

## CASE REPORT

# Surgical treatment of localised pelvic lymphocyst infection after radiotherapy for endometrial cancer

Qiucheng Jia<sup>1, #</sup>, Zhiyong Dong<sup>2, #</sup>, Huimin Tang<sup>1, #</sup>, Yao Chen<sup>3</sup>, Wulin Shan<sup>3</sup>, Bin Tang<sup>1</sup>, Weiwei Wei<sup>1</sup>, Ruxia Shi<sup>1</sup>, Bairong Xia<sup>3, \*</sup>, Jiming Chen<sup>1, \*</sup>

<sup>1</sup> Department of Gynecology, the Affiliated Changzhou Second Peoples Hospital of Nanjing Medical University, Changzhou 213000, Jiangsu Province, China

<sup>2</sup> Department of Gynecology, The First Affiliated Hospital of USTC, Division of Life Sciences and Medicine, University of Science and Technology of China, Hefei 230031, Anhui Province, China

## ABSTRACT

Endometrial cancer is mainly treated clinically by surgery, supplemented by postoperative radiotherapy. Pelvic and abdominal lymph node dissection is usually an important part of surgery, and one of the most common postoperative complications is lymph node cysts. Infection of cysts is very rare in clinical practice and can be cured mainly by anti-infection and puncture drainage. However, in this case, the patient was found to have a pelvic abscess due to radiating pain in the left lower limb, and the infection of the local lymphocyst was found to have formed a pelvic abscess, and laparoscopic open drainage was performed after puncture drainage with no improvement in symptoms. The patient recovered after surgery.

**Key words:** laparoscopic window drainage, lymphatic cyst infection, pelvic abscess

## CASE INTRODUCTION

The patient, female, 52 years old, married, G3P1, was admitted to hospital on October 19 2020 for “abdominal and lower limb pain for 1 month, 4 months after surgery for endometrial cancer”. The patient was diagnosed with endometrial thickening in an outside hospital on 2020-05-16, and postoperative pathology showed (endocervical and intrauterine) tendency to endometrial adenocarcinoma. Immunohistochemistry: cytokeratins (CKpan, partly +), cytokeratin7 (partly +), vimentin (+), estrogen receptor (+), progesterone receptor (+), P53 (+), Wilms tumor-1 (-), Ki-67 (+, 60%). On May 29 2020, we performed “laparoscopic hysterectomy with wide uterine margin + laparoscopic bilateral

oophorectomy and salpingo-oophorectomy + Laparoscopic high ovarian artery ligation + laparoscopic pelvic adhesiolysis + laparoscopic pelvic lymph node dissection + laparoscopic peritoneal lymph node dissection” in the Affiliated Changzhou Second Peoples Hospital of Nanjing Medical University. Postoperative pathology suggested: (endocervical, uterine cavity) endometrioid adenocarcinoma, moderately differentiated, depth of infiltration > 1/2 muscle layer, bilateral parietal uterus and bilateral ovary had no cancer involvement, and there was no cancer metastasis in the lymph nodes, and no tumour cells were found in the ascites. According to the postoperative pathological staging, the patient was diagnosed with stage II endometrial cancer. After surgery, the patient underwent two courses of

<sup>#</sup>These authors contributed equally to this work.

### \*Corresponding Author:

Jiming Chen, Department of Gynaecology, Yanghu Campus, The Second People's Hospital of Changzhou Affiliated to Nanjing Medical University, 68 Gehu Middle Road, Wujin District, Changzhou 213000, Jiangsu Province, China, Email: cjming@126.com; <http://orcid.org/0000-0002-0238-9158>

Received: 27 January 2024; Revised: 16 March 2024; Accepted: 17 March 2024

<https://doi.org/10.54844/cif.2024.0538>

intravenous chemotherapy with “Paclitaxel liposome + Carboplatin” in our hospital, which went well without any obvious side effects. In September 2020, the patient received 25 radiotherapy sessions in our hospital, and the patient felt pain in the left lower abdomen, accompanied by radiating pain in the left lower limb after the end of radiotherapy, and she was given painkillers, but there was no obvious effect. On October 19 2020, the patient visited the gynaecology department of our hospital and was recommended to be hospitalised for examination. Admission to hospital recommended.

