

Renojejunal Fistula: An Extremely Rare Form of Renoenteric Fistula

Dear Editor,

Obstructive calculous disease of the kidney often results in infectious complications such as pyelonephritis and perinephric abscesses. Renojejunal fistula formation may occur as the inflammation becomes chronic. We report one such case and review 4 other cases reported in the literature.

A 55-year-old Malay gentleman presented with left-sided pyonephrosis with a concomitant psoas abscess. He was known to have recurrent upper tract infections secondary to an upper ureteric stone for which he had undergone multiple nephrostomies. There was no associated pneumaturia nor abnormal faeculant contents in his urine. In this episode, both the renal pelvis and psoas abscess were drained percutaneously and radionuclide scan confirmed a poorly functioning kidney. Subsequent antegrade studies showed communication between the renal pelvis, psoas abscess as well as the jejunum.

The patient was given a trial of conservative management. In addition to draining the abscess, the infection was controlled with intravenous antibiotics and the bowel rested with nil-by-mouth and total parenteral nutrition. However, interval scans showed persistent fistulous communication although there was a reduction in the size of the abscess. Surgical intervention was thus instituted and at laparotomy, the fistula was noted to track from the hydronephrotic kidney, through the mesentery of the descending colon and into the jejunum as it emerged from the duodeno-jejunal junction. The kidney was thin-walled and embedded in a thick mass of fibrotic, inflammatory tissue. A window was created in the mesocolon, sparing the marginal artery, in order to excise the fistula track. Left nephrectomy was performed. A wedge segment of the involved jejunum was excised with primary closure of the small bowel wall. The mesocolon window was closed to avoid internal herniation. The patient made a rapid recovery with no immediate postoperative complication.

Renoenteric fistulae itself is a rare entity and is known to occur in chronic inflammatory diseases of the kidney such as xanthogranulomatous pyelonephritis. Other diseases of the kidney causing renoenteric fistulae include tuberculous infections, malignancy with obstruction and rarely, fungal infections. Iatrogenic surgical trauma, especially those related to percutaneous access of the kidney, may also result in fistulation into the bowel.

The most common type of renoenteric fistula is renocolic fistula because of the immediate relations of the ascending and descending colons to the kidney. Renoduodenal fistulae

of the right kidney had also been reported due to the retroperitoneal position of the second part of the duodenum.

Renojejunal fistula is an extremely rare form of renoenteric fistula. To our knowledge, only 4 other cases have been reported in the literature over the past 5 decades.¹⁻⁴ Its rarity stems from the natural anatomical barriers between the jejunum and the kidney. The left kidney is embedded in the Gerota's fascia, a thick fibrofatty fascia, which separates it from the colon and duodenum. The mesocolon further separates the kidney posteriorly from the intraperitoneal contents such as the jejunum anteriorly. For a fistula to form between the retroperitoneal kidney and the intraperitoneal jejunum, the inflammatory process must breach the abovementioned natural barriers. In addition, it had already been observed radiologically that for a renocolic fistula to develop, atrophy of the perinephric fat must precede the fistulation.⁵ To further breach the mesocolon to reach the jejunum, the inflammatory process must be chronic and active. Gross hydronephrosis, atrophy of perinephric fat, thinning of the renal cortex with repeated episodes of pyonephrosis with resultant xanthogranulomatous pyelonephritis, all predisposed this patient to the formation of renojejunal fistula. This observation can be corroborated by the fact that every case of renojejunal fistula resulted from pyelonephritis or pyonephrosis.

With regard to management, the advent of endourology and interventional radiology has provided urologists the option of conservatively managing leakage from the urinary system. This can be accomplished by upper tract diversion using a nephrostomy tube or stenting the site of the leak with a catheter or both. In addition, drawing on the general surgical principles of managing enterocutaneous fistula, it is known that a low output fistula may close with conservative measures. These measures include controlling the infection, keeping the patient nil-by-mouth for a period of time, whilst simultaneously supporting the patient by total parenteral nutrition and excluding distal bowel obstruction.

However, in renojejunal fistula, these measures do not appear to be effective. Our patient underwent a 3-week trial of conservative management vis-à-vis parenteral nutrition and renal diversion with a nephrostomy tube. However, follow-up scans revealed persistent fistulous tract. Surgical intervention was eventually necessary and it was similarly reported by other authors. In the only case where the kidney was successfully preserved, open surgical excision of the fistula was still required.⁴

Basic surgical principles of surgery of a fistula require

resecting the fistula and preserving as much of both sets of tissue connected by the fistula, as in, for example, vesicovaginal fistula. However, surgery of the renojejunal fistula invariably involves removal of the diseased kidney as well. Indeed, nephrectomy was necessary in all but one case (Table 1). Three of the renal units were non-functioning and in the only instance where the kidney was preserved, it was because of good function on radionuclide scan. The decision to preserve the kidney hinges on the renal function. In fact, Evans³ observed that renal conservation in the setting of renojejunal fistula will only succeed in the presence of significant function of the involved kidney.

In conclusion, renojejunal fistula is a rare entity resulting from chronic inflammatory diseases of the kidney. Non-operative measures are generally not effective. Open surgical resection of the fistulous bowel segment is usually necessary. If the kidney is non-functioning, nephrectomy will often be included in the surgery.

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Table 1. Review of Four Previous Reported Cases of Renojejunal Fistula

Author	Cause	Diagnostic modality	Renal function	Management
Horwich ¹	Pyelonephritis with perinephric abscess	Retrograde pyelogram and confirmed on barium meal	No function on excretory pyelography	Nephrectomy with fistula resection
Bianchi ²	Xanthogranulomatous pyelonephritis with ureteric calculus	Antegrade pyelogram	Unknown	Nephrectomy
Evans ³	Pyonephrosis with staghorn calculus	Antegrade pyelogram	Less than 10% on DMSA scan	Resection of fistula followed by interval nephrectomy
Crawford ⁴	Pyelonephritis with staghorn calculus	Antegrade pyelogram	Good function on radionuclide scan	Resection of fistula with preservation of kidney
Current case	Xanthogranulomatous pyelonephritis with ureteric calculus	Antegrade pyelogram	Poor function on MAG-3 renogram	Nephrectomy with resection of fistula

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