

Short Communication

Management of Sepsis in a Rare Case of Diverticular Perforation in a Polycystic Kidney in a Patient with a Previous Renal Transplant

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Abstract

A female, 68 years old patient treated with left renal transplantation in 2005 for Autosomal Dominant Polycystic Kidney Disease, was admitted with a diagnosis of urinary sepsis and pericolic abdominal collections. A Computed Tomography scan confirmed bilateral emphysematous pyelonephritis, determining a high risk of transplant failure. Patient was first treated conservatively, due to multiple comorbidities and perioperative risk, with a partial improvement of clinical scenario and septic condition, but as laboratory and radiological findings progressively worsened, she was finally subjected to explorative laparotomy. A Hartmann's procedure was performed, multiple abdominal abscesses involving also the ipsilateral iliopsoas muscle and diaphragm were drained and left native kidney was removed, while the transplanted kidney was left in place. Postoperative hours required a short Intensive Care Unit stay, after which the patient was transferred back to our Surgery Unit. Clinical, laboratory and radiological regular assessments showed a rapid improvement and the patient was finally discharged in ninth postoperative day. In conclusion, in fragile, transplanted patients an initial conservative management should be considered, but in none or not-completely responders surgery could definitely preserve kidney function.

Keywords: Kidney transplant; Diverticular disease; Autosomal dominant polycystic kidney disease; Urinary sepsis; Surgery

Abbreviations

ADPKD: Autosomal Dominant Polycystic Kidney Disease; KT: Kidney transplant; UTI: Urinary Tract Infection; CT scan: Computed Tomography Scan; EP: Emphysematous Pyelonephritis

Introduction

A female, 68 years old patient affected by Autosomal Dominant Polycystic Kidney Disease (ADPKD) treated with left Kidney Transplantation (KT) in 2005, was transferred to our hospital in May 2022 with a diagnosis of urinary sepsis. A Computed Tomography scan (CT scan) performed the previous days had simultaneously showed multiple abdominal collections, located in the pericolic area. Patient's recent history reported a previous admission, in October 2021, with a diagnosis of acute sigmoid diverticulitis, pneumonia and urinary tract infection; the hospitalization was complicated with massive pulmonary embolism and cardiac arrest. Moreover, in March 2022 she was admitted for a bilateral pyelonephritis, affecting both native and transplanted kidneys, medically treated.

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Materials and Methods

Patient was submitted to a new CT scan that confirmed the presence of bilateral Emphysematous Pyelonephritis (EP) and of a retroperitoneal collection with a 10 cm diameter, in continuation with the left native kidney and affecting both the ipsilateral iliopsoas muscle and the diaphragm. The diagnostic colonoscopy performed afterwards showed purulent production from sigmoid and descendent colon diverticula. Patient was initially treated conservatively, with fasting, fluid resuscitation and antimicrobial therapy, with scarce response. A nephrological evaluation confirmed the high risk of transplant failure, while infectious diseases assessment suggested surgical drainage of the left abdominal collection for a better management of the infection. A preoperative cardiological evaluation was required due to the patient's multiple comorbidities, thus highlighting severe aortic stenosis, with the indication for correction only after the surgical treatment of the infectious source. An anesthesia preoperative evaluation emphasized a high perioperative morbidity and mortality risk through the Possum Score (95% and 55%, respectively).

Results

Conservative management led to the partial resolution of the septic condition and to the improvement of the clinical picture; nevertheless, renal laboratory and radiological further assessments highlighted a worsening scenario. The patient was thus surgically treated. Laparoscopic approach was excluded due to the multiple comorbidities and the perioperative risk. At the explorative laparotomy, a vastly extended left infectious process was confirmed; left colonic resection (Hartmann's procedure) was performed to remove primary infectious source, together with left nephrectomy of the native kidney (Figure 1) and drainage of the iliopsoas abscess (total operating time: 2 hours and 50 minutes). Previously transplanted kidney was spared and therefore left in place. After a short intensive

monitoring, patient was readmitted to our Surgery Unit. Clinical, laboratory and radiological findings progressively improved and the patient was finally discharged nine days after surgery. At the histological examination, acute diverticulitis and chronic nephritis were confirmed.

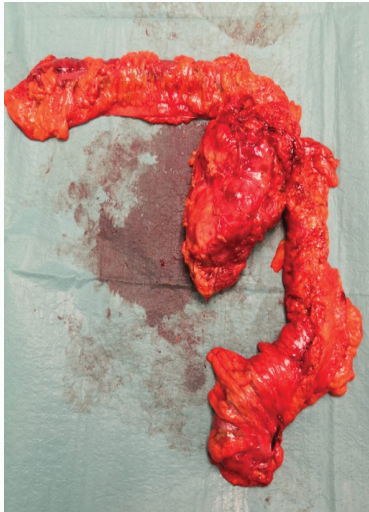


Figure 1: Specimen.

Discussion

Urinary Tract Infections (UTI) represent a frequent complication after KT, due first of all to anatomical alterations related to surgical manipulation during the transplant and to the frequent presence of indwelling stents, with a higher risk of multidrug antibiotic resistant UTI [1]. On the contrary, EP seems to be a rare finding in KT recipients [2]. In our case, remarkably, EP was present from the initial phases and the infection was primary caused by colonic bacterial flora. Even if an increased prevalence of colonic diverticulosis, diverticulitis and diverticular bleeding has been previously highlighted in patients with ADPKD [2], and despite sepsis notoriously leading to inferior survival and allograft function in these patients [3,4], no clear indications about elective colectomy or specific protocols to prevent severe diverticulitis in this fragile population have been released [5]. In our patient, the peculiarity and richness of the previous anamnesis and the severity of the septic state required a cautious, multidisciplinary, exhaustive evaluation of the case, and the progressive escalation of treatment options. At a certain point of the hospitalization, despite the high perioperative risk predicted at the anesthesiology evaluation, only surgical treatment guaranteed a turn in patient's management and finally leads to an improvement of clinical, laboratory and radiological status, with a progressively complete discontinuation of hospital treatments and final discharge.

Conclusion

Conservative management, when feasible, should first be applied in fragile, kidney transplanted patients, after multidisciplinary evaluation. Nevertheless, surgical treatment should be considered in poor responders.

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