**Physical examination:** Cervix, uterus, adnexal resection status, thickening sensation in the left adnexal area with pressure pain. no percussion pain in the spine or kidney area, pressure pain in the medial left lower limb, no redness, swelling, varicose veins.

**Ancillary investigations:** Ultrasound + Doppler (lower extremity arteries): both lower extremity arteries were patent. Colour pelvic ultrasound: anechoic left iliac fossa, about 4.7 cm × 4.3 cm, with punctate echoes and poor translucency. PET-CT: left pelvic cystic foci, lymphocysts with infection (Figure 1). Blood count: haemoglobin 78 g/L. Blood culture: negative.

**Treatment process:** Combined with the patient’s medical history, physical examination, admission imaging and other ancillary examinations, the preliminary diagnosis of “pelvic mass, uterine malignancy, anaemia”, the proposed Federal Tazocine infection conservative treatment, polysaccharide iron complex capsule to correct the anaemia. The patient underwent ultrasound-guided puncture and drainage of the cyst on October 23 2020, and the puncture and drainage showed purulent discharge, which was sent for bacterial culture, suggesting no bacteria. During conservative treatment, the patient was hypothermic, with a maximum temperature of 37.7°C. On October 28 2020, the patient’s temperature rose to 38.8°C without any obvious trigger, and the haemoglobin was 58 g/L, suggesting severe anaemia. The pharmacy department suggested an upgrade of antibiotics, and the patient was given imipenem for infection control and blood transfusion. After multidisciplinary consultation and preoperative preparation, she underwent laparoscopic exploration and laparoscopic bowel adhesiolysis on November 6 2020.

**Intraoperative view:** The right obturator nerve, external iliac artery and internal iliac artery were exposed laparoscopically (Figure 2A), and the bowel at the left iliac fossa and iliac fossa was tightly adherent (Figure 2B). After sharp separation of the bowel and pelvic wall adhesions with the ultrasonic knife, the left sigmoid colon, small bowel and dense adhesions at the left iliac fossa were sequentially coagulated to explore the abscess

