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Case Report and Review of the Literature

Renocolic Fistula after Extracorporeal Lithotripsy: Case Report and Literature Review of a Rare Complication of a Common Procedure

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ARTICLE INFO

Article history:
Received: 22 November, 2022
Accepted: 5 December, 2022
Published: 16 December, 2022

Keywords:
Renocolic fistula
lithotripsy
complication

ABSTRACT

Extracorporeal lithotripsy (ESWL) is one of the most common urological procedures. Among its possible complications, renal parenchymal lesions are rare (approximately 7%). This is a case report of a renocolic fistula after ESWL. It is a very rare complication and without descriptions in the literature of association with ESWL. Because it is a rare lesion, there is no standardized treatment or data that makes it possible to determine the best conduct. The present case required a surgical approach to correct the fistula. It was possible to preserve the affected kidney, which is even rarer in the medical literature.

Introduction

Currently, extracorporeal lithotripsy (ESWL) is one of the most common urological procedures [1, 2]. As with any procedure, complications can arise. We highlight the inadequate breakdown of renal lithiasis, damage to vessels or the renal parenchyma, increased glomerular filtration rate and increased blood pressure [3]. Renal parenchymal lesions can occur in up to 7% of cases, whose manifestations range from subclinical conditions to renal and perinephric hematomas [2, 4]. Despite being relatively uncommon, hematomas present chances of infection and development of blood collection [2, 5]. In the present case, we report the case of a patient who had a serious consequence directly resulting from ESWL, with the development of an abscess and associated nephrocolic fistula.

Case Presentation

Female patient, 43-year-old, referred to the Emergency Surgery Service of the Regional University Hospital of Campos Gerais (HURCG) of the State University of Ponta Grossa, in the city of Ponta Grossa, Brazil. Initially, she had been treated at a smaller hospital in another city and was referred on suspicion of cholecystitis. Upon admission to the HURCG, she was referring severe pain in the right hypochondrium and right flank, without irradiation or associated fever. The patient also had undergone extracorporeal lithotripsy (ESWL) at another hospital 10 days before due to lithiasis of the right renal pelvis. Admission exams at HURCG showed preserved renal function and absence of elevated liver or canalicular enzymes.

Abdominal computed tomography (CT scan) was performed, which demonstrated an extensive right renal subcapsular heterogeneous collection measuring 140×107×109 mm with blood foci and intermingled gases. The imaging exam also showed renal calculi on the right kidney and a collection involving the anterior and the posterior pararenal spaces, which was compressing segments V and VI of the liver (Figure 1).

The Urology team was called upon with the diagnosis of infected renal and perinephric hematoma, being that a complication of the recent

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http://dx.doi.org/10.31487/j.SCR.2022.12.01

ESWL. Considering that renal function was preserved, and effective diuresis was present, the Urology team opted for conservative treatment.

The patient presented a stable evolution. However, after seven days of parenteral antibiotic therapy, sudden episodes of intestinal bleeding happened with elevated C-reactive protein (CRP). A new CT scan was performed (Figure 2), which found complicated pyelonephritis on the right kidney, an increase in the extent of the previous locoregional inflammatory process, the appearance of a contiguity liver abscess and signs of fistulization in the right colon.

