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Lymphocele: A Significant Complication Following Renal Transplantation

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Summary

Six pelvic lymphoceles occurred in a series of 88 renal transplants. All of the patients had ipsilateral leg edema and one-half had a urinary tract infection and/or pain. Displacement of the urinary bladder away from the kidney with or without some degree of ureteral obstruction was diagnostic. External or internal drainage resulted in relief of the symptoms.

As early as 1958, lymphoceles were reported as an annoying and sometimes fatal complication following pelvic lymphadenectomy (1-4). Since the advent of renal allotransplantation, and the implantation of the kidney in the retroperitoneal pelvis, lymphoceles have reappeared in the literature (5-10). These loculations of lymph may produce symptoms from their increasing mass in the narrow confines of the pelvis.

In this report of six patients with lymphoceles, one patient lost his renal transplant and another eventually died from a pulmonary embolus. Both of these complications probably resulted from retroperitoneal pelvic lymphoceles.

Patient Population

The records of 70 patients, 46 males and 24 females, having a total of 88 renal transplants, were reviewed. The six male patients with lymphoceles represented 8.6% of the transplant population and 6.8% of the total number of transplants performed.

In all patients the donor kidney was placed in a retroperitoneal location in the pelvis as described by *Hume* (6). The pelvic lymphatic chains along the external iliac vessels were ligated. In two patients, the lymphocele occurred on the left side following a second transplant. The tissue typing match ranged from A to D.

Table 1 Clinical Summary of Renal Transplant Recipients with Lymphoceles

Patient	Sex	Age	Urinary Tract Infection	Obstructive Uropathy &/or Bladder Displacement	Leg Pain	Leg Swelling	Time Between Transplant & Diagnosis	Treatment	Follow-up
1	M	45	-	+	-	+	4 mo	Tx*neph-rectomy	24 mo
2	M	17	+	++++	-	+	8 mo	External drainage	13 mo
3	M	19	+	++++	+	+	17 mo	Internal drainage	1 mo
4	M	27	+	+++	+	+	3 mo	External drainage	Died
5	M	24	-	+++	+	+	6 mo	External drainage	2 mo
6	M	28	-	++	-	+	1 mo	External drainage	6 mo

* Tx = Transplant

Results

The symptom common to all six patients was ipsilateral leg swelling. One half of the group developed a chronic urinary tract infection and/or pain in the thigh or knee. Two patients presented with a decrease in renal function as their chief complaint. The time lapse between transplant and lymphocele repair ranged from 1 to 17 months, with an average of $6^1/_2$ months (Table 1). In all but one patient, these symptoms were investigated by intravenous pyelography. In every instance some degree of displacement of the bladder away from the donor kidney was demonstrated (Fig. 1). Ureteral obstruction was demonstrated in three patients and was the probable cause for loss of the kidney in the first patient to develop a lymphocele. A pyelogram was not obtained in this patient because he was thought to have acute progressive rejection. After 4 months a transplant nephrectomy was performed. A lymphocele containing 300 ml of fluid was found compressing the ureter and veins.

The death in this series occurred in a 27-year-old male 3 months following his second renal transplant. This patient was admitted with leg edema and a diagnosis of lymphocele. Renal function was normal and an intravenous pyelogram showed minimal obstructive uropathy with displacement of the bladder away from the kidney. Six days after drainage of the lymphocele, the patient had a massive pulmonary embolus that eventually resulted in his death.

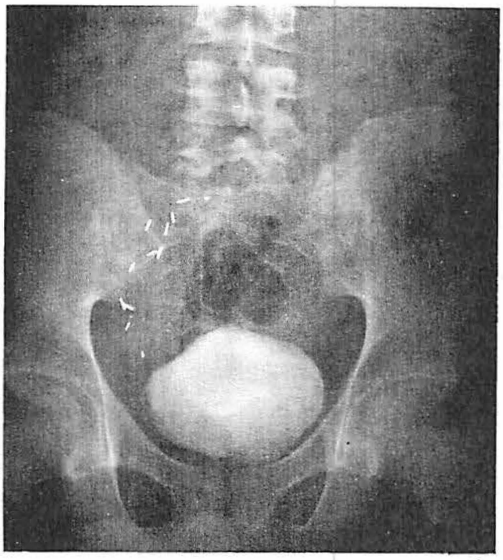
The lymphoceles ranged in size from 120 cc to 1000 cc. There was no apparent relationship between size and symptoms or time of appearance.

In four patients the lymphocele was drained externally, and in one it was drained intraperitoneally by suturing the incised cyst to the adjacent peritoneum.

Analyses of the aspirated lymph support the results of other groups (2, 7, 8). The fluid was sterile and contained approximately 50 red blood cells/mm^3 and 1000 white blood cells/mm^3. Total proteins averaged 2.5 gm% with a predominant albumin component.

Discussion

Although mentioned by *Hume* (6) and *Starzl* (10), *Schweizer, Kountz,* et al., in 1972, published the most definitive paper on post renal transplant lymphoceles (9). They reported an incidence of 2%. The incidence following pelvic lymphadenectomy has ranged from 5% (1) to 24% (4) as reported in the gynecology literature from 1958-1967. Despite efforts to prevent lymphocele formation the incidence at this institution approaches 7%.