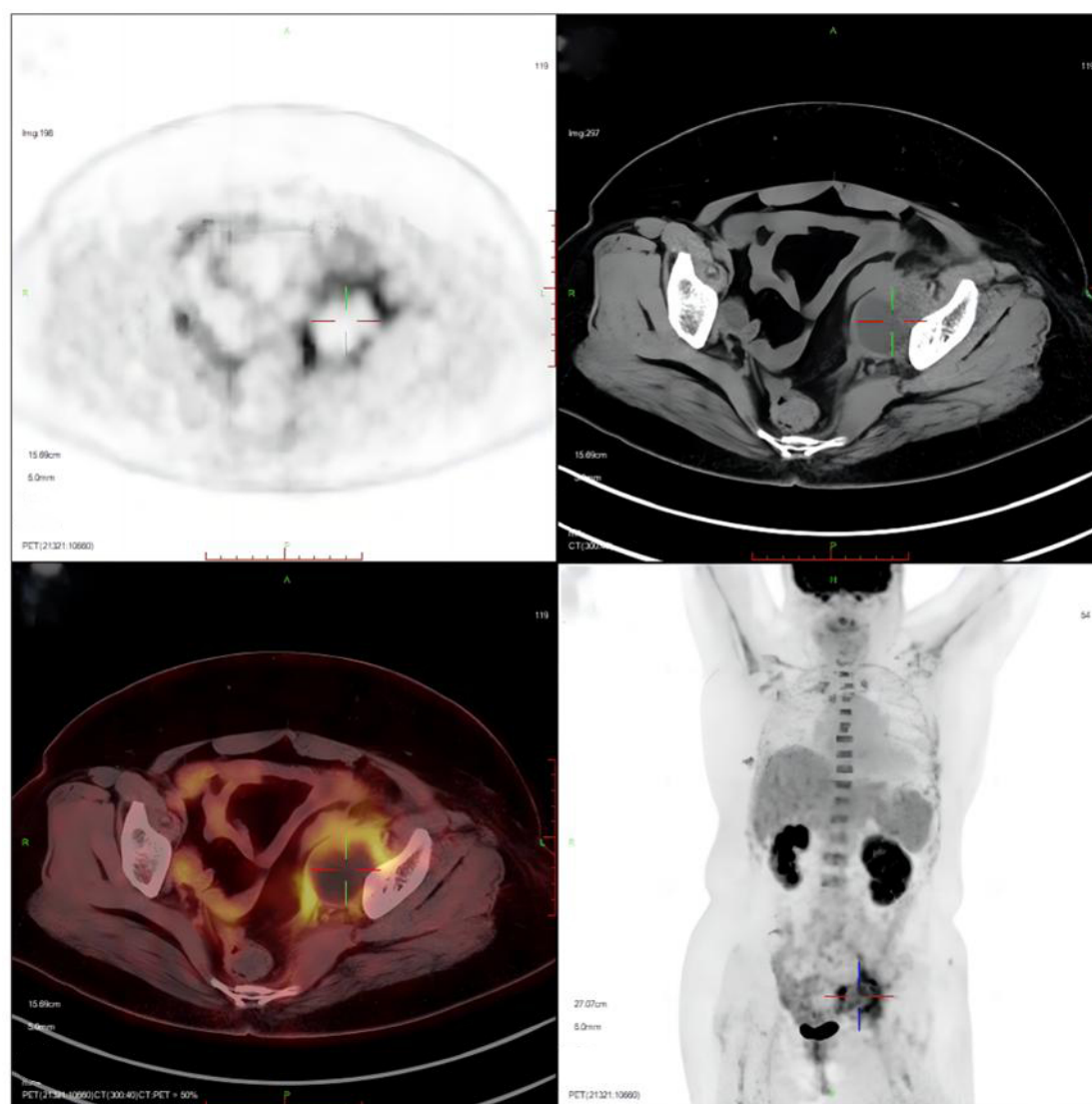
cavity. The ultrasonic knife enlarged the window of the abscess cavity, and an abscess measuring approximately 4 cm × 5 cm × 4 cm was seen (Figure 2C). After suctioning the abscess cavity, the wall of the condensed milky abscess cavity was clamped with curved dissecting forceps, the obturator nerve was released, and the cystic cavity was completely irrigated. Local bleeding during surgery was stopped by bipolar electrocoagulation or #1 absorbable suture. Finally, the pelvic cavity was repeatedly irrigated, and after examination of the pelvic and abdominal cavities without any obvious abnormalities (Figure 2D), an abdominal drainage tube was placed in the left iliac fossa.

**Postoperative situation:** After the operation, the patient continued to be treated with anti-infection, haemostasis, fluid transfusion and prophylaxis of venous thrombosis of the lower limbs, and received blood and albumin transfusion because her haemoglobin was 64 g/L and her albumin was 26.7 g/L after the operation. After the operation, the patient had no obvious discomfort, and the abdominal pain and bilateral lower limb pain improved significantly. The patient was followed up regularly and no recurrence of the tumour or abscess was observed.

## DISCUSSION

Currently, the common clinical treatments for gynaecological malignancies are mainly surgical, supplemented by postoperative radiotherapy and other treatments, of which pelvic and abdominal lymph node dissection is an important part of surgical treatment. Lymph node cysts, as one of the most common complications of lymph node dissection, have an incidence of 23% to 65%.<sup>[1]</sup> Its clinical manifestations are mostly related to the volume and location of the cyst and the degree of compression of the surrounding tissues, *e.g.* it may cause constipation if it compresses the wall of the bowel, frequent urination if it compresses the bladder, radiating pain in the lower limbs if it compresses nerves such as the obturator nerve, and so on. If combined with an infection, it can cause fever and lower abdominal pain. A cystic mass in the pelvic fossa may be palpated with tenderness during gynaecological double or triple diagnosis.<sup>[2]</sup>

Lymphocyst formation is influenced by a number of factors, including (1) the extent of lymphadenectomy and the number of lymph nodes removed. A total of > 27 resected lymph nodes has been shown to be an independent risk factor for the formation of symptomatic lymphocysts, and the incidence of lymphocyst infection is higher in patients undergoing pelvic and aortic lymph node dissection.<sup>[3]</sup> The patient in this case had 2 presacral lymph nodes, 11 para-aortic lymph nodes, 12 left pelvic lymph nodes and 9 right



**Figure 1.** The result of positron emission tomography (PET-CT). Suggestive of left pelvic cystic foci surrounded by patches of irregular soft tissue with increased glucose metabolism, consider lymphocysts with infection.

