



Secondary renocolic fistula caused by pyonephrosis

Pionefroza kao uzrok sekundarne renokolične fistule

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Abstract

Introduction. Renoalimentary fistulas represent infrequent pathology with 27 literature reports. The oldest report is from the year 1953. Nowadays, they usually arise after the cryoablation of renal tumors. In this case, we reported secondary renocolic fistula as an unusual complication of pyonephrosis, as well as the treatment modality, providing a literature review that favors a conservative or minimally invasive approach in most cases of renocolic fistula. **Case report.** In our case, the patient was a young female with a long course of kidney disease, which eventually led to pyonephrosis with renocolic fistula. Initially, the patient was hospitalized due to life-threatening urosepsis, successfully treated with a conservative approach. Afterward, we decided to proceed with surgical treatment. Regarding the poor right kidney function of the patient and the presence of concurrent sepsis, the right hemicolectomy with primary ileocolic anastomosis and the right nephrectomy were performed. The postoperative course was without complications, and the patient was discharged from the hospital on the 10th day. Follow-up did not reveal any complications. **Conclusion.** Regarding the available literature, a conservative and minimally invasive approach is most frequently employed in such cases. However, in cases of haemorrhage, sepsis, and impaired kidney function, surgery offers the only chance for cure. In patients with concurrent gastrointestinal pathology, surgery is usually the only option. Kidney preservation should be imperative in all cases, except in the case of impaired kidney function. The laparoscopic approach can be utilized in selected cases.

Key words:

fistula; urinary fistula; digestive system fistula;
pyonephrosis; sepsis; surgical procedures, operative.

Apstrakt

Uvod. Renoalimentarne fistule predstavljaju retku patologiju sa 27 objavljenih slučajeva u literaturi. Najstariji prikaz datira iz 1953. godine. U današnje vreme najviše slučajeva javlja se nakon krioblacije bubrežnih tumora. Prikazali smo bolesnicu sa sekundarnom renokoličnom fistulom, kao neobičajenom komplikacijom pionefroze, i tretman izbora u njenom slučaju, uz prikaz literature koja favorizuje neoperativni ili minimalno invazivni pristup lečenja u većini slučajeva. **Prikaz bolesnika.** U našem slučaju, radilo se mlađoj ženskoj osobi sa renokoličnom fistulom koja je imala dugotrajnu primarnu bubrežnu bolest komplikovanu pionefrozom sa razvojem renokolične fistule. Inicijalno, bolesnica je bila hospitalizovana zbog životno ugrožavajuće urosepse, tretirane neoperativno. U daljem toku bolesti odlučili smo se za hiruršku intervenciju. Urađena je desna nefrektomija i desna hemikolektomija sa primarnom ileokoličnom anastomozom. Postoperativni tok protekao je bez komplikacija i bolesnica je nakon 10 dana otpuštena na kućno lečenje. U periodu postoperativnog praćenja nisu uočene komplikacije. **Zaključak.** U dostupnoj literaturi, u tretmanu renoalimentarnih fistula najčešće je korišćen neoperativni i minimalno invazivni modalitet lečenja. U slučajevima krvarenja, sepse, smanjene bubrežne funkcije kao i u slučaju prisustva istovremene gastrointestinalne patologije, hirurgija predstavlja jedinu opciju za izlečenje. Očuvanje bubrega treba da bude imperativ u svim slučajevima, osim u slučajevima sa prisutnom bubrežnom insuficijencijom. U odabranim slučajevima moguće je i laparoskopski pristup.

Ključne reči:

fistula; fistula, urinarna; fistula, digestivni sistem;
pionefroza; sepsa; hirurgija, operativne procedure.

Introduction

Renoalimentary fistulas represent pathological communication between parts of the small and large bowel and urinary

system, either kidneys or the pyeloureteral tract. They are usually acquired rather than congenital, and they are classified as primary fistulas developed in the case of underlying gastrointestinal and/or urinary disease prone to fistulization (Crohn's dis

ease, diverticulosis, ulcer disease, malignancy, and renal tuberculosis)¹⁻³. Secondary fistulas arise after invasive diagnostic and therapeutic procedures (colonoscopy, pyeloureterolithotomy, ureterorenoscopy, and percutaneous cryoablation of renal tumors)¹⁻⁷. Signs of renocolic fistula include the following: pneumaturia, fecaluria, haematuria, recurrent acute and chronic urinary tract infections, abscess formation, pyonephrosis, renal atrophy, urinary steal syndrome, and hematochezia¹⁻⁷. A small number of cases are reported in the literature with different approaches to the treatment of this condition. The aim of this case report was to show the clinical course of this rare complication which, in this case, was the consequence of a long-standing primary renal disease. This paper also aimed to show the treatment modality of choice used in this case based on the clinical features that included the presence of sepsis, decreased kidney function, and primary kidney disease.

Methods

We presented a 23-year-old female patient with an ongoing history of kidney diseases, with an onset of the disease in childhood. Initially, the disease presented as vesicoureteral reflux of high grade which led to chronic pyelonephritis and urinary stones formation. Pyeloplasty was performed 17 years ago due to stenosis of pylon and ureterolithotomy 4 years ago.

