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Symptomatic Lymphoceles Following Cadaveric Renal Transplantation: Single Center Experience

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Post-transplantation lymphoceles are uncommon but troublesome problems. This study aimed to describe our experience of diagnosing and managing post-renal transplantation lymphoceles. We performed a retrospective chart-review of 94 consecutive cadaveric renal transplant recipients from March 2005 to August 2012 and identified five cases of lymphoceles occurring after transplantation. The demographic characteristics, comorbidities, occurrence of lymphoceles, and treatment modalities were analyzed. Five (5.3%) patients developed symptomatic postoperative lymphoceles; among them, four were male adults. In 80% of cases, diagnosis was made within 3 months after surgery. None of the lymphoceles were found within the first month after transplantation. Treatment with ultrasound-guided percutaneous drainage had a high success rate (80%) and was performed as first line therapy in all cases. One case experienced persistent drainage and required laparoscopic treatment. The mean follow-up period was 26±8 months (range: 15 - 38 months). All patients had improved renal function after the drainage procedure. No procedure-related complication occurred. Lymphoceles following cadaveric renal transplantation often occur in the second or third months after cadaveric renal transplantation, and can usually be managed with percutaneous drainage procedures. Treatment of lymphoceles also improved graft functions in the current study.

Key words: renal transplantation, lymphocele, aspiration, unroofing

INTRODUCTION

Lymphoceles are abnormal lymphatic fluid collections around the potential space, usually secondary to surgery, malignancy, trauma, or infectious process such as filariasis.[1,2] Postoperative pelvic lymphoceles are commonly seen after prostatectomy with pelvic lymph node dissection, and ovarian cancer surgeries. It is an important problem after renal transplantation, with a reported incidence of around 12-40%, although most lymphoceles are small and asymptomatic.[3] Lymphoceles can become symptomatic, such as infection or mass exertion on renal allografts.[4] In this series, we identified five symptomatic lymphoceles among 94 cadaveric renal transplantations, and described the outcomes of their management.

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CASE ANALYSIS

Medical records of 94 consecutive cadaveric renal transplant recipients from March 2005 to August 2012 were retrospectively reviewed. Five cases of symptomatic lymphoceles were identified. Patients' ranged in age from 34 to 54 years (mean age 46 years). A preponderance of males was observed at a ratio of 4:1. None of the patients were obese.

Median time for lymphocele occurrence is two months after surgery. In 4/5 (80%) of cases, diagnosis was made within 3 months of surgery. None of the lymphoceles were found within the first month after transplantation. The pretreatment serum creatinine ranges from 1.6 to 8.4 mg/dL. In all cases, the serum creatinine levels were improved after treatment for lymphoceles, indicating clear mass effects on the allografts. Sizes of the lymphoceles were noted from 4.0 to 12.7 cm at their maximal dimen-

Table 1 Demographic data of the five patients with post-renal transplant lymphoceles

Case	Sex	Age (yr)	BMI (kg/m^2)	Dialysis type	Laterality	Onset (month)	size (cm)	Creatinine recovery (mg/dL)		Treatment	Risk factor
#1	M	53	22.8	HD	left	3	12.7	5.0	2.8	drainage	mTORi
#2	M	34	25.4	HD	right	1	8.1	1.6	1.4	drainage	rejection
#3	M	42	27.0	CAPD	right	1.5	6.6	1.7	1.6	drainage	wound infection
#4	F	49	25.4	CAPD	left	2	4.0	6.4	3.9	drainage	mTORi
#5	M	54	26.6	HD	right	2.5	8.1	8.4	2.5	laparoscopic unroofing after drainage failure	DGF

BMI, body mass index; HD, hemodialysis; CAPD, continuous ambulatory peritoneal dialysis; POD, postoperative day; mTORi, mammalian target of rapamycin inhibitor; DGF, delayed graft function.

sion. It was clear larger lymphoceles caused more severe graft dysfunction (Table 1).

In all of these five patients, lymphoceles caused rapid elevation of serum creatinine, and in two cases, they caused significant hydronephrosis and leg edema (Figure 1). Asymptomatic lymphoceles were not identified in our series. The presence of lymphoceles here seemed to be related to the clinical rejection episode (50%). Clinical manifestations consisted of renal failure in 3 (60%) cases, urinary tract obstruction in 1 (20%), leg edema in 2 (40%), and pain in 1 (20%) case.