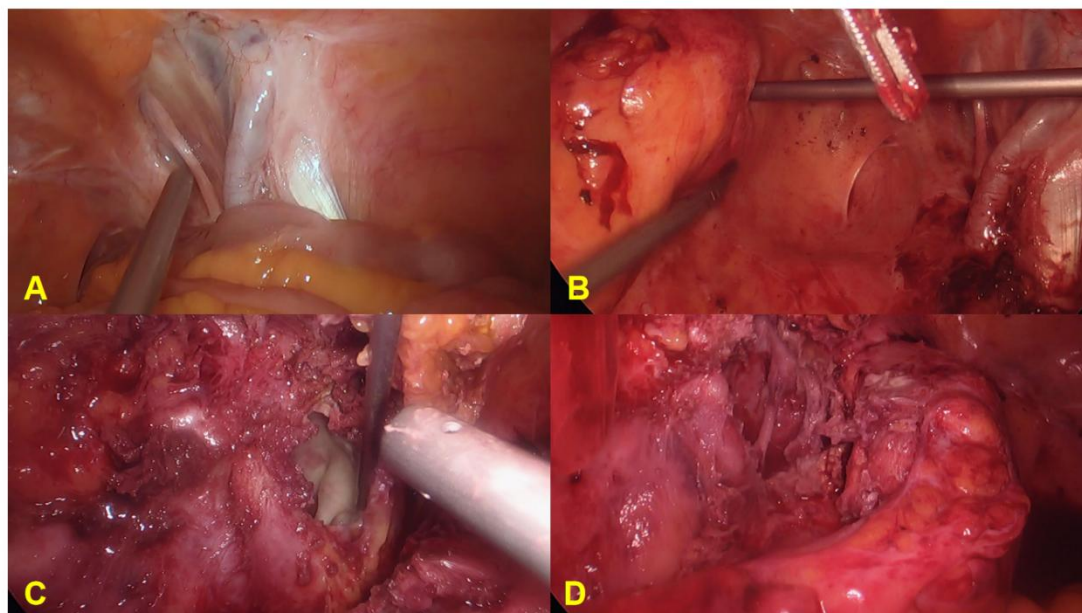
pelvic lymph nodes removed, which is large in size and number, increasing the likelihood of lymphocyst formation and providing an opportunity for cyst infection. (2) Surgical management: keeping the retroperitoneum open allows lymphatic fluid to drain and be absorbed by the peritoneum and omentum, reducing the risk of postoperative lymphatic fluid accumulation and infection.<sup>[4]</sup> (3) Radiotherapy and chemotherapy: the above treatments stimulate the peritoneum, affecting its absorptive function and disrupting the balance between exudation and absorption, and the treatment affects the development of new lymphatic vessels, leading to delayed absorption of lymphatic fluid and resulting in cysts. (4) Serum albumin: Decreased serum albumin increases vascular colloid osmotic pressure, increases tissue fluid exudation and is a high risk factor for pelvic abscess formation.<sup>[5]</sup> (5) Other factors: such as the patient's age, body mass

index (BMI), *etc.*

Although lymphocyst formation is the most common complication following resection of gynaecological malignancies, infected lymphocysts are rare, with a probability of only 1.5% to 4%.<sup>[6]</sup> In this case, the patient was 52 years old, with an overweight body type, BMI 33 kg/m<sup>2</sup> and had undergone a major lymph node dissection 4 months previously, after which the patient was moderately anaemic and had an albumin of only 26 g/L, which are high risk factors for cyst infection. In addition, the patient had undergone several post-operative radiotherapy and chemotherapy regimens that were highly susceptible to lymphocyst infection.

