

Endourology

Pyeloduodenal fistula: A rare case report

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ABSTRACT

Pyeloduodenal fistula is a rare entity, with very few cases reported in the world literature so far. Commonly found in three disease entities – chronic renal inflammatory disease secondary to renal calculi, renal tuberculosis and renal malignancies in order of frequency; this disease entity is a rare to diagnose and treat.

Introduction

Pyeloduodenal fistula is rare clinical entity. It is mainly caused by inflammatory diseases which include reactions to foreign bodies, inflammatory bowel diseases, renal calculi disease, benign and malignant neoplasms and pyogenic infections. Traumatic pyeloenteric fistulas can occur by trauma, surgery and interventional procedures. Pyeloduodenal fistula was first reported in 1893, and about 80 cases have been reported in the literature so far.¹

Case report

We describe rare case of pyeloduodenal fistula. A young female presented with flank pain, occasional history of fever. She was investigated and found to have right renal pelvic calculus with grade 2 hydronephrosis on ultrasonogram. Her routine urine examination was within normal limits. IVU shown in Fig. 1 revealed non-excreting right kidney; negligible right kidney function on DTPA scan. Her left kidney was functioning normally. This patient had no prior history of any surgery.

Patient was planned for elective right laparoscopic nephrectomy. During surgery, we found duodenum tented towards renal pelvis, with dense adhesions between the two. Right kidney was however of normal size. It was not hydronephrotic or papery thin. Attempt was made to separate duodenum from renal pelvis using blunt dissection. During adhesiolysis, there was pus discharge from kidney; and a rent in second part of duodenum, which however could not be picked up intraoperatively. We had also to use sharp dissection to further separate dense adhesions. Total surgical time was one and a half hour, out of which one hour was spent in adhesiolysis. Abdominal ports were

removed after ensuring hemostasis; and no bile leakage intraoperatively.

On first postoperative day, there was 400 ml bilious drain output. Patient was planned for emergency abdominal exploration. Duodenal rent was visualised in second part of duodenum about 1 cm × 1 cm size. This was closed primarily using polyglactin 910 3-0 suture as shown in Fig. 2; and covered with omentum. Feeding jejunostomy was performed.

We mostly record our surgeries. On reviewing video recording, we observed dense adhesions between duodenum and renal pelvis. Duodenal rent was noticed while separating duodenum from renal pelvis by blunt dissection. Duodenal perforation went unnoticed intraoperatively. This perforation was primarily because of fistulous communication between renal pelvis and duodenum as shown in Fig. 3, and duodenum could not have been separated without injuring duodenum. We did not notice any bile leak intraoperatively.

Patient had gradual diminution of bile drainage after closure of duodenal perforation. Patient was started on feeding jejunostomy and discharged on 14th postoperative day.

Histopathological examination revealed chronic pyelonephritis.

Discussion

Primary renal inflammatory pathology is commonest cause of pyeloduodenal fistulas. Second part of duodenum is commonly involved due to close proximity to renal pelvis, retroperitoneal location of duodenum, absent peritoneum between duodenum and renal pelvis, relative immobility of duodenum.^{2,3} Pyeloduodenal fistula can be spontaneous or traumatic. Chronic pyelonephritis due to renal pelvic calculi is common cause of spontaneous fistula.

Before advent of antitubercular therapy, tuberculosis was common

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Fig. 1. – IVU at 5 minutes.

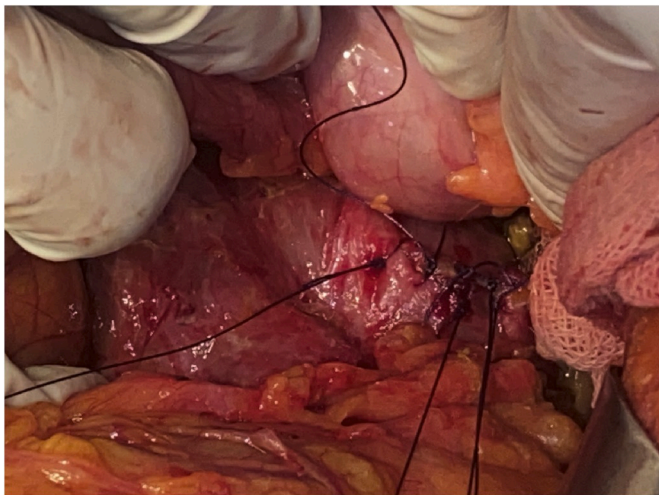


Fig. 2. – Duodenal fistulous perforation being repaired.