All lymphoceles were treated with primary decompression by percutaneous ultrasound-guided tube drainage. Four cases (80%) were successfully managed by this approach. We did not keep the catheter in situ due to the concern of further infection, unless the aspiration could not be done completely under ultrasound. In one patient, the mass effect could not be relieved following the primary drainage procedure, and was eventually treated with laparoscopic peritoneal windowing. Procedures to treat lymphoceles caused no further complications. The mean follow-up period was 26±8 months (range: 15-38 months). All of the patients lived with functional grafts after the management during the follow-up period.

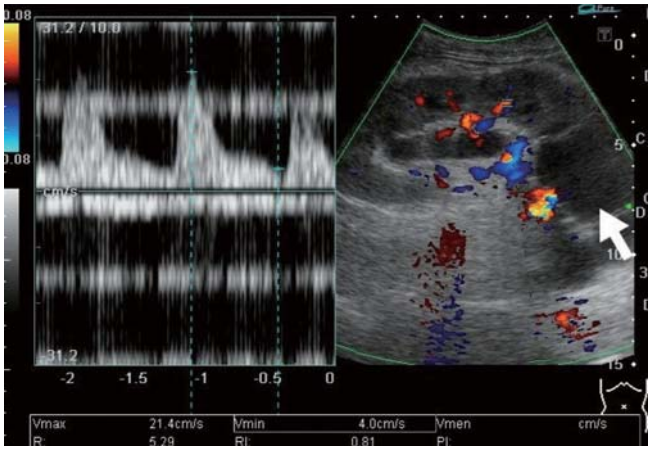

Fig. 1 A typical case of lymphocele following renal transplantation. The low pole cystic mass (white arrow) compressed the ureter and caused hydronephrosis. In addition, note the calculated resistant index of renal arterial flow was high as 0.81 in the sonographic dopper scan.

DISCUSSION

Lymphoceles after transplantation could be the consequence of unsealed lymphatic channels during mobilization of the recipient's iliac vessels for engrafting.[5] Previous reports indicated the peak incidence is around 6 weeks postoperatively[3]. This is compatible with our study.

The exact postoperative incidence of lymphoceles is quite variable, with a range from 0.8% to 20% in different series.[6] In our study, even with a limited case number, an incidence of 5.3% is within acceptable range.

Ultrasonography routinely done for elevated creatinine is a useful initial study to demonstrate local fluid accumulation in the pelvic cavity, near the graft kidney. Diagnosis of lymphocele is usually made following aspiration of the fluid, and confirmed to have lymphatic content. In our institute, we also specifically localized the lymphoceles by computerized tomography (CT) scan. The CT scan not only delineated the surrounding condition, but also helped plan the surgical approach. Possible risk factors to develop lymphoceles have been identified in many reports. Obesity has been noted as an independent factor, in particular, when the body mass index is greater than 30 kg/m^2.[7] Pengel and colleagues conducted a randomized trial and reported use of mammalian target of rapamy-

cin (mTOR) inhibitor, such as rapamycin or everolimus, were also associated with developing lymphoceles.[8] Two (40%) of our cases took rapamycin, beginning one month after transplantation. Other possible risks such as use of corticosteroid, episodes of rejection, and use of heparin are still controversial.[9]

Other investigators have made attempts to prevent lymphoceles after renal transplantation.[10] Berardinelli and colleagues studied the use of polymeric sealant, and in their report the incidence of lymphoceles could be reduced from 3.5% to 1%.[11] However, these methods have not yet been routinely adopted.

Published data concerning treatment for lymphoceles has shown various success rates. While some authors concluded successful minimal invasive managements (e.g., aspiration, chemical sclerosing therapy), others supported surgical treatment (e.g., open or laparosopic unroofing) as the primary treatment.[12] The laparoscopic approach to post-transplant lymphoceles appeared to be more effective, but came with additional risks, such as ureteral injury or incisional hernia of the wound.[13] Retrospective data published by Choudhrie and colleagues found primary aspiration, percutaneous drainage, sclerotherapy was successful in 28.5%, 42.8% and 66.6%, respectively, and after that a repeated procedure was necessary in 50% of cases. Laparoscopic marsupialization was successful in 80% of cases and the open technique was rarely needed, but all were curative in their report.[14] In a meta-analysis, a greater than 50% chance of recurrence after sclerotherapy was documented.[12,15] However, there has been no randomized, prospective trial published concerning post-transplant lymphoceles.

CONCLUSION

After renal transplantation, routine and regular image follow-up is mandatory to detect lymphoceles. According to our experience, lymphoceles can be managed by percutaneous aspiration in most cases. Laparoscopic surgery should be considered as second-line management. Procedure-related complications for treating lymphoceles are not common.

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