Diagnosis of lymphocyst infection often involves routine blood tests, puncture of the cystic duct, which suggests bacterial infection, and imaging such as





**Figure 2.** Intraoperative iliac fossa structure. **A.** Bare obturator nerve, external iliac artery and internal iliac artery are seen in the right iliac fossa; **B.** Sigmoid colon is tightly adherent to the pelvic wall in the left iliac fossa; **C.** An abscess cavity is seen in the left iliac fossa with the obturator nerve immersed in the pus; **D.** Separation of adherent adhesions and removal of abscesses in the left iliac fossa, where the internal iliac artery, obturator nerve and external iliac artery are clearly visible.

ultrasound and nuclear magnetic resonance imaging. In this patient, abdominal pain, fever, ultrasound suggests a pelvic mass, PET-CT suggests a lymphocyst with infection, although his white blood cells showed no obvious abnormalities, but because of his pre-admission radiotherapy, which may be related to bone marrow suppression, the cyst infection is still considered. As lymphocyst infections are mostly gram-negative and gram-positive, we may favour anti-inflammatory and symptomatic treatment with broad-spectrum antibiotics before the patient's infection is mild or bacterial culture results are available. If the patient's conservative treatment is ineffective, or if the cyst is large and the compression symptoms are obvious, we can consider ultrasound-guided interventional puncture treatment, withdrawing the fluid from the infected lymphocyst cavity, injecting the saline with broad-spectrum antibiotics, and then performing sclerotherapy after the inflammation is well controlled. This patient was admitted to hospital for conservative treatment without significant improvement, and the cyst was large in size, combined with infection and nerve compression, resulting in radiating pain in the left lower limb, ultrasound-guided interventional puncture treatment was performed on the third day of anti-infection, and postoperative anti-infection and symptomatic support was still provided. If the patient's condition is stable, but there is no suitable interventional route, cannot avoid the surrounding intestinal vessels, blood vessels or lymph, the cyst infection forms a multicystic multilocular abscess, and the symptoms worsen after abscess

puncture, we can consider surgical treatment, and the first surgical treatment is laparoscopy.<sup>[7]</sup> In this case, after the patient was treated with interventional therapy, there was no significant improvement in abdominal pain and lower limb pain, and the temperature gradually increased and the inflammatory response worsened, and after upgrading antibiotic treatment without significant improvement, the abdominal ultrasound was reviewed and the size of the local effusion was still seen to be about 4.0 cm × 4.2 cm, so we considered switching to laparoscopic treatment.

Inflammation during surgery caused the patient's intestinal wall to be tightly attached to the iliac fossa, and the anatomical locations of the right-sided obturator nerve, external iliac artery, and internal iliac artery were still visible, but the left-sided obturator nerve and internal iliac artery formed pus cavities with the intestine wrapped around them, which became a mass. We first assessed the general orientation of the left-sided obturator nerve based on the anatomical location of the right side, and then performed the separation of the left-sided bowel adhesions, because the patient had undergone radiotherapy before admission, the surrounding tissue structure was more fragile, and it was easy to damage the blood vessels when separating the bowel adhesions, leading to bleeding. Therefore, we took care to avoid damaging the intestinal tubes, blood vessels and other important tissues and organs during the dissection process. When we separated and opened the abscess, we saw that the obturator nerve was in the

abscess, and it was not difficult to explain the patient's unbearable abdominal pain and radiating pain in the left lower limb. We paid attention to the multicystic and multilocular abscess in the process of cleaning the abscess cavity so as not to miss it, and finally performed irrigation and drainage.

For the common postoperative complications of lymphocyst and cyst infection in malignant tumours, we can also prevent them by the following measures: (1) Opening of the posterior peritoneum and drainage. By opening the posterior peritoneum, lymph can be drained into the abdominal cavity and absorbed through the peritoneum, avoiding the accumulation of lymphatic fluid and the formation of cysts, thus reducing the risk of infection; (2) The use of surgical energy instruments. There is already evidence that the use of bipolar, unipolar and ultrasonic knives can sufficiently block lymphatic channels, reduce lymphatic fluid exudation and reduce cyst formation;<sup>[1]</sup> (3) Octreotide. It can reduce fat absorption, slow down the flow rate of lymphatic fluid, reduce lymphatic vessel pressure and reduce lymphatic fluid formation.<sup>[8]</sup>

In conclusion, lymphocyst is one of the common complications of gynaecological malignant surgery, in the face of asymptomatic patients can be left untreated, for patients with symptoms of compression or signs of infection, we need to intervene as early as possible, we can first use broad-spectrum antibiotics to prevent infection, and intervene in the puncture and drainage to prevent further development of inflammation to form a pelvic abscess. If the inflammation progresses or symptoms worsen after intervention or anti-inflammatory treatment, we may consider surgery to open the window and drain to promote healing, reduce pain and complications, and improve quality of life.