The patient was referred to our institution with signs and symptoms of urosepsis, which was successfully treated conservatively. Diagnostic workup included complete blood count (CBC), biochemistry, computed tomography (CT) scan, and upper and lower endoscopy. The upper endoscopy did not reveal any abnormalities.

Colonoscopy revealed oedema of bowel mucosa in the region of hepatic flexure with petechial hemorrhages (Figure 1). The CT scan revealed hypertrophy of the left kidney with atrophy of the right kidney associated with hydronephrosis grade III/IV. Urinoma in the proximity of the kidney was also present with the passage of contrast to the right colon, which was highly suspicious of the presence of a renocolic fistula (Figure 2). Regarding the course of the disease, previous operations, poor right kidney function with concomitant pyonephrosis, *en bloc* resection of the right kidney and the right colon were performed with primary ileocolic anastomosis. Intraoperative exploration revealed the presence of a fistula, which communicated with the renal excretory system and the right colon (Figures 3 and 4).

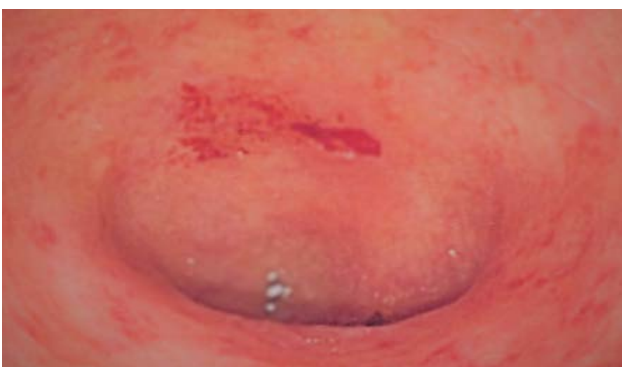


Fig. 1 – Colonoscopy revealed oedema of bowel mucosa in the region of hepatic flexure with petechial hemorrhages.

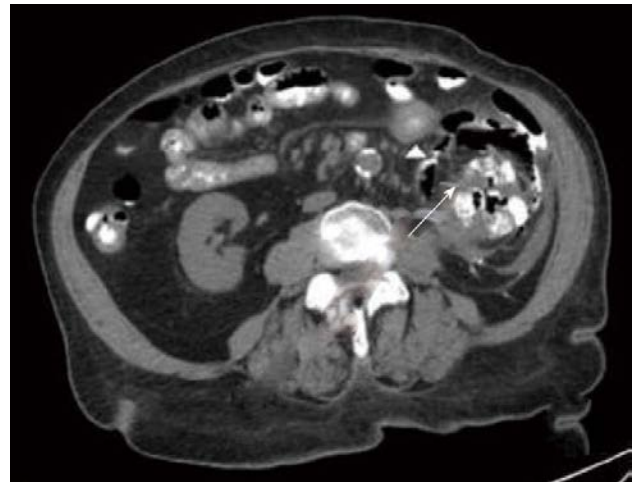


Fig. 2 – Computed tomography scan of the urinoma in the proximity of the right kidney.

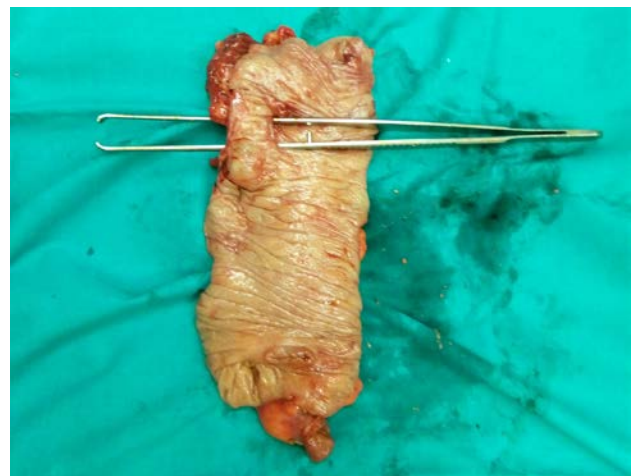


Fig. 3 – Intraoperative exploration – presence of fistula with renal excretory system and right colon.



Fig. 4 – Nephrectomy and resected colon specimen.

The postoperative course was without complications, and the patient was discharged after nine days. Three months of follow-up did not reveal any abnormalities. The histopathological examination revealed renal atrophy, chronic pyelonephritis, perinephritis (Figures 5 and 6), and inflammation of the colonic wall in the area of the fistulous tract.

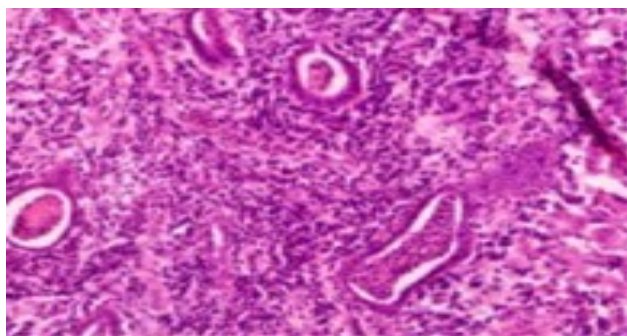


Fig. 5 – Postoperative finding: renal atrophy, chronic pyelonephritis and perinephritis (haematoxylin-eosin, ×10).