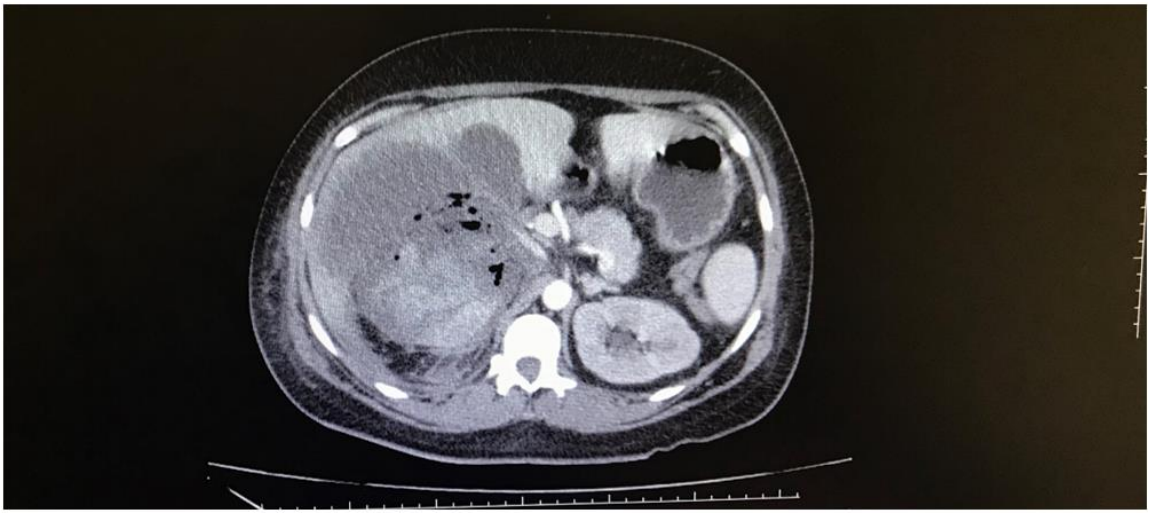

Figure 1: Computed tomography in the arterial phase. There is a large amount of renal fluid, with deformity of its anatomical boundaries. In addition, air surrounding the collection, suggesting associated anaerobic infection. Presence of hepatic compression, generating alterations in lobes V and VI.

Figure 2: CT scan showing an increase in the collection, associated with the presence of a fistula for the hepatic flexure of the right colon.

The Emergency Surgery Service took over the case and the patient underwent an exploratory laparotomy, which inventory of the cavity showed: i) massive blockage of the omentum and intestinal loops over the hepatic flexure; ii) open Gerota's fascia; iii) right subphrenic abscess; iv) right perirenal and subhepatic collections; v) good looking right kidney wrapped in clots; vi) nephrocolic fistula to the hepatic flexure of the colon and proximal transverse colon; vii) communication of the perirenal and subhepatic collections to the proximal transverse colon.

The surgical procedure resulted in an extended right ileocolectomy, latero-lateral transverse ileocolic anastomosis, evacuation of perirenal clots and preservation of the right kidney. Drainage of the cavity was also associated, placing a tubulolaminar drain in the right subphrenic space, a laminar drain in the subhepatic region, a suction drain in the right renal store and a laminar drain in the right paietocolic gutter.

On the following day, the patient was submitted to a double J catheter insertion procedure by urology team. The patient had a good postoperative evolution and was discharged on the 9th postoperative day. The patient underwent outpatient consultations for clinical reassessments. On the 59th postoperative day, he returned to the hospital emergency room with abdominal pain and fever. It was decided to perform a new CT scan (Figure 3), which showed a reduction in the renal subcapsule collection, however, with formation of a collection in the mesentery in the mesogastrium topography.

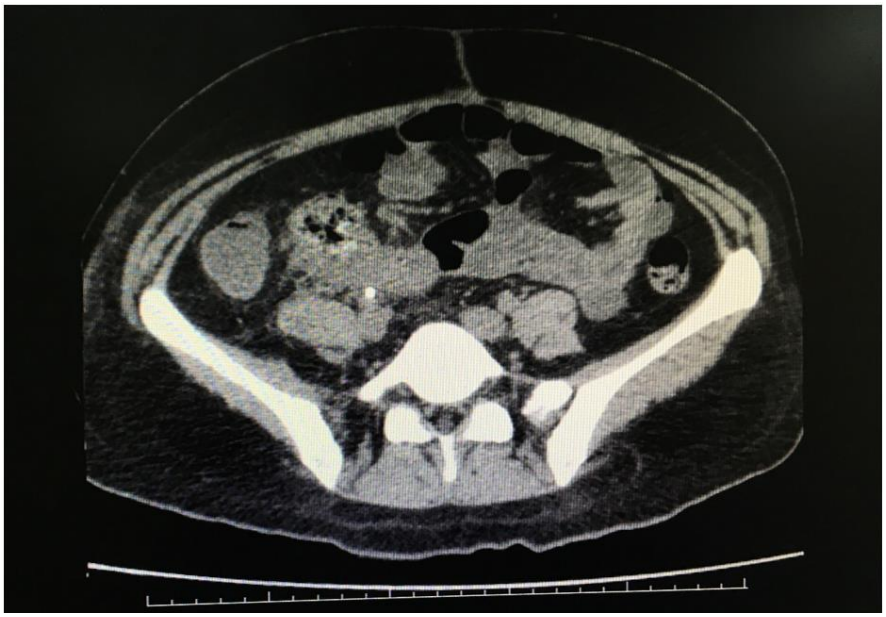

Figure 3: CT scan showing persistence of signs of complicated pyelonephritis on the right; reduction of the renal subcapsular collection on the right and of the subhepatic collection; collection organization amidst the mesentery on the right flank/right iliac fossa measuring approximately 48×48×46 mm.