## DECLARATION

### Secondary publication declaration

This article was translated with permission from the Chinese language version first published by the Electronic Journal of Medical Operations. The original publication is detailed as: Jia QC, Tang HM, Chen JM, Xia BR, Chen Y, Shan WL, Tang B, Wei WW, Shi RX. [Laparoscopic window drainage for localized pelvic abscess after radiotherapy for endometrial cancer]. *Electronic Journal of Medical Operations*. 2023,10(3): 9-12, 40.

### Author contributions

Jia QC, Dong ZY, Tang HM: Conceptualization, Writing—Original draft preparation, Writing—Reviewing and Editing. Chen C, Shan WL,

Tang B, Wei WW, Shi RX: Conceptualization, Supervision. Xia BR, Chen JM: Supervision, Project administration.

### Ethics approval

We have communicated with the patient and signed the appropriate informed consent form.

### Source of funding

This work was supported by grants from Top Talent of Changzhou "The 14th Five-Year Plan" High-Level Health Talents Training Project (2022CZBJ074), the maternal and child health key talent project of Jiangsu Province (RC202101), the maternal and child health research project of Jiangsu Province (F202138), the Scientific Research Support Program for Postdoctoral of Jiangsu Province (2019K064), and the Scientific Research Support Program for "333 Project" of Jiangsu Province (BRA2019161).

### Conflict of interest

The authors declare no competing interest.

### Data availability statement

All datas were included in this published article.

## REFERENCES

1. Lin B, Ling B, Zhang SQ, *et al.* [Expert consensus on the diagnosis and treatment of lymphocysts after pelvic lymph node dissection for gynaecological malignancies (2020 edition)]. *Chin J Pract Gynaecol Obst* 2020;36:959–964.
2. Wang Y, Wen HW, Li L, *et al.* [Progress in the diagnosis and treatment of postoperative pelvic lymphocysts in gynaecological malignancies]. *Chin Med J* 2019;54:719–722.
3. Zikan M, Fischerova D, Pinkavova I, *et al.* A prospective study examining the incidence of asymptomatic and symptomatic lymphoceles following lymphadenectomy in patients with gynecological cancer. *Gynecol Oncol* 2015;137:291–298.
4. Achouri A, Huchon C, Bats AS, Bensaïd C, Nos C, Lécure F. Postoperative lymphocysts after lymphadenectomy for gynaecological malignancies: preventive techniques and prospects. *Eur J Obstet Gynecol Reprod Biol* 2012;161:125–129.
5. Park NY, Seong WJ, Chong GO, *et al.* The effect of nonperitonization and laparoscopic lymphadenectomy for minimizing the incidence of lymphocyst formation after radical hysterectomy for cervical cancer. *Int J Gynecol Cancer* 2010;20:443–448.
6. Hiramatsu K, Kobayashi E, Ueda Y, *et al.* Optimal timing for drainage of infected lymphocysts after lymphadenectomy for gynecologic cancer. *Int J Gynecol Cancer* 2015;25:337–341.
7. Radiological Intervention Committee of China Maternal and Child Healthcare Association, Minimally Invasive Medicine Committee of China Medical Doctors Association, Reproductive Health Branch of Chinese Preventive Medical Association, *et al.* [Expert consensus on the interventional treatment of pelvic abscess (2021 edition)]. *Chin J Pract Gynaecol Obstet* 2021;37:1214–1219.
8. Weinberger V, Cibula D, Zikan M. Lymphocoele: prevalence and management in gynecological malignancies. *Expert Rev Anticancer Ther* 2014;14:307–317.