CASE REPORT

Renocolic fistula secondary to urothelial carcinoma

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SUMMARY

A 77-year-old man presented with watery, bloody diarrhoea, symptomatic anaemia and signs of sepsis. He was well known to our unit with a history of extensive low-grade urothelial carcinoma involving a solitary kidney. CT performed on admission demonstrated a new finding of renocolic fistula. Due to his multiple medical and surgical comorbidities conservative management was elected. He passed away after 1 year of follow-up.

BACKGROUND

Renocolic fistula represents a rare condition that is most often caused by inflammatory, malignant or iatrogenic processes. It represents an interesting diagnosis with a challenging clinical situation in a patient with a solitary kidney.

CASE PRESENTATION

The patient had a long-standing history of urothelial carcinoma diagnosed in 1999. He had presented to our facility on multiple occasions with haematuria and clot retention requiring catheterisation and bladder irrigation. Previous treatment for urothelial carcinoma had included a right nephroureterectomy, multiple transurethral bladder tumour resections and multiple endoscopic procedures for debulking of his left upper tract urothelial disease. Between 2012 and 2014, he underwent five percutaneous nephroscopic procedures and multiple retrograde ureteroscopic procedures. All tissues from the left renal pelvis had demonstrated only low-grade, non-invasive malignancy. However, his bladder resections had previously demonstrated high-grade, non-invasive urothelial carcinoma coexisting with carcinoma in situ for which he received an induction course of BCG.

He had extensive medical comorbidities including chronic obstructive pulmonary disease, non-insulin-dependent diabetes mellitus and a recent non-ST elevated myocardial infarction (NSTEMI) precipitated by anaemia.

The admission in question was precipitated by clot retention with a new finding of watery blood-stained diarrhoea being noted during the admission. He further developed signs of sepsis with fevers, tachycardia and purulent urine.

INVESTIGATIONS

Blood tests revealed a significantly elevated serum creatinine from baseline. A CT abdomen performed without intravenous contrast, given the patient's poor renal function, revealed air in the left renal

pelvis, loss of the perinephric fat plane, with the kidney and descending colon appearing contiguous. There was extensive perinephric fat stranding (figures 1 and 2).

TREATMENT

Owing to his single remaining kidney and multiple medical comorbidities precluding haemodialysis, radical surgery to correct the fistula was not an option. Non-operative management was undertaken with palliative radiotherapy for haemostasis. Two fractions of radiation successfully halted his haematuria and unexpectedly returned serum creatinine to his baseline of 300 µmol/L from 700 possibly due to tumour regression. A left ureteric stent was in situ prior to development of the renocolic fistula. Due to the poor prognosis and high perioperative risk with a recent NSTEMI, no plans were made for elective change of stent. He was discharged a week later once stable for palliative community follow-up.

OUTCOME AND FOLLOW-UP

After 1 year of follow-up, his renal function remained stable; however, haematuria was intermittently problematic requiring admissions for bladder irrigation, blood transfusion and further haemostatic radiotherapy. The patient passed away after a year of follow-up.

DISCUSSION

Renocolic fistula is an abnormal connection between any part of the alimentary system and the urinary system, most often the bowel to the renal pelvis. This condition is rarely reported in the literature, with no cases reporting urothelial carcinoma as contributory. These fistulae are usually associated with either an inflammatory, malignant or iatrogenic mechanism causing the abnormal connection. Commonly chronic inflammatory processes such as xanthogranulomatous pyelonephritis or obstructing renal stones have been the causative agents.¹ Among malignancies causing fistulation, colorectal and renal cell carcinomas are the most commonly reported.² Iatrogenic causes include percutaneous nephrostomy and cryoablation.³ Renocolic fistulae resulting from blunt trauma, particularly from gunshots, have also been reported in the literature.^{4,5}

Urothelial carcinoma was considered the most likely cause of renocolic fistula in our patient due to his previous histology and gas in the renal pelvis. Although previous histology had shown low-grade carcinoma, progression to high-grade

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Figure 1 Coronal section of a CT abdomen (non-contrast) with an arrow highlighting the renocolic fistula with a trapped gas locule in the renal mass.

invasive carcinoma was suspected. Interval scanning had previously revealed no fistula following percutaneous nephrostomies and ablations making this an unlikely primary cause. The percutaneous procedures could have contributed by creating defects in Gerota's fascia facilitating extrarenal tumour extension. Following the previous ablation, a ureteric stent was left in situ predisposing to abscess formation additionally. Long-term ureteric stenting has been associated with fistula formation resulting from chronic pyelonephritis, particularly in cases of forgotten stents.⁶ The lack of infective symptoms in the preceding months makes chronic pyelonephritis a less likely precipitant in this case.

Figure 2 Sagittal section of a CT abdomen (non-contrast) with an arrow highlighting the renocolic fistula with a gas locule trapped in the renal mass and the descending colon on the lateral aspect.

Symptoms of these renoalimentary fistulae result from bowel, urinary and systemic complications. Loose watery stools with or without blood result from urine entering the bowel lumen. Conversely, faecal matter entering the renal pelvis results in recurrent infections with bowel commensals. Systemic signs and symptoms include fevers and rigours indicating sepsis, and weight loss.¹ In our case, the patient had never complained of haematochezia or watery diarrhoea making a diagnosis of inflammatory bowel disease unlikely. Further on his CT abdomen there was no evidence of diverticulitis or other fistulae.

Investigations can reveal an acutely elevated serum creatinine due to the enteric reabsorption of urinary creatinine, elevation of inflammatory markers and neutrophilia. Urine cultures will commonly reveal bowel commensal organisms.¹ CT imaging is usually the most useful with the pathognomonic finding of renocolic fistulae being air within the urinary collecting system and loss of fat planes between kidney and colon.⁷ Colonoscopy is rarely helpful for a renocolic fistula unless another cause of haematochezia is being sought. Retrograde pyelogram highlights a renocolic fistula well when contrast enters the segment of involved bowel.^{5,8} Fistulae can also be identified and potentially treated at the time of a laparotomy.

Treatment in these cases usually involves nephrectomy and bowel resection with anastomosis of the diseased segment.⁴ Though there is no consensus on management case reports exist where conservative management with ureteric stenting alone has been efficacious particularly given medical comorbidities.³ In our patient's case, as a ureteric stent was already in situ and functioning in a solitary kidney combined with multiple medical comorbidities, further operative management was deemed inappropriate. Palliative radiotherapy to the affected kidney was undertaken to reduce transfusion-dependent haematuria despite the inherent risk of worsening the fistula and renal function.

Learning points

- ▶ A suspect finding of renocolic fistula in a patient with known inflammatory or malignant disease who presents with purulent urine and watery, bloody diarrhoea.
- ▶ An elevated creatinine can be due to absorption through the bowel when a fistula is present.
- ▶ Bowel resection and nephrectomy are usually required when a renocolic fistula is present; however, consideration of the patient's comorbidities is required.

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