abdominal infections (11, 12).

The isolation of vancomycin-resistant *Enterococcus faecium* and *Candida glabrata* is consistent with pathogens commonly encountered in healthcare-associated complicated intra-abdominal infections after perforation or major abdominal surgery, highlighting the importance of selecting antimicrobial and antifungal therapy based on culture results and the patient's clinical response (11, 13).

CONCLUSION

Pelvic lymphocele is a common postoperative finding after pelvic lymphadenectomy, but secondary infection and bowel communication are rare and serious complications. Imaging, particularly ultrasonography and computed tomography, plays a key role in diagnosis and treatment planning. Early recognition, prompt surgical source control and culture-directed antimicrobial therapy are essential to ensure favorable clinical outcomes. ❑

Availability of data and materials: All data generated or analyzed during this study are included in this published article.

Ethical approval: Written informed consent was obtained from the patient for publication of this manuscript and accompanying clinical data/images. This study was conducted in accordance with the Declaration of Helsinki and was approved by the Institutional Review Board of the University Hospital of Ioannina (Protocol code:237/27-3-2026).

Conflicts of interest: none declared.

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