



# Laparoscopic Fenestration of Posttransplant Lymphoceles: A Report of Three Cases

## Posttransplant Lenfoselin Laparoskopik Fenestrasyonu: Üç Olgu Sunumu

Posttransplant Lymphoceles

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### Öz

Lenfösel semptomatik olgularda etkili bir şekilde tedavi edilmelidir. Perkütan aspirasyon, perkütan drenaj ve skleroterapi tedavi alternatifleridir. Konvansiyonel veya laparoskopik olarak intraperitoneal kaviteye internal drenaj cerrahi yönetiminde gerçekleştirilebilir. Biz lenfoselin laparoskopik tedavisini üç olgu ile sunuyoruz.

### Anahtar Kelimeler

Posttransplant Lenfösel; Fenestrasyon; Laparoskopi; Minimal İnvaziv; Böbrek Nakli

### Abstract

Lymphoceles have to be treated efficiently when symptoms are present. Percutaneous aspiration, percutaneous drainage, and sclerotherapy are therapeutic alternatives. Conventional or laparoscopic internal drainage surgical management can be performed to the intraperitoneal cavity. We present three cases of the laparoscopic treatment of lymphoceles.

### Keywords

Posttransplant Lymphoceles; Fenestrasyon; Laparoscopy; Minimally Invasive; Renal Transplantation

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## Introduction

Following renal transplantation, there are usually no clinical signs of perirenal fluid accumulation; however, in some cases, low patient well-being or inadequate graft kidney function could be indicative of such fluid accumulation. Along with urinomas, lymphoceles are among the recurring causes of perirenal fluid accumulation [1, 2, 3]. A post-transplant lymphocele represents a perigraft fluid aggregation occurring after the renal bed or the graft has been prepared; it is not the reason for urinary leakage or haemorrhage. Micro or macro graft kidney decapsulation leads to non-ligation between afferent lymphatic vessels and iliac vessels [4, 5]. Furthermore, lymphoceles may be triggered by the administration of powerful diuretics following a kidney transplant, increasing lymphatic flow [6, 7]. When considering causes of allograft lymph flow intensification, another aspect that should be taken into account is graft rejection. The majority of lymphoceles are symptomless and do not need to be treated. In these cases, given the parameters of renal function and its clinical course, appropriate administration is frequently a comprehensive follow-up. When symptoms do arise, an effective approach must be applied to treat the lymphoceles. Among the available approaches are percutaneous aspiration, percutaneous drainage, and sclerotherapy. A surgical procedure on the intraperitoneal cavity usually involves traditional or laparoscopic inner drainage. We have presented three cases of laparoscopic treatment of lymphoceles.

## Case Report

### Case 1

The first case is of a 25-year-old male patient with complaints of pressure within the right inguinal region. A successful open renal transplantation had been performed eight months earlier. The patient's urinary outflow decreased and his creatinine levels increased. After diagnostic procedures were performed it was deduced that a 120x64x31 mm lymphocele was present from the anterior of the right kidney to the bladder.(Picture 1).

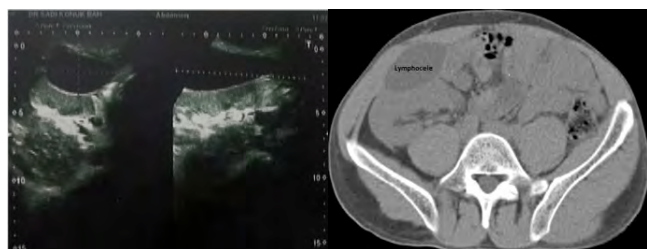


Figure 1. Preoperative ultrasound and computed tomography of lymphocele (Case 1).

### Case 2

The second case is of a 31-year-old female upon whom a successful open renal transplantation had been performed five months earlier. After proper radiological diagnosis the presence of a 112x27x27mm lymphocele, inferior to the kidney and anterior to the bladder, was discovered (Picture 2).

