Renocolic fistula following percutaneous nephrostomy: a case report

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ABSTRACT

Renocolic fistula is a rare clinical entity. In the past, its incidence was high due to infection, especially tuberculosis, and renal stone complications; which gradually reduced with advancements in antimicrobial therapy and better stone management. The incidence of renocolic fistulae, specifically iatrogenic one, has re-emerged due to minimally invasive renal surgery and regular percutaneous nephrostomy placement for various reasons. We reported a case of fifty five years old gentleman who presented to emergency room with left lithiasic pyonephrosis for which percutaneous nephrostomy was placed. Follow up antegrade pyelography diagnosed hydronephrotic left kidney with stone in renal pelvis with fistula communicating to descending colon. Contrast enhanced computer tomography revealed left non excreting kidney with retrorenal colon and percutaneous nephrostomy tube passing through the descending colon. The final diagnosis of post percutaneous nephrostomy renocolic fistula with non excreting left kidney was made and treated with ligation of fistulous tract and nephrectomy. Patient had uneventful recovery and histopathology showed chronic pyelonephritis.

Keywords: Renocolic fistula, retrorenal colon, percutaneous nephrostomy.

Fistula between the upper urinary tract and the gastrointestinal system is very rare. Only 100 cases have been reported in the world literature till now.[1] Among the total fistulae between the urinary and intestinal tracts, renocolic fistulae comprise less than 1.0%, the vast majority of which are colovesical fistulae. Most renocolic fistulae are iatrogenic, secondary to percutaneous nephrostomy (PCN) tube placement, although trauma, foreign body ingestion, malignancy (particularly colon, renal and transitional cell cancer), inflammatory processes (usually secondary to stones, infection, or diverticular disease) and tuberculosis (TB) especially in our part of world occasionally may be implicated.[1-3] We describe a case of left renocolic fistula following PCN for lithiasic pyonephrosis. Diagnosis was confirmed by antegrade pyelography and treated by nephrectomy and ligation of the fistulous tract.

CASE REPORT

A fifty five years old male presented to emergency with left loin pain on and off for last one year, fever with chills and rigor, and multiple episodes of vomiting for 7 days. Investigation revealed low hemoglobin, leucocytosis and serum creatinine level of 459 micro mol/L and ultrasonography (USG) showed left sided multiple nephrolithiasis with features suggestive of pyonephrosis. Diagnosis of lithiasic pyonephrosis was made and patient was put on intravenous antibiotics followed by PCN tube placement on left side draining 250 ml of frank pus. Patient improved dramatically and discharged from hospital with plan to follow up after one month.

Repeat USG showed left pyelolithiasis with PCN tube in situ with cortical thickness of 8 mm. Intravenous urography (IVU) confirmed normally excreting right kidney with non excretion from left side. Antegrade pyelography showed hydronephrotic left kidney with stone in renal pelvis with fistula communicating to descending colon. Injected contrast through PCN tube was freely going into and opacifying the descending colon (Fig. 1). Contrast enhanced computer tomography (CECT) revealed left retrorenal colon with PCN tube passing through the descending colon (Fig. 2). Part of colon, in between the kidney and skin, was punctured during PCN placement, but patient was asymptomatic. The final diagnosis of left pyelolithiasis with post PCN renocolic fistula was made and planned for exploration after proper bowel preparation. Tract between the descending colon and left kidney was established, fistulous tract ligated and nephrectomy performed. Patient had uneventful post operative course and histopathology revealed chronic pyelonephritis.

