Case Report

Giant polycystic kidney and acute abdomen in chronic renal failure

Pedro F. Ferraz Arruda, Luis Cesar F. Spessoto, Moacir Fernandes Godoy[1], José Maria Pereira de Godoy[1]

Department of Surgical Specialties, Urology Section, [1]Department of Cardiology and Cardiovascular Surgery, Medicine School in São José do Rio Preto, Brazil

Abstract The case of a rare complication is reported of a 53-year-old patient with giant polycystic kidney (4250 g) that evolved with acute small bowel occlusion. The patient was submitted to surgery which identified that the intestinal occlusion was due to external compression of the intestinal loops. Excision of the mass solved the case.

Key Words: Failure, kidney, polycystic, renal

Address for correspondence:
Dr. José Maria Pereira de Godoy, Rua Floriano Peixoto, 2950, São José do Rio Preto, São Paulo 15020-010, Brazil. E-mail: godoyjmp@riopreto.com.br
Received: 08.05.2010, **Accepted:** 25.09.2010

INTRODUCTION

Polycystic kidney disease (PKD) is a common inherited nephropathy (about 1 in every 1000 births) which normally progresses to end-stage renal failure in the fifth or sixth decade of life.[1,2] In this disease, multiple clusters of cysts form on the kidneys. However, cysts can also form on other organs, with the liver being the most commonly involved extrarenal organ. Because of enlarged kidneys, serious complications can occur, such as intestinal compression, necrosis and intestinal obstruction.[3,4] Additionally, hematuria after hemorrhages and rupture of the cysts with the formation of hematomas can be observed with large cysts. Unilateral or bilateral nephrectomy is mandatory in cases of PKD, where the patient is on dialysis, has chronic abdomen pain, infection or insufficient abdominal space to hold the transplanted kidney.[5] In this work, we present the case of a patient with giant polycystic kidney submitted to open nephrectomy, due to intestinal strangulation, macroscopic hematuria and the necessity to prepare the patient for kidney transplantation.

Access this article online	
Quick Response Code:	Website: www.urologyannals.com
	DOI: 10.4103/0974-7796.75859

CASE REPORT

We report here the case of a 53-year-old male patient who had been diagnosed with PKD 9 years previously. The patient was suffering from chronic renal failure and was being treated in the Nephrology Service of Hospital de Base in São José do Rio Preto, Brazil. In relation to the intestinal symptoms, the patient was asymptomatic, but had chronic abdominal pain. The patient was progressing to chronic renal failure with for hemodialysis programming.

The patient was admitted to hospital with weight loss and macroscopic hematuria. Frank hematuria began with hemodynamic repercussions and a reduction of all red blood cell parameters, and thus the patient required transfusion. Computed tomography of the abdomen showed multicystic kidneys occupying most of the abdominal space, polycystic liver and probable bleeding of the left kidney that caused a large hematoma [Figure 1].

The patient was submitted to unilateral nephrectomy. The surgical approach was infracostal and the total surgery time

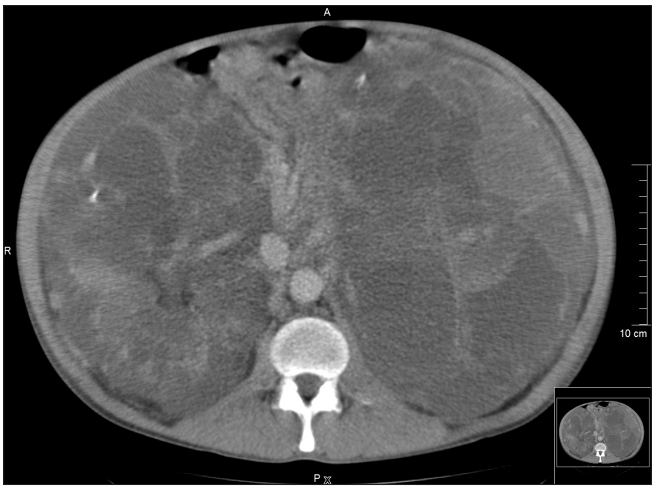

Figure 1: Computed tomography showing bilateral polycystic kidneys occupying most of the abdominal cavity