### Case 3

A 39-year-old female had undergone open renal transplantation one month earlier. In the patient's clinical and radiological examinations, a 220x140x42 cm lymphocele was detected.

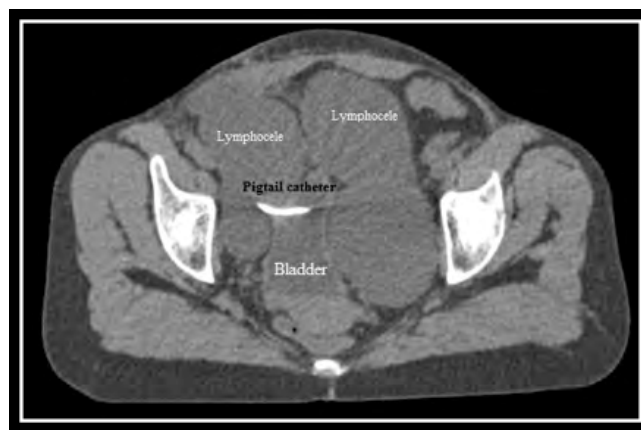


Figure 2. Lymphocele around the bladder and appearance of pigtail catheter (Case 2).

## Surgical Treatment

Patients with a history of a previous failed percutaneous aspiration laparoscopic approach were managed with general anesthesia and the standard single dose of prophylactic antibiotics. The pneumoperitoneum was made by a Veress needle inserted in an infraumbilical location. The first trocar (10-mm) was inserted in the infraumbilical location followed by a second trocar (5-mm) along the anterior axillary line near the costal margin on the ipsilateral side and a third trocar (5-mm) was inserted in the midline, low in the hypogastrium. With the help of electrocautery and scissors, a peritoneal opening in the lymphocele wall was created, followed by removal of the lymphatic fluid. A pedicle of omentum in the lymphocele core was interfered with. The final step was a thorough examination of haemostasis at the lymphocele entry lines and the peritoneum (Picture 3).

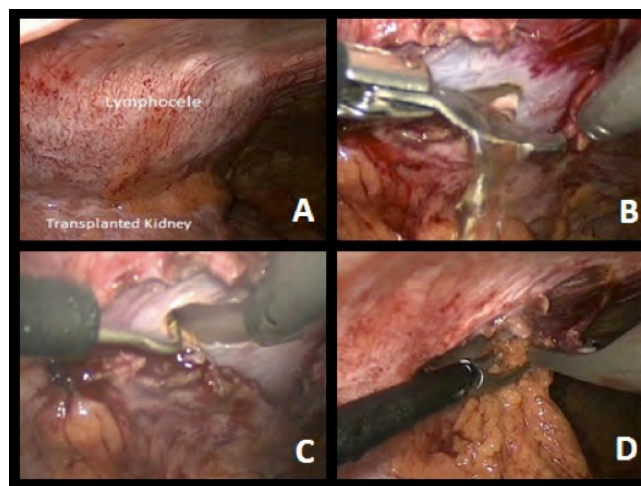


Figure 3. Surgical images. (A) Lymphocele and transplant kidney (B) Fenestration of lymphocele wall with scissors (C) Aspiration of the contents of lymphocele (D) Omental patch

## Results

The entire procedures were each completed in three-quarters of an hour. No patient lost more than 100 ml of blood and no other problems were encountered. Likewise, no intraoperative complications occurred and patients recovered well after surgery. All patients' postoperative courses were uncomplicated. There were no disruptions to immunosuppression; oral administration commenced on the day of surgery. Post-operatively, the function of the graft remained constant and normalisation of serum

creatinine was seen. There was no graft rejection. The patients were discharged without any problems 2-5 days after their operations. Continuous follow-ups utilizing ultrasonography and computed tomography detected no recurrence of lymphoceles.

