A kidney gone astray under pressure

Jeffrey H. Wang and S. Panduranga Rao

Division of Nephrology, Department of Internal Medicine, University of Michigan Health System, Ann Arbor, MI 48109, USA

Correspondence and offprint requests to: Jeffrey H. Wang; E-mail: jefwang@med.umich.edu

Keywords: abdominal compartment syndrome; acute renal failure; chyle leak

A 58-year-old man underwent elective repair of a type 2 thoracoabdominal aortic aneurysm. On post-operative day 10, he developed acute onset of dyspnoea and abdominal pain. He was hypotensive and oliguric, with a rigid and distended abdomen. Laboratories showed acute renal failure (ARF) with a rise in the serum creatinine to 2.7 mg/dL from a baseline of 1.4 mg/dL. Intra-abdominal pressure (IAP) measured via intravesical cannulation was 47 mmHg, consistent with grade 4 intra-abdominal hypertension [1]. A diagnosis of abdominal compartment syndrome (ACS) was made. Computed tomography (CT) of the abdomen and pelvis revealed a massive retroperitoneal fluid collection (asterisk) displacing the left kidney (solid arrow) from its normal position into the right upper quadrant (Figure 1). The spleen (arrowhead) and bowel were also shifted, while the right kidney (hollow arrow) remained in the right retroperitoneum. Emergent decompressive laparotomy was performed with evacuation of 10 L of fluid and placement of a retroperitoneal drain. IAP decreased to 8 mmHg with resolution of the ARF. During his convalescence, the patient had persistently high drain outputs of 4–5 L a day suspicious for a chyle leak. After post-pyloric administration of heavy cream, the retroperitoneal fluid triglyceride level increased from 16 mg/dL to 477 mg/dL, consistent with chylosus fluid. The retroperitoneum was explored and multiple chyle leaks were seen along the aortic aortomy in the aneurysm sac and were ligated. The patient made a full recovery, and a subsequent CT angiogram to evaluate the aneurysm repair demonstrated return of the left kidney (solid arrow) to its normal position (Figure 2).

ACS is common in critically ill patients after abdominal trauma or surgery or aggressive volume resuscitation with the development of ascites. Renal injury is thought to be due to decreased renal perfusion from extrinsic compression of the kidneys and low cardiac output from impaired venous return [2]. Abdominal decompression is the hallmark of treatment in severe cases. Although ACS is an infrequent complication of aortic surgery, vigilance should be maintained as this case illustrates.

Conflict of interest statement. None declared.

References

Received for publication: 10.5.09; Accepted in revised form: 20.5.09
Fig. 1. Contrast-enhanced computed tomography of the abdomen and pelvis. The abdominal contents, including the left kidney (solid arrow) and spleen (arrowhead), are displaced into the right upper quadrant by a large retroperitoneal fluid collection (asterisk). The right kidney (hollow arrow) remained in the right retroperitoneum.

Fig. 2. Contrast-enhanced computed tomography of the abdomen and pelvis performed 2 months after abdominal decompression. The retroperitoneal fluid collection is no longer present and the left (solid arrow) and right (hollow arrow) kidneys are back to their normal locations.