Bilateral Perirenal Subcapsular Fluid Collection
A Rare Presentation of Renal Parenchymal Disease

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INTRODUCTION

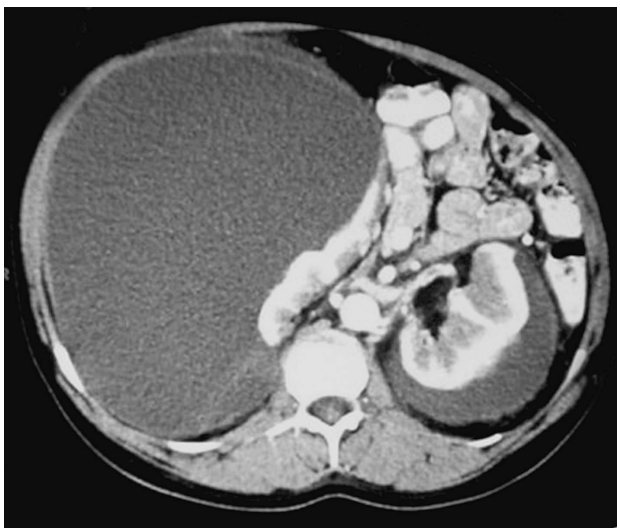
Perirenal fluid accumulation (floating kidney) is an unusual presentation of nephrotic syndrome. In this condition, the renal parenchyma is compressed and kidney function is impaired. We present a 27-year-old woman with membranoproliferative glomerulonephritis (MPGN) and massive bilateral perirenal fluid accumulation.

CASE REPORT

A 27-year-old woman presented with abdominal pain and a huge mass in the right upper quadrant. The patient had a history of hypertension and proteinuria during pregnancy. At presentation, the patient was hypertensive, and abdominal examination revealed a huge mass in the right side with extension to the midline and pelvic cavity. The patient had a serum creatinine level of 1.3 mg/dL, serum protein level of 5.5 g/dL, and serum albumin level of 2.7 g/dL. Proteinuria of 4 g/d was noted on 24-hour urinalysis.

Abdominopelvic ultrasonography revealed extensive perirenal fluid collection, which was more intense on the right side. Increased cortical echogenisity and decreased corticomedullary differentiation was also noted on ultrasonography. Renal subcapsular accumulation of homogenous fluid was noted on abdominopelvic computed tomography, which was more prominent on the right side, causing gross medial displacement of the right kidney. Both kidneys secreted normally with no evidence of hydronephrosis (Figure).

The right perirenal collection was drained percutaneously. The drained fluid was a transudate containing 1.2 g/dL of protein. Despite sufficient



Gross medial displacement of the right kidney due to massive fluid accumulation. Both kidneys secreted normally.

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drainage, re-accumulation of fluid was seen on ultrasonography 10 days later. Eventually, surgery was performed to fenestrate Gerota's fascia and drain the perirenal fluid into the peritoneal cavity. Kidney biopsy was performed simultaneously. A combination of conventional light microscopy and immune fluorescence study revealed type 2 MPGN.

A thorough investigation was performed before initiation of the treatment. Viral markers and immunologic evaluations (including antinuclear antibody, complements, etc) revealed no abnormality, and treatment began with prednisolone and mycophenolate mofetil. Proteinuria remained unchanged after the treatment; therefore, she received intravenous methylprednisolone pulse therapy. Although proteinuria remained unresponsiveness to different treatment attempts, abdominal pain was relieved, and blood pressure was controlled within preferable limits. Despite the occurrence of mild ascites, no right perirenal fluid re-accumulation was observed on ultrasonography 6 months later, and the left perirenal fluid remained unchanged.

DISCUSSION

Perirenal fluid accumulation may occur as a rare presentation of nephrotic syndrome. Sodium and fluid retention can lead to fluid transudation into the perirenal space. Distension of the renal capsule and Gerota's fascia due to massive fluid accumulation may cause pain. In addition, arterial hypertension secondary to renal ischemia and activation of renin-angiotensin-aldosterone system may occur. Similar findings have been noted in patients with subcapsular bleeding ("page kidney").[1]

Although the first step in the treatment of such patients is nonsurgical, surgery is an appropriate option for refractory cases. Yalcin and colleagues described a patient with focal segmental glomerulosclerosis and nephrotic syndrome associated with massive perirenal fluid accumulation that was successfully managed with corticosteroid and cyclophosphamide.[2] Koppelstaetter and associates performed laparoscopic fenestration of Gerota's fascia into the peritoneal cavity in a patient with focal segmental glomerulosclerosis and refractory perirenal fluid accumulation.[3] Another therapeutic approach is instillation of povidone iodine into the renal capsule, which has been proposed by Orofino and coworkers.[4]

The underlying parenchymal disorder in our patient was type 2 MPGN, in which medical treatment may be less effective. Despite receiving different therapies, proteinuria in this patient remained unchanged during a 6-month follow-up, but fenestration of Gerota's fascia into the peritoneal cavity improved the pain and hypertension significantly, and postoperative follow-up revealed no recurrence of perirenal fluid accumulation.

CONFLICT OF INTEREST

None declared.

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