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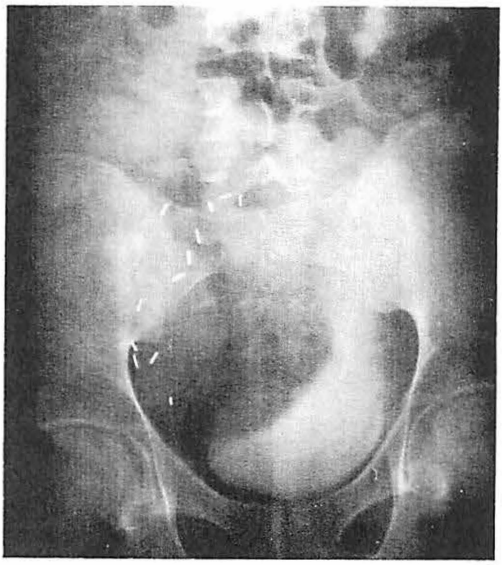

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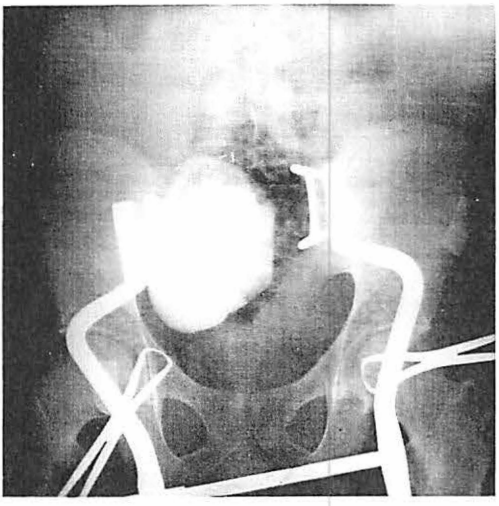

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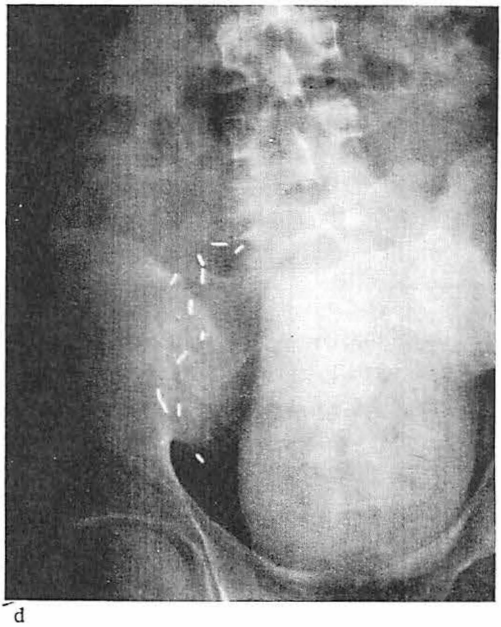

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Fig. 1 This sequence of films demonstrates the development of a lymphocele. The clips are on divided lymphatics along the iliac vein.
a) Normal pyelogram 1 month after renal transplantation.
b) 15 months later the bladder is deformed and shifted to the left. Note that the inferior pole of the kidney is not displacing the bladder.
c) Intraoperative injection of the cyst with contrast material
d) One week following internal drainage with the bladder returned to normal shape and position.

Leaks from the pelvic lymphatics have been demonstrated by lower extremity lymphangiograms following pelvic lymphadenectomy and into the lymphocele in a patient following renal transplantation (2, 8). *Rutledge* showed that a dye injected into the lower extremity can be recovered from lymphocele fluid (4). These observations support the view that lymphoceles originate from leaks in the recipient lymphatics rather than from the lymphatics of the transplanted kidney.

The differential diagnosis of a lymphocele in a renal transplant patient should include an acute rejection episode, urinoma, ureteral obstruction from other causes and thrombophlebitis. The presence of ipsilateral leg swelling in a patient after renal transplantation should be the impetus for an immediate intravenous pyelogram and pelvic examination in a female patient. The pyelogram is virtually diagnostic. It shows compression and shifting of the bladder to the side opposite the donor kidney with or without some degree of obstructive uropathy. The complications of the untreated lymphocele may be loss of the transplant from ureteral obstruction, thrombophlebitis from pelvic venous obstruction and ipsilateral leg edema.

The treatment of pelvic lymphoceles is either external or internal drainage. When the cyst is anterior to the transplant, it can be easily drained externally through the original incision. The deeper accumulations are probably best drained intraperitoneally. Four of the six patients at this institution were successfully treated with external drainage. Recurrences with this regimen are reported (1, 3, 4, 9). *Schweizer, Kountz,* et al., in 1972, stated that "all recurrent lymphoceles and even primary ones might be treated by intraperitoneal drainage" (9). Because of the threat of secondary infection, needle aspiration through the abdominal wall or vagina, has no place in treatment of lymphoceles. Reaccumulations with this method of treatment are common (9). The small, asymptomatic lymphocele found on pelvic exam may be followed at regular intervals without an operative procedure. Spontaneous regression has been reported (2-4, 9).

Since the origin of lymphoceles seems to be from the recipient's lymphatics, prevention of this entity should be a simple matter, but even with the most compulsive effort to ligate all lymphatics in the area, lymphoceles still occur.

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