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Pyeloduodenal Fistula: A Rare Complication

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Introduction

- A pyeloduodenal fistula is a rare but serious condition, generally associated with chronic inflammatory renal diseases or trauma.
- Pyeloenteric fistulas may be classified as traumatic or spontaneous, which constitute the majority of cases.
- Many clinicians have believed that the surgical nephrectomy and duodenal closure is the most successful treatment in this situation.
- We present a case of pyeloduodenal fistula managed by endoscopic intervention.

Case Presentation

- 85-year-old male with a history of bladder cancer status post tumor resection and left ureteral stent placement presented with right flank pain, hematuria, and CVA tenderness on physical exam.
- UA was consistent with urinary tract infection
- CT abdomen pelvis showed gas and fluid in the dilated right renal pelvis and collecting system.
- Cystoscopy with bilateral retrograde pyelogram was performed, but urologists were unable to place right stent due to stricture and unable to remove left stent.
- Bilateral nephrostomy tube was placed, but a fistulous connection was noted between the right collecting system and the duodenum.
- Upper GI and small bowel follow-through showed opacification of the right intrarenal collecting system, consistent with a fistula between the duodenum and the right renal collecting system.
- EGD showed an ulcer in the duodenum with a small central fistula, correlating with the known pyeloduodenal fistula.
- This was treated with argon plasma coagulation and closed using the "Tulip Bundle" method of placing hemoclips around the margin and closure with an endoloop around the clips.

Radiographic and Clinical Images

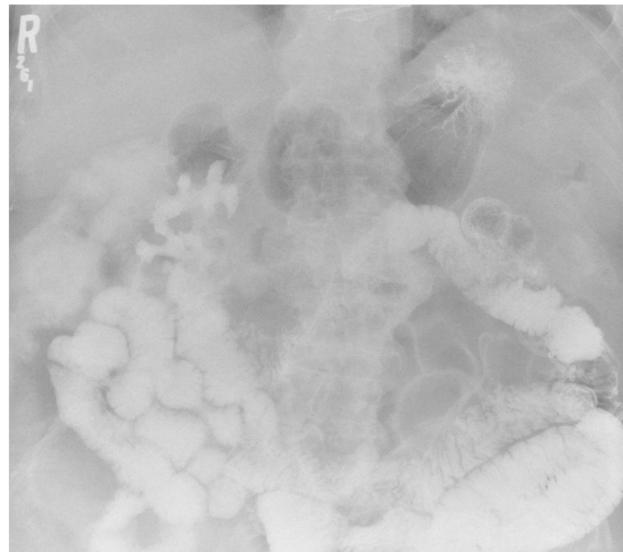


Figure 1. Patient's Upper GI and small bowel follow-through showing pyeloduodenal fistula.

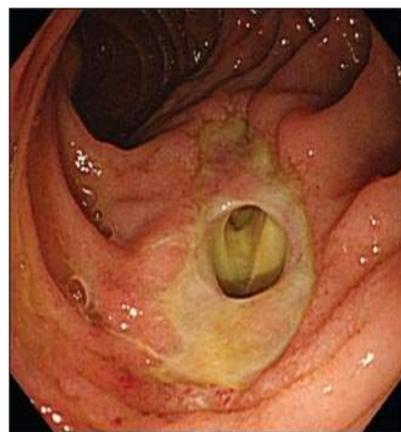


Figure 2



Figure 3

Figure 2. Esophagogastroduodenoscopy revealed a fistula in the duodenum

Figure 3. Duodenography using an endoscope demonstrated the right renal pelvis (red arrow)

Discussion

- The posterior aspect of the second portion of the duodenum lies in proximity to the medial portion of the kidney and renal pelvis. When perirenal inflammation takes place, this portion of the duodenum is more easily involved.
- Diagnosis of pyeloduodenal fistula requires imaging studies of the urinary system. Retrograde pyelography is the method of choice which demonstrates the fistula in 64% of cases. Intravenous urography can be used only in functioning kidneys, and CT often shows fistula. Other imaging modalities include antegrade pyelography, EGD and upper GI studies
- Nephrectomy and primary closure of the duodenum are traditional treatment methods. Small sized fistula and accessible location by EGD may be favorable features for nonsurgical treatment.
- Nonsurgical management includes intravenous antibiotics, relieving obstruction by employing nephrostomy, or internal ureteric stents. A new method of treatment is endoscopic ligation, as was seen in this case.

Conclusion

- Retrograde pyelography is the study of choice for diagnosing pyeloduodenal fistula in a functioning kidney. EGD can be used both for diagnosis and intervention.
- Conservative management with antibiotics and stent placement may be possible with small fistulas. Endoscopic intervention by an advanced GI team can be done to avoid extensive surgical intervention.

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