DISCUSSION

Renocolic fistula is not a commonly reported lesion. Hippocrates is credited for the first reported case in 460 BC. It began to be recognized more commonly in the mid-1800s due to renal TB; but soon diminished with advancements in antitubercular and antimicrobial therapy.[3] With the advent of minimally invasive renal

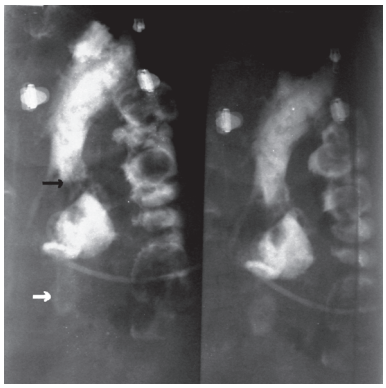

Fig. 1. Antegrade pyelogram showing hydronephrotic left kidney with stone (white arrow) in renal pelvis with fistula (black arrow) communicating to descending colon

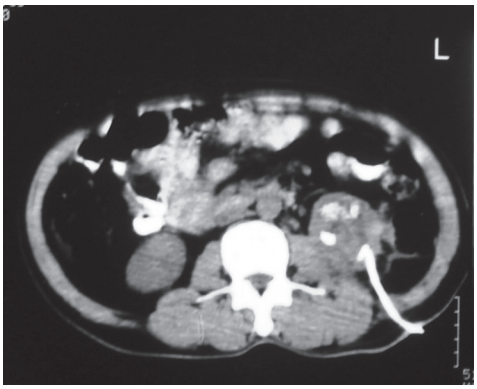

Fig. 2. Contrast enhanced CT scan showing left retrorenal colon with PCN tube passing through the descending colon

surgeries, regular PCN tube placement and radio frequency ablation for renal tumors,[4] the incidence of renocolic fistulae, specifically iatrogenic renocolic fistula, has increased. Despite the increase, this phenomenon still remains quite rare. Long-standing calculi leading to obstruction and abscess formation,[5] xanthogranulomatous pyelonephritis (XGP),[2] traumatic injury to the kidney and the gut,[6] and malignancies have all been observed to create renocolic fistulae. Besides all, the most common cause for fistulization is iatrogenic, as in our case.

The kidneys are paired retroperitoneal structures separated from the enteric system by the peritoneum, Gerota fascia, and perirenal fat. Renocolic fistulae tend to occur where these structures are attenuated or absent. The retroperitoneal colonic segments are usually anterior to the kidneys, rendering this bowel segment susceptible to fistula formation within the kidney. In about 1.0% of cases, even the colon is more posteriorly displaced and may contain a retrorenal component. Hadar *et al*[7] reported finding a retrorenal colon in 0.6% of the cases, after studying the anatomic relation of the colon to the kidneys. This anomalous anatomy is more common on the left than the right and is seen more frequently in females than in males and those findings were supported by various other studies. [2,8,9] In our case, the left sided colon was in retrorenal position and was inadvertently puncture during PCN placement.

Renocolic fistula is diagnosed with the aid of either renal or colonic imaging studies. The predominate direction of flow tends to be from the urinary tract to the colon, and renal imaging tends to reveal the lesions most often. An IVU may be helpful to identify the fistula, but in chronic condition, often the kidney is poorly functioning, which limits the diagnostic capability. In our case also, IVU remained silent regarding the fistulous communication; but confirmed normally functioning contralateral kidney. Findings from an antegrade or retrograde pyelogram often help to establish the diagnosis and define the exact location of the fistula within the upper urinary tract. Retrograde pyelogram, sometimes, fail to demonstrate fistulae proximal to an obstructing proximal ureteric calculus, which prevents passage of contrast into the proximal collecting system where the fistulous connection is located. CT scan images are probably the most helpful for discerning the underlying pathology of the renocolic fistulae, such as retrorenal colon, XGP or an abscess.

The choice of therapies for renocolic fistula largely depends on the etiology of the fistula and the segment of bowel involved. If renocolic fistula is caused by iatrogenic injury to the bowel during percutaneous nephrostomy placement, recognized early and the patient does not display signs of peritonitis, the accepted treatment is to pull back the percutaneous tube so that it drains the renal pelvis without maintaining the fistulous connection with the colon. If peritonitis is present, immediate surgical exploration is mandated. If the patient is stable and identified later, elective resection of the fistula following mechanical and antibiotic bowel preparation is preferred.

To conclude, iatrogenic renocolic fistula is a rare clinical entity which is re-emerging due to minimally invasive renal surgeries and retrorenal position of colon in significant number of population.

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