

## THE CLINICAL PICTURE

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# The Clinical Picture

## High creatinine 6 months after renal transplant



**FIGURE 1**



**FIGURE 2**

**A** 42-YEAR-OLD MAN presented with acute renal failure with a serum creatinine of 6.07 mg/dL (baseline 2.0 mg/dL) 6 months after receiving a kidney transplant from a deceased donor. He was asymptomatic, had no previous symptoms of transplant rejection, and was compliant with his immunosuppressive regimen. The physical examination and the rest of the laboratory workup were normal.

Ultrasonography of the transplanted kidney (**FIGURE 1**) showed a large fluid collection (indicated by “L”), measuring 6.6 × 7.2 × 9.4 cm, compressing the inferior pole of the transplanted kidney (indicated by “K”).

Guided by computed tomography (**FIGURE 2**), 400 mL of clear, yellowish fluid was aspirated. The results of fluid analysis revealed lymphocytes 86%, protein 2.5 g/dL, and creatinine 5.9 mg/dL. The serum creatinine concentration improved to 2.8 mg/dL the following day.

**Q:** Which is the most likely diagnosis?

- ☐ A lymphocele
- ☐ A hematoma
- ☐ A urinoma
- ☐ A perirenal abscess
- ☐ A simple renal cyst

**A:** A **lymphocele** is the most likely diagnosis. A lymphocele—a collection of lymph without an epithelial lining—develops in as many as 20% of kidney transplant recipients.<sup>1</sup> Many causative factors have been proposed, including leakage of lymph from recipient lymphatic channels,<sup>2</sup> use of diuretics,<sup>2</sup> obesity,<sup>3</sup> kidney biopsy,<sup>4</sup> acute rejection,<sup>3</sup> and the use of sirolimus<sup>5</sup> (Rapamune) and high-dose corticosteroids.<sup>6</sup> Some believe that lymphoceles may also arise from severed lymphatic vessels of the donor-kidney allograft.<sup>7</sup>

Ultrasonography can usually distinguish a lymphocele from other fluid collections on the basis of fluid appearance, shape, and position. In most cases, the lymphocele is adjacent to the lower pole and medial to the allograft, and appears anechoic on ultrasonography, with

a thin, distinct wall. The typical features on analysis of aspirated fluid—ie, a creatinine level approximately the same as in the serum, a low protein value, and a high lymphocyte count compared with serum values—confirm the diagnosis of lymphocele.

A **hematoma** can occur in any location and have a heterogeneous appearance, as it contains both clotted (echogenic) and unclotted (anechoic) blood. They are usually seen within the first 1 to 2 weeks after surgery and may also develop after trauma or renal biopsy.

A **urinoma** is a collection of urine outside the bladder, resulting from a ureteral leak. They are predominantly anechoic, with an often indistinct wall. If there is a clinical suspicion, the diagnosis can be confirmed on aspiration by a high creatinine level in the fluid compared with the serum value.

A **perirenal abscess** commonly presents with pain, fever, and a complex fluid collection on ultrasonography, sometimes with an air fluid level. Aspiration of purulent fluid confirms the diagnosis.

A **simple renal cyst** appears within or protruding from the renal parenchyma as a spherical or egg-shaped fluid-filled sac with an anechoic lumen and no measurable wall thickness.

## ■ SYMPTOMS AND MANAGEMENT

Lymphoceles are mostly inconsequential but can cause renal failure by compressing the ureter, renal vessels, or renal allograft. Other manifestations may include

pain and swelling at the kidney allograft site, wound drainage, unilateral lower-extremity edema, deep vein thrombosis due to compression of iliac veins,<sup>8</sup> urinary urgency or frequency due to extrinsic bladder compression, and urinary retention.<sup>9</sup>

If the lymphocele is clinically significant, percutaneous drainage guided by ultrasonography is recommended as the initial curative procedure.<sup>10</sup> Sclerotherapy with different chemical agents is effective, but success depends on the size of the lymphocele cavity.<sup>11</sup>

If these conservative therapies fail, lymphocele unroofing into the peritoneal cavity is needed. This is accomplished by laparoscopy<sup>12,13</sup> or open surgery. Although laparoscopic drainage is considered the procedure of choice, open surgery may be required for multiloculated lymphoceles and those adjacent to vital structures.<sup>14,15</sup>

Kidneys are the most commonly transplanted solid organs. Every year, about 16,000 kidney transplantations are performed in the United States. It is common for the primary care physician to initially see these patients in cases of associated complications. Internists must be aware of the common causes of acute renal failure in this population, eg, acute rejection, drug toxicity, and obstruction. Lymphoceles are an important cause of renal failure due to obstruction. Early recognition and appropriate treatment of this complication can improve the outcome of the allograft.

## ■ REFERENCES

- O'Neill WC, Baumgarten DA. Ultrasonography in renal transplantation. *Am J Kidney Dis* 2002; 39:663–678.
- Braun WE, Banowsky LH, Straffon RA, et al. Lymphocytes associated with renal transplantation. Report of 15 cases and review of the literature. *Am J Med* 1974; 57:714–729.
- Goel M, Flechner SM, Zhou L, et al. The influence of various maintenance immunosuppressive drugs on lymphocele formation and treatment after kidney transplantation. *J Urol* 2004; 171:1788–1792.
- Mundy AR, Podesta ML, Bewick M, Rudge CJ, Ellis FG. The urological complications of 1000 renal transplants. *Br J Urol* 1981; 53:397–402.
- Giessing M, Fischer TJ, Deger S, et al. Increased frequency of lymphoceles under treatment with sirolimus following renal transplantation: a single center experience. *Transplant Proc* 2002; 34:1815–1816.
- Amante AJ, Kahan BD. Technical complications of renal transplantation. *Surg Clin North Am* 1994; 74:1117–1131.
- Saidi RF, Wertheim JA, Ko DS, et al. Impact of donor kidney recovery method on lymphatic complications in kidney transplantation. *Transplant Proc* 2008; 40:1054–1055.
- Iwan-Zietek I, Zietek Z, Sulikowski T, et al. Minimally invasive methods for the treatment of lymphocele after kidney transplantation. *Transplant Proc* 2009; 41:3073–3076.
- Hwang EC, Kang TW, Koh YS, et al. Post-transplant lymphocele: an unusual cause of acute urinary retention mimicking urethral injury. *Int J Urol* 2006; 13:468–470.
- Zietek Z, Sulikowski T, Tejchman K, et al. Lymphocele after kidney transplantation. *Transplant Proc* 2007; 39:2744–2747.
- Mahrer A, Ramchandani P, Trerotola SO, Shlansky-Goldberg RD, Itkin M. Sclerotherapy in the management of postoperative lymphocele. *J Vasc Interv Radiol* 2010; 21:1050–1053.
- Risaliti A, Corno V, Donini A, et al. Laparoscopic treatment of symptomatic lymphoceles after kidney transplantation. *Surg Endosc* 2000; 14:293–295.
- Ostrowski M, Lubikowski J, Kowalczyk M, Power J. Laparoscopic lymphocele drainage after renal transplantation. *Ann Transplant* 2000; 5:25–27.
- Fuller TF, Kang SM, Hirose R, Feng S, Stock PG, Freise CE. Management of lymphoceles after renal transplantation: laparoscopic versus open drainage. *J Urol* 2003; 169:2022–2025.
- Hsu TH, Gill IS, Grune MT, et al. Laparoscopic lymphocelelectomy: a multi-institutional analysis. *J Urol* 2000; 163:1096–1098.

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