As this new collection was surrounded by intestinal loops, tomography-guided or ultrasound-guided puncture was ruled out. The Emergency Surgery Team then performed a new laparotomy and drainage of the collection. The patient had a good postoperative evolution and was discharged after one week of hospitalization.

The patient resumed outpatient follow-ups with both the urology team and the emergency surgery team, both with no reported intercurrences and with good evolution described. Scintigraphy demonstrated renal viability. The patient underwent two more exchanges of the double J catheter. The catheter was removed and the patient was discharged with preservation of the kidney.

Discussion

The first case of renocolic fistula was described by Hippocrates in 460 BC These fistulas rarely are found in clinical practice, and renocolic fistulas are the most common among reno-alimentary fistulas [6]. Due to its rarity, there are few studies with a significant sample of patients. Bissada *et al*. compiled 59 fistulas in 96 patients with reno-digestive fistulas [7]. The incidence of fistulas was much higher a few years ago, especially when untreated pyelonephritis and tuberculosis were the main etiologies [8, 9]. Currently, the most common causes of fistulas of this magnitude are iatrogenic injuries, firearm injuries, radiofrequency injuries, and radioablation of renal tumors.

In our literature review, we did not find any reports of fistulization as a complication of ESWL. In 2001, Touiti *et al*. described an alimentary fistula after a surgical procedure [8]. In 1993, Melvin *et al*. described a gunshot renocolic fistula [10]. Similar cases were reported by Herbert *et al*. and by Abdalizz *et al*., who included in their study two distinct episodes of renocolic fistula caused by firearms [6, 11].

Regarding the development of these lesions after treatment of renal carcinomatosis, the literature is more comprehensive. Douglas *et al*. described a case of fistula after 10 months of treatment for a renal mass by radiofrequency ablation [12]. Wysock *et al*. reported the condition of a 76-year-old patient with the development of a fistula after cryoablation of a 4.5 cm renal tumor [13]. Medina *et al*. wrote about a patient who developed a fistula as a consequence of radiofrequency treatment of a renal cell tumor [14].

Lee *et al*. described a case of renocolic fistula resulting from a stent long-term ureteral stent [15]. Iwamoto and collaborators, on another hand, presented a case of fistula involving the ureter, retroperitoneal abscess and descending colon due to urinary calculus [5].

In renocolic fistula gastrointestinal symptoms are the most common, especially diarrhea, nausea and vomiting [6]. The presence of intestinal bleeding has also been described as the main part of the clinical presentation of fistula, as demonstrated by Wysock *et al*. [13]. The diagnosis can be made through barium enema, retrograde cystourethrography, fistulogram or CT [8]. In our case, CT was of paramount importance, as in multiple other studies found in the literature [8, 13, 14].

It is possible to try conservative treatment, reserving nephrectomy for cases of previous kidney injury or severe kidney injury at the time of fistula [6, 10, 13]. The surgical approach can be either laparoscopic or laparotomy, with no references comparing the two approaches [16]. Despite this description in the literature, the vast majority of studies address the condition with associated nephrectomy and partial colectomy [6, 13, 14]. In our case, it was possible to preserve the kidney, probably because the surgical approach was performed in a timely manner. No studies were found that demonstrate possible complications of choosing a more expectant renal approach in relation to fistulas, even though this treatment can be recommended in extremely selected situations.

Conclusion

Reno-alimentary fistulas, despite being rare conditions, are increasingly frequent, especially due to the increase in urological and oncological procedures related to the kidney. Our case report presents an extremely rare complication of ESWL, an extremely common urological procedure nowadays. Furthermore, our conduct of renal preservation, pointed out in other studies as infrequent, was an opportunity to assess the possible real consequences of such a procedure [6].

Conflicts of Interest

None.

Ethical Approval

This case report complies with institutional/national standards. The case report has been approved by the institutional scientific committee for both ethical and methodological issues.

Funding

None.

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