



Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

Laparoscopic approach to colo-renal fistula with renal preservation and omentoplasty: A case report

Awais Ashfaq^{a,*}, Robert Ferrigni^b, Nitin Mishra^a^a Division of Colon and Rectal Surgery, Department of Surgery, Mayo Clinic, AZ, United States^b Department of Urology, Mayo Clinic, AZ, United States

ARTICLE INFO

Article history:

Received 1 March 2017

Received in revised form 31 March 2017

Accepted 31 March 2017

Available online 4 April 2017

Keywords:

Laparoscopic surgery

Colo-renal fistula

Renal ablation

Omentoplasty

ABSTRACT

Colorectal fistula as a result of percutaneous cryoablation has not been extensively reported. We report a gentleman who presented with urosepsis after percutaneous biopsy of a renal mass complicated by colorectal fistula. After failed attempts at conservative management, he underwent laparoscopic resection of his fistula with renal salvage and omentoplasty highlighting that nephrectomy is not always indicated.

© 2017 The Authors. Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Percutaneous cryoablation has been shown to be a possible treatment for renal masses. However, a colorectal fistula resulting from a complication of ablation has been reported on very fewer occasions [1–3]. Appropriate mode of treatment is unclear. We report a patient with a left colorectal fistula who failed conservative management requiring a laparoscopic approach to takedown his fistula with renal salvage. The work has been reported in line with the SCARE criteria [4].

2. Case presentation

A 76-year old male presented to us with worsening urosepsis, pneumaturia and fecaluria after a cryoablation was attempted at an outside hospital for an incidentally discovered 3.3 cm left renal mass. Computed tomography (CT) demonstrated the ablation cavity containing gas, perirenal fat stranding extending to the descending colon. Rectally administered iodinated contrast media extended from the descending colon to the lower pole of the left kidney into the left renal collecting system depicting a colo-renal fistula (Fig. 1).

Due to failure of medical therapy, cystoscopic left retrograde ureteropyelogram was performed that clearly identified communication of the lower pole infundibular system with the left colon

and a 6-French, 26 cm left double-J ureteral stent was placed. An open ended catheter was also left in place to inject Betadine solution and identify the fistula during colonoscopy. A 3 mm fistula was found on colonoscopy and an over-the-scope-clip was deployed (Ovesco, Tubingen, Germany) to secure the colonic mucosa (Fig. 2). Repeat retrograde ureteropyelogram three weeks later, re-demonstrated the colonic fistula. Due to worsening of his symptoms and non-resolution of his fistula, the patient underwent laparoscopic takedown of the colorectal fistula and segmental colectomy with renal preservation and omentoplasty.

Patient was placed in the right lateral decubitus position to aid in mobilization of the left kidney. A Verres needle was introduced into the abdominal cavity, pneumoperitoneum was achieved and a 12-mm supraumbilical camera trocar was inserted. An additional 12-mm trocar was placed along the left mid axillary caudal to our camera port and two additional 5-mm trocars one under the left costal margin in the midclavicular line and another in the supra-pubic region. Mobilization of the colon was begun along the line of Toldt distally from the pelvic inlet towards the splenic flexure medial to the left kidney. Subsequently, dissection of the kidney was begun over the upper pole working towards the lower pole and identifying the renal pelvis and ureter. Left ureter was also identified near the pelvic inlet and followed proximally towards the lower pole of left kidney. With the colon mobilized, the fistula tract was identified beginning from the lower pole laterally and extending into the descending colon (Fig. 3). Using LigaSure™ vessel sealing (Valley Lab, Boulder, CO) the fistula tract was dissected and transected off of the lower pole of the kidney. Margins near the kidney were sent for frozen section that were negative for malignancy. Argon beam coagulation was performed on the lower

* Corresponding author at: Department of Surgery, Mayo Clinic, Phoenix, AZ, United States.

E-mail address: ashfaq.awais@mayo.edu (A. Ashfaq).



Fig. 1. A. Axial B. Coronal. Computed tomography of the abdomen and pelvis depicting rectally administered iodinated contrast media extending from the descending colon to the lower pole of the left kidney into the left renal collecting system depicting a colo-renal fistula.