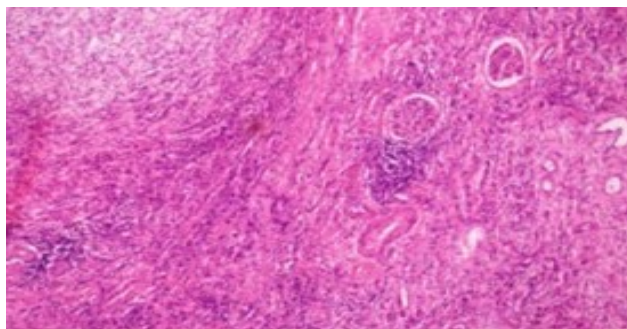


Fig. 6 – Renal atrophy and inflammation of colonic wall around the fistula (haematoxylin-eosin, ×10).

Discussion

There are only 27 papers reported in the Pubmed regarding the problem of renocolic fistulas. The oldest report is from the year 1953.

In our case, the initial presentation was not suggestive of the presence of renocolic fistula regarding the long-standing obstructive renal disease, which led to chronic pyelonephritis and pyonephrosis. Colonoscopy was inconclusive with unspecific inflammatory changes on bowel mucosa. Only contrast CT study revealed urinoma as an indirect sign of communication with the renal excretory tract. Passage of contrast from renal excretory system to the right colon was diagnostic of the presence of renocolic fistula. The surgical procedure was selected based on the following criteria: impaired kidney function, previous episode of urosepsis, and chronically inflamed thickened colonic wall around fistula orifice due to the present perinephritis (as revealed on histopathological examination), which mandated an extensive surgery with nephrectomy and right hemicolectomy. The colonic suture, in this case, was a procedure associated with a high risk of suture dehiscence due to the presence of active inflammation in the inflammatory conglomerate formed between the right kidney and colon.

A similar approach was employed in the case of a 42-year-old female, although a segmental colonic resection with colocolic anastomosis was utilized rather than the right hemicolectomy with ileocolic anastomosis⁸. In the paper of Jallouli et al.⁹, severe pyelonephritis with sepsis was initially diagnosed in a 58-year-old female patient. Diagnostic examina-

tions confirmed the existence of a renocolic fistula, thus a nephrectomy with colon suture was performed. The histopathological examination revealed renal tuberculosis, which mandated a long postoperative course of antituberculosis medications. Although these two cases utilized an aggressive surgical approach, two main treatment approaches of reno-alimentary fistulas were described in the literature. The conservative approach includes a nasogastric tube, bowel rest, and total parenteral nutrition with or without ureteral stenting in the case of the fistula with pyeloureteral tract^{5,6}. In the paper of Schmit et al.¹⁰, successful treatment of fistula was performed by CT-guided plugging of the fistulous tract with the clip being placed endoscopically over the fistula orifice. The operative approach requires laparotomy or laparoscopy with resection of affected bowel with or without nephrectomy and gastrointestinal tract reconstruction^{11,12}. In the treatment of renocolic fistulas, four main considerations should be employed in the decision-making algorithm: concurrent gastrointestinal pathology, assessment of kidney function preoperatively, communication of the bowel with the kidney or pyeloureteric tract, and the presence of systemic symptoms. In the case of the fistula with pyeloureteral tract, even in the case of conservative treatment selection, ureteral stenting should be considered in order to close the ureteral fistula orifice, decrease intraluminal pressure, and allow urine outflow in physiologic direction. The presence of impending sepsis, which does not respond to conservative treatment or gastrointestinal bleeding with hemodynamic instability, mandates resection of the affected bowel with or without gastrointestinal reconstruction. In the case of fistulas with duodenum exclusion or resection, procedures should be performed depending on the duodenal segment that is affected. Primary renocolic fistula with concurrent gastrointestinal pathology mandates bowel resection depending on the primary disease behavior (inflammatory bowel disease, diverticulosis, or cancer). Kidney preservation should be imperative in all cases where kidney function is unaffected except in the case where, intraoperatively, the kidney is identified as the source of life-threatening bleeding, in which case partial or total nephrectomy should be considered. Ashfaq et al.¹² performed segmental colectomy laparoscopically with kidney sparing and omentoplasty. If kidney function was severely impaired, concomitant total nephrectomy would be a procedure of choice in all cases.

Conclusion

We reported a case of renocolic fistula that initially presented with urosepsis as a complication of long-standing kidney disease associated with pyonephrosis and severe impairment of renal function, which required an aggressive surgical approach. In our experience, a CT contrast study revealed the presence of a fistula. Regarding the rarity of this complication, a high index of suspicion is necessary for diagnosis since different therapeutic approaches can be utilized. It seems that contrast studies of the gastrointestinal and urinary system (e.g. barium enema and pyelography) are procedures that offer a better chance for definitive preoperative diagnosis.

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