## Discussion

Previous studies have reported different frequencies of post-transplant lymphoceles within the 0.6-20.0 % range [8, 9]. Symptoms that suggest lymphoceles are pain in the area of the pelvis or abdomen, caused by a pelvic mass that can be seen or palpated. Other side effects include, outcomes of venous or ureteral pressure, such as one-sided leg oedema and leg torment, hydronephrosis with resulting insufficiency of renal capacity, and profound vein thrombosis [10]. Fever and leucocytosis are indicative of infectious complications of lymphatic fluid accumulation. Ultrasound and occasionally computed tomography are used in the preoperative diagnosis of lymphoceles [11]. To prevent urinoma and superinfection it is advisable to undertake percutaneous aspiration or drainage and microbiological sample analysis prior to internal drainage. Patients without any symptoms are not usually given any treatment. Types of treatments for symptomatic lymphoceles include recurrent percutaneous aspiration of lymphatic fluid [4, 12], percutaneous drainage [13], sclerosing substance administration [12, 14], and surgical internal drainage into the peritoneal cavity.

Infected lymphoceles should never be drained into the abdominal cavity because of potentially mortal consequences for the immunosuppressed patient. Percutaneous aspiration or drainage, and sclerotherapy do have acceptable success rates of 80-90%, and are easy to perform. Nevertheless, after this treatment, incomplete resolution and high recurrence rates of up to 80% are reported. Furthermore, there is risk of haemorrhage and infection, principally after recurrent punctures or insertion of a drainage tube. An especially long duration of drainage therapy over several weeks is an exceptional disadvantage. Parra et al. [13] noted that a success rate of about 73% still came with a 26% risk of infection.

Scleropathy can create complications for sequential surgical procedures, and, as a result, the graft kidney or nearby structures may be damaged [2-4, 11, 12, 15]. High repetition rates, infection rate, and treatment duration are all factors that should be taken into consideration. The best treatment in the case of recurring lymphatic fluid drainage into the peritoneal cavity is open surgical internal drainage. The operation was first outlined in 1966 by Byron et al. [16], but the operation has limitations in that it must be performed under general anaesthetic, causes surgical trauma, and patients need a long time to recover. In 1991, McCullough et al. [17] pioneered the laparoscopic surgical approach for treatment of lymphoceles after the introduction of laparoscopic surgery. Four years later, in 1995, the significance of this type of surgery was advocated by Gill et al. [18]. Its advantages include reduced haemorrhage, a reduced need for analgesics, earlier food ingestion post-operatively, and a shorter duration of recovery. In 1997, Fornara et al. [19] reported that when eight cases were compared, open surgery, lasted 115 minutes on average, while laparoscopic surgery was completed in an average of 42 minutes. Based on extensive experience, successful outcome rates and the short operating time of lapa-

roscopic surgery are critical advantages in favor of the laparoscopic procedure over open surgery. In 2009, Iwan-Zietek et al. [20], embraced an outline which distinctly showed data that advocated for the preference of surgical, especially laparoscopic, management of posttransplant lymphoceles. The authors reported that percutaneous drainage should be attempted first to cure a lymphocele, but reported that; laparoscopic fenestration is a safe and practicable technique that should be used after unsuccessful and inefficient percutaneous drainage [20]. The three cases in this report show the definite benefit of surgical treatment because there were no recurrences. Based on the findings of earlier studies, laparoscopic surgery was decided to be the best approach for treating lymphoceles.

## Conclusion

Based on studies in the literature and the cases in our report, laparoscopic fenestration is a method with short operating times, low infection rates, less blood loss, and decreased post-operative pain. It has especially been found to be a successful, uncomplicated, established, and effective solution to complications of percutaneous drainage and needle aspirated lymphoceles.

## Competing interests

The authors declare that they have no competing interests.