cause of these fistulas. Cases of fistulas have been reported due to carcinoma of kidney – be it squamous cell, transitional cell or adenocarcinoma.⁴

These fistulas usually present as flank pain, upper gastrointestinal symptoms, urinary frequency, urgency, general malaise and weight loss. Patients can present with fever, flank pain and tenderness. Pyuria may be seen in significant number of patients.⁵ Diagnosis of pyeloduodenal fistulas is enigma because of vague presentations. Our patient had no fever and IVU showed non-excreting kidney, thereby making possibility of pyeloduodenal fistula remote. This is usual presentation in non-functioning kidney because of renal calculi. However kidney size of our patient was within normal limits, which suggests remote possibility of pyeloduodenal fistula. Kidney size could be normal because of

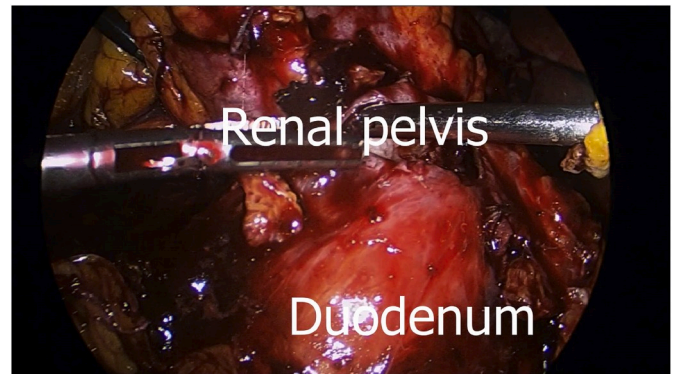


Fig. 3. – Dense adhesions and fistulous communication between duodenum and renal pelvis.

intermittent renal pus drainage into duodenum. We did not perform CT scan abdomen in our patient as it was not indicated. CT scan is necessary in patients with xanthogranulomatous pyelonephritis, who can also present as pyeloduodenal fistula.⁵

Treatment of pyeloduodenal fistula includes treatment of underlying cause, which may be pyelonephritis⁵ and obstructing renal calculi as seen in our patient. Diagnosis of pyeloduodenal fistula preoperatively is difficult. In our patient, there were dense adhesions between duodenum and renal pelvis. However we could separate duodenum from renal pelvis using blunt dissection. Since we had no preoperative evidence of pyeloduodenal fistula; and there was no bile leak intraoperatively after separating duodenum from renal pelvis, we finished nephrectomy as per routine. It was only during bile leak noticed on first postoperative day, which was managed successfully after abdominal exploration; that we revisited recorded video of surgery. We observed duodenal rent in second part of duodenum. This was in fact pyeloduodenal fistula. We presume that absence of bile leak intraoperatively might be because of aperistaltic duodenum, dependant and positional drainage of bile in left lateral position. We opine instillation of 500 ml saline at intraoperative site to look for air bubbles. Caution needs to be exercised in densely adherent duodenum.

Conclusion

There should be high index of suspicion for pyeloduodenal fistula, during nephrectomy in right pyelonephritic kidneys.

Declaration of competing interest

This is one of rarest cases of pyeloduodenal fistulas. This study follows ethical guidelines. There is no conflict of interest and no source of funding involved in drafting this manuscript.

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Abbreviations

IVU: Intreavenous Urogram
DTPA: Diethylene Triamine Penataacetic Acid

CT: Computerised Tomogram