



MANAGEMENT APPROACHES AND OUTCOMES OF POST-RENAL TRANSPLANT LYMPHOCELE: A RETROSPECTIVE STUDY OF 15 CASES

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ABSTRACT

Background: Lymphocele is a common lymphatic complication following renal transplantation and occurs due to disruption of lymphatic channels during graft implantation and recipient vessel dissection.

While many lymphoceles remain asymptomatic and are detected on routine postoperative imaging, This study aimed to evaluate the incidence, clinical presentation, and outcomes of different management strategies for post-renal transplant lymphocele in a single-center experience. [1-3] **Summary:** This retrospective study evaluated 150 renal transplant recipients operated between December 2023 and December 2025 to assess the incidence, clinical presentation, and management of post-transplant lymphocele. Lymphocele developed in 10% of patients, with a mean presentation time of approximately five weeks after transplantation. The most common symptom was pain or swelling, followed by lower limb edema and graft dysfunction. Management strategies included percutaneous drainage, drainage with sclerosant, and laparoscopic marsupialisation. Minimally invasive approaches achieved resolution in the majority of cases, while recurrent lymphoceles were successfully treated with laparoscopic marsupialisation, with no further recurrence observed. These findings support a stepwise treatment approach, reserving surgical intervention for persistent or recurrent cases.

KEYWORDS : Post Renal Transplant Lymphocele, Lymphocele Marsupulisation, Lymphocele management

BACKGROUND

Lymphocele is a common lymphatic complication following renal transplantation and occurs due to disruption of lymphatic channels during graft implantation and recipient vessel dissection. While many lymphoceles remain asymptomatic and are detected on routine postoperative imaging, symptomatic lymphoceles can lead to pain, lower limb edema, ureteric compression, graft dysfunction, and infection, thereby adversely affecting graft outcomes. The reported incidence of post-renal transplant lymphocele varies widely, and optimal management remains controversial. This study aimed to evaluate the incidence, clinical presentation, and outcomes of different management strategies for post-renal transplant lymphocele in a single-center experience.[1-3]

MATERIAL AND METHODS

Study Design And Study Population

The present study included 150 patients who were operated on in our center From December 2023 to December 2025. All Transplant was done by senior experienced renal transplant surgeon and all donor nephrectomy were performed with Laparoscopy method. Out of 150 patients, 15(10%) patients developed Lymphocele . USG was performed by a specialist radiologist at least once before discharge in the early postoperative period. Most of the patients were discharged with drain in situ, abdominal USG and Doppler USG were performed once weekly in the first month and after confirming no collection around kidney, drain was removed accordingly when output was minimal. Patient presented with Various symptoms because of fluid collection around kidney.

A drainage catheter was applied in patients with symptomatic lymphocele by interventional radiology under USG guidance. Patients were re-evaluated by USG after drainage was completed. We removed the drainage catheter if minimal output and if no fluid collection was present in ultrasound. If there was continuous drainage through drain post 1 week, we inserted Sclerosant agent (diluted betadine) every alternate

days , and after confirming minimal output, drain was removed. Lymphocele marsupulisation was done in 5 patients in which there was recurrent fluid collection hampering Urine output and increasing s.creat levels, Post Lymphocele Marsupulisation, There was No recurrence.

Data Collection

Data were obtained from hospital records and included: Demographics (age, sex), Etiology of end-stage renal disease, Donor type (living/deceased), Time to lymphocele diagnosis, Clinical presentation, Imaging modality used (Ultrasound/CT), Management approach, Complications and recurrence

RESULTS

Out of 150 renal transplants performed during the study period, 15 patients developed lymphocele, giving an incidence of 10%. The mean time to presentation was **5 weeks** post-transplant. None of the patients developed complications/rejection post renal transplant

Demographics And Clinical Profile

Age Group and Sex Distribution (n = 15)

30–39 years: 2 Male | 0 Female
40–49 years: 5 Male | 2 Female
50–59 years: 3 Male | 1 Female
60–69 years: 1 Male | 1 Female

Etiology Of End-Stage Renal Disease

Hypertensive nephropathy: 8 patients
Diabetic nephropathy: 6 patients
IgA nephropathy: 2 patients
Alport syndrome: 1 patient

Donor Characteristics

Donor type: All cases involved living, related renal donors

Clinical Presentation

Pain/Swelling (graft region): 14 patients

Lower limb edema: 10 patients

Graft dysfunction (raised creatinine/ decreased urine output):
5 patients

Imaging Modalities

Primary imaging: Ultrasonography with Doppler of the transplanted kidney (all cases)

Recurrent cases: CT KUB (plain) with repeat Doppler ultrasonography

Management Modalities And Outcomes

Percutaneous drainage

Patients: 6 (40.0%)

Initial resolution: 3(50.0%)

Recurrence: 3(50.0%)

Final outcome: Recurrences managed surgically

Percutaneous drainage + sclerosant therapy

Patients: 9 (60.0%)

Initial resolution: 6(77.78%)

Recurrence: 2(22.22%)

Final outcome: Recurrences managed surgically

Laparoscopic marsupialisation

Patients: 5 (33.3%)

Initial resolution: 5(100.0%)

Recurrence: 0

Final outcome: Complete resolution

Summary Of Outcomes

Surgical management (laparoscopic marsupialisation) demonstrated 100% success with no recurrence, while percutaneous approaches showed higher recurrence rates requiring secondary surgical intervention.