## References

- Braun WE, Banowsky LH, Straffon RA, Nakamoto S, Kiser WS, Popowniak KL et al. Lymphocytes associated with renal transplantation. Report of 15 cases and review of the literature. *Am J Med* 1974; 57: 714-29.
- Burgos FJ, Teruel JL, Mayayo T, Lovaco F, Berenguer A, Orte L et al. Diagnosis and management of lymphoceles after renal transplantation. *Br Journal of Urol* 1988; 61: 289-93.
- Howard RJ, Simmons RL, Najarian JS. Prevention of lymphoceles following renal transplantation. *Ann Surg* 1976; 184: 166-8.
- Schweizer RT, Cho SI, Kountz SL, Belzer FO. Lymphoceles following renal transplantation. *Arch Surg* 1972; 104: 42-5.
- Koene RA, Skotnicki SH, Debruyne FM. Spontaneous renal decapsulation with excessive fluid leakage after transplantation. *N Engl J Med* 1979; 300: 1030-1.
- Szwed JJ, Maxwell D, Kleit SA, Hamburger RJ. Angiotensin 1 diuretics and thoracic duct lymph flow in the dog. *Am J Physiol* 1973; 224: 705-8.
- Pedersen DC, Morris B. The role of the lymphatic system in the rejection of homografts: a study of lymph from renal transplants. *J Exp Med* 1970; 131: 936-69.
- Hamza A, Fischer K, Koch E, Wicht A, Zacharias M, Loertzer H et al. Diagnostics and therapy of lymphoceles after kidney transplantation. *Transplant Proc* 2006; 38: 701-6.
- Zietek Z, Sulikowski T, Tejchman K, Sienko J, Janeczko M, Iwan-Zietek I, et al. Lymphocele after kidney transplantation. *Transplant Proc* 2007; 39: 2744-7.
- Ulrich F, Niedzwiecki S, Fikatas P, Nebrig M, Schmidt SC, Kohler S et al. Symptomatic lymphoceles after kidney transplantation multivariate analysis of risk factors and outcome after laparoscopic fenestration. *Clin Transplant* 2010; 24: 273-80.
- Greenberg BM, Perloff LJ, Grossman RA, Naji A, Barker CF. Treatment of lymphoceles in renal allograft recipients. *Arch Surg* 1985; 120: 501-4.
- Gilliland JD, Spies JB, Brown SB, Yizarry JM, Greenwood LH. Lymphoceles: percutaneous treatment with povidone - iodine sclerosis. *Radiology* 1989; 171: 227-9.
- Parra RO, Jones JP, Hagood PG. Laparoscopic intraperitoneal marsupialization: report on a new treatment for lymphoceles. *Surg Laparosc Endosc* 1992; 2: 306-11.
- Pope AJ, Ormiston MC, Bogod DG. Sclerotherapy in the treatment of a recurrent lymphocele. *Postgrad Med* 1982; 58: 573-4.
- Braun WE, Banowsky LH, Straffon RA, Nakamoto S, Kiser WS, Popowniak KL et al. Lymphocytes associated with renal transplantation. report of 15 cases and review of the literatures. *Am J Med* 1974; 57: 714-29.
- Byron RL Jr, Yonemoto RH, Davajan V, Townsend D, Bashore R, Morton DG. Lymphocysts: surgical correction and prevention. *Am J Obstet Gynecol* 1966; 94: 203-7.
- McCullough CS, Soper NJ, Clayman RV, So SS, Jendrisak MD, Hanto DW. Laparoscopic drainage of a post-transplant lymphocele. *Transplantation* 1991; 51: 725-7.
- Gill IS, Hodge EE, Munch LC, Goldfarb DA, Novick AC, Lucas BA. Transperi-

toneal marsupialization of lymphoceles: a comparison of laparoscopic and open techniques. J Urol 1995; 153: 706-11.

19. Fornara P, Doehn C, Fricke L, Hoyer J, Jocham D. Laparoscopy in renal transplant patients. Urology 1997; 49: 521-7.

20- Iwan-Zietek I, Zietek Z, Sulikowski T, Nowacki M, Zair L, Romanowski M et al. Minimally invasive methods for the treatment of lymphocele after kidney transplantation. Transplant Proc 2009; 41: 3073-3076.

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