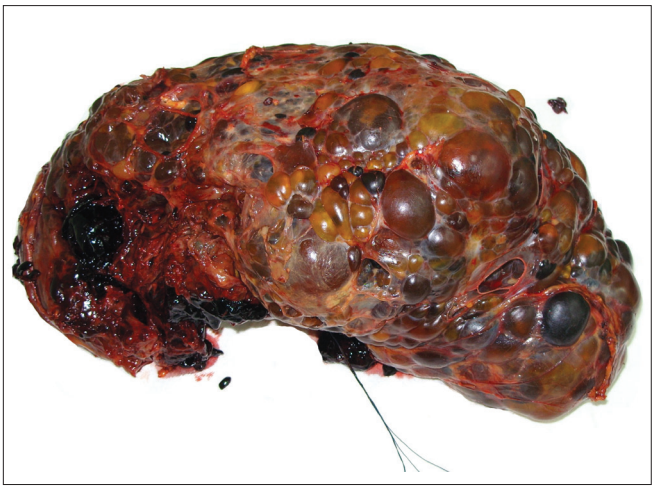

Figure 2: Photograph showing macroscopic aspects of the giant polycystic kidney weighing 4250 g

was 2 hours. The right kidney was left in place due to the physical conditions of the patient, but was scheduled for resection during a second procedure. The size of the left giant polycystic kidney was 43 cm×19 cm×16 cm, with a weight of 4250 g [Figure 2]. An anatomopathological examination confirmed multicystic kidney compatible with renal cystic disease. In the postoperative period, the patient evolved without complications.

DISCUSSION

This study reports a complication of polycystic kidney that has rarely been described in the PubMed, Scopus and ISI Web Knowledge electronic libraries. Two case reports describe acute intestinal occlusion;[6,7] one described occlusion of the duodenum and the other of the small intestine. However, in the current case, the occlusion occurred in the terminal ileum. Another rare aspect is the size of the kidney which filled most of the abdominal cavity. The intestinal obstruction was due to external compression of the tumoral mass. There were no adherences that made the surgical procedure difficult or caused intestinal ischemia; however, due to the size of the polycystic kidney (4250 g), a larger incision was required for its removal.

In the literature, one case of intestinal obstruction was solved by puncture and suction of the kidney cysts,[6] and in another case, resection of part of the intestine was necessary due to ischemia.[4] The main complications of surgery in respect to other adjacent structures are splenic capsule and pleural lesions and injury to the inferior vena cava.[8]

Diagnosis of PKD is made by clinical history, family history, physical examination and imaging and a genetic test that detects mutations in the *PDK1* or *PDK2* genes. Kidney imaging findings can vary considerably, depending on a patient's age. Recently, magnetic resonance imaging (MRI) has been used to measure kidney and cyst volume and to monitor kidney and cyst growth, which may serve as a way to track progression of the disease.

Total kidney volume and total cyst volume increase exponentially, a result consistent with an expansion process dependent on growth. Higher rates of kidney enlargement are associated with a more rapid decrease in renal function.[9]

Percutaneous aspiration of cysts may help manage severe pain due to hemorrhage or compression but has no effect on long-term outcome. For severe refractory pain, surgical decompression of large cysts may provide effective symptomatic relief. Both open and laparoscopic surgical approaches have been described. However, surgery does not slow the progression of the chronic renal failure.

CONCLUSION

Acute bowel occlusion due to polycystic kidney has rarely been described. However, giant kidneys can cause external pressure on other structures.

REFERENCES

1. Lespinasse J, Fourcade J, Schir F. Polycystic kidney diseases: Molecular genetics and counseling. Nephrol Ther 2006;2:120-6.
2. Rozansky J, Kozlowska I, Myslak M, Domanski L, Sienko J, Ciechanowski K, *et al.* Pretransplant nephrectomy in patients with autosomal dominant polycystic kidney disease. Transplant Proc 2005;37:666-8.
3. Carels RA, Van Bommel EF. Ruptured giant liver cyst: A rare cause of acute abdomen in a haemodialysis patient with autosomal dominant polycystic kidney disease. Neth J Med 2002;60:363-5.
4. Yoshikawa T, Noguchi Y, Takeda A, Ishiwa N, Hasegawa S. Strangulation necrosis of the intestine in a patient with giant polycystic kidney disease: A rare cause of acute abdomen. Int Surg 2008;93:15-8.
5. Gabor PA. Autosomal dominant polycystic kidney disease. N Engl J Med 1993;329:332-42.

6. Kakinoki K, Noda Y, Takaeda M, Kubo M, Mizuhashi K, Miyamoto I, *et al*. Intestinal obstruction in autosomal dominant polycystic kidney disease. Intern Med 2002;41:441-4.
7. Fried LF, Palevsky PM, Johnston JR. Duodenal obstruction in polycystic kidney disease. Case report and review of the literature. Am J Nephrol 1998;18:318-20.
8. Desai MR, Nandkishore SK, Ganpule A, Thimmegowda M. Pretransplant laparoscopic nephrectomy in adult polycystic kidney disease: A single centre experience. BJU Int 2008;101:94-7.
9. Grantham JJ, Torres VE, Chapman AB, Guay-Woodford LM, Bae KT, King BF Jr, *et al*. Volume progression in polycystic kidney disease. N Engl J Med 2006;354:2122-30.

Source of Support: Nil, **Conflict of Interest:** None.