Complete resolution was achieved in 66.7% of patients. Recurrence occurred in 33.3% and was managed successfully with Laparoscopic Marsupulisation.

We've added figures of CT scan and Intraoperative pictures of Lymphocele Marsupulisation .



Figure - 1 - Pre-operative CT Image showing Lymphocele

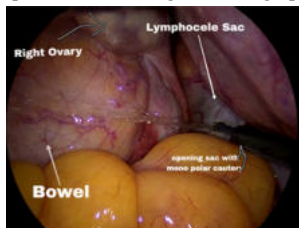


Figure - 2 - Intraoperative Photo showing Lymphocele

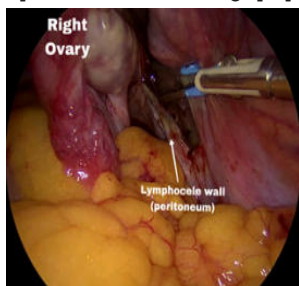


Figure 3 - Post Lymphocele puncture and suctioning of cavity



Figure - 4 - Lymphocele Cavity from inside

DISCUSSION

Post-renal transplant lymphocele is a common surgical complication following kidney transplantation, with reported incidence ranging from 0.03% to 51%, depending on diagnostic criteria and follow-up protocols [1–3]. In the present study, lymphocele developed in 10% of transplant recipients, while symptomatic lymphocele occurred in approximately 5% of patients, which is comparable to previously published series [4,5].

The pathogenesis of lymphocele is primarily related to disruption of lymphatic channels during recipient vessel dissection and graft implantation. Several risk factors have been described, including advanced age, diabetes mellitus, autosomal dominant polycystic kidney disease, delayed graft function, and acute rejection [6–8]. Lehner et al. demonstrated a significant association between delayed graft function, acute rejection, and lymphocele formation [9]. In contrast, none of the patients in our study experienced delayed graft function or acute rejection, suggesting that surgical factors may have played a more important role in lymphocele development.

A key strength of our study is the uniformity of surgical technique, as all transplantations were performed by a single experienced surgeon. Previous studies have shown that meticulous ligation of lymphatic vessels significantly reduces lymphocele formation. Dubeaux et al. reported a lymphocele rate of only 0.6% with careful back-table lymphatic ligation [10]. Similarly, Serierodoma et al. demonstrated significantly lower lymphocele rates with lymphatic ligation compared to monopolar cautery alone [11]. Our findings further support the importance of meticulous lymphatic control during transplantation.

Management of post-transplant lymphocele remains variable, with no universally accepted treatment protocol. Percutaneous drainage is commonly used as the first-line treatment but is associated with high recurrence rates, reported to range from 30% to 50% [12,13]. In our cohort, recurrence occurred in 38% of patients treated with minimally invasive techniques, which is consistent with published literature. The addition of sclerosant therapy improved initial resolution but did not completely prevent recurrence.

Laparoscopic marsupialisation has been shown to provide superior long-term outcomes, with success rates exceeding 90% and minimal recurrence [14,15]. In our study, laparoscopic marsupialisation resulted in complete resolution in all treated patients, with no recurrence or graft-related complications. These findings confirm that surgical marsupialisation is a definitive and effective treatment for recurrent or symptomatic lymphocele, particularly in patients with graft dysfunction.

Limitations

The limitations of this study include its retrospective design and relatively small sample size. However, standardized surgical technique and consistent postoperative follow-up along with more data strengthen the validity of the results.

CONCLUSION

Post-renal transplant lymphocele remains a common and clinically significant complication that can compromise graft function and patient quality of life if not managed effectively. Our findings support a stepwise management approach, with minimally invasive methods such as percutaneous drainage serving as appropriate initial therapy in selected patients. However, definitive surgical marsupialization preferably via a minimally invasive approach demonstrates superior long-term resolution with low recurrence rates, particularly in recurrent, large, or symptomatic lymphoceles. Early identification, appropriate patient selection, and timely escalation to surgical intervention are essential to optimize outcomes, preserve allograft function, and reduce morbidity.

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