Table 1
Review of pertinent case reports of colorenal fistula with respective management.

| Study | Age/Sex | Presenting symptoms | Management | Outcome |
|-------------------|---------|--|---|---|
| Lee et al. [2] | 63/M | Urinary frequency and dysuria 2 months post cryoablation | Internal ureteral stents | No evidence of fistula 5 months later |
| Gil et al. [4] | 76F | Lower gastrointestinal bleed 2 weeks post cryoablation | Open left nephrectomy, left colectomy with end colostomy | N/A |
| Davies et al. [3] | 62M | Pneumaturia and left flank pain 6 weeks post ablation | Bowel rest and outpatient antibiotics | Resolution and no recurrence of the fistula 18 months later |
| Buttar et al. [1] | 75F | Chronic urinary tract infection and pneumaturia 2 years after ablation | Combined approach involving percutaneous plugging of the fistula and endoscopically placing an over the scope clip. | No residual fistula 1 month later |

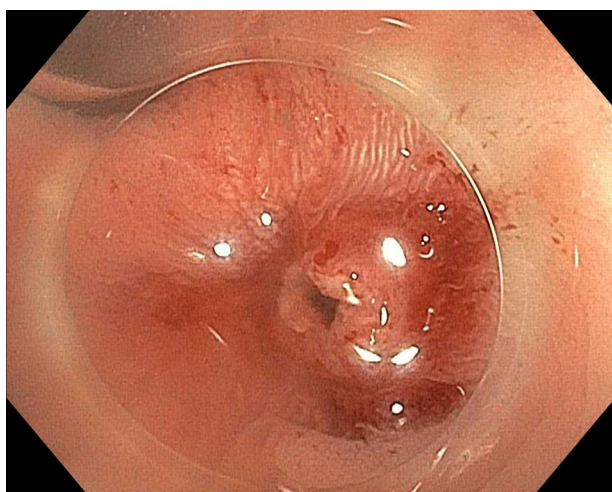


Fig. 2. A 3 mm fistula was found on colonoscopy and an over-the-scope-clip was deployed (not shown) (Ovesco, Tubingen, Germany) to secure the colonic mucosa.

pole to completely fulgurate the tract and covered with fibrin glue (Tisseel, Baxter, CA).

To exteriorize the descending colon and fistula tract through the supraumbilical incision, splenic flexure and rectosigmoid junction was sufficiently mobilized. Healthy bowel was identified on either side of the fistula tract and transected using a GIA-60 stapler. A stapled anastomosis was performed using GIA-60/TA-55 stapler. Next, an omental flap was sutured to the left kidney using V-Loc™ (Covidien, New Haven, CT) sutures. Patient had an uneventful postoperative course and was subsequently discharged on postoperative day three tolerating diet with good bowel function.

3. Discussion

Renal cryoablation is associated with higher local retreatment rates in comparison with partial or radical nephrectomy, although intermediate-term outcomes suggest that disease specific survival approaches that of either nephrectomy which has led to its increased use. Despite this, complication resulting in colorenal fistula has been reported in less than five occasions in the literature with variable management options [2,3]. To our knowledge, this is the first report of a laparoscopic technique combined with renal salvage to manage the fistula.

The most common complication after percutaneous cryoablation is bleeding or hematuria with the rate of bowel injury reported less than 10% [3]. Incidence of complication has been attributed to

tumor diameter, number of cryoneedles used and tumor location within the kidney. Risk factors related to bowel injury have not been described (mostly due to small number of cases) but bowel perforation, cholecystitis, and pancreatitis have all been reported.

Colorenal fistulas usually are the result of chronic renal inflammatory states and can usually be diagnosed based on clinical examination and radiological investigations. There is no consensus on the optimal treatment option. Few case reports with their proposed management strategies are listed in Table 1. Wysocki et al. have reported successful surgical treatment involving nephrectomy, colectomy and end colostomy [5]. Successful conservative management involving either just antibiotics or a ureteral stent has been reported by others [1–3]. Recently, Schmit et al. published a combined approach involving percutaneous CT guided and endoscopic intervention leading to successful closure of the fistula [1]. As outlined above, our patient not only failed the antibiotic therapy, but also a trial of ureteral stenting and an over-the-scope colonoscopic clip placement. With his worsening clinical symptoms, a surgical intervention was offered involving segmental colonic resection and renal preservation. In order to facilitate healing of the fistula an omental patch was placed. Our patient has since been doing well with no recurrence of the fistula.

In conclusion, we report a colorenal fistula complicated by percutaneous cryoablation of a renal mass, which was managed with renal preservation and segmental colectomy after conservative measures had failed.

Conflicts of interest

None.

Funding sources

Not applicable.

Ethical approval

Not applicable.

Consent

Obtained.

Authors contribution

AA, RF, NM were involved in managing the patient clinically and operating on the patient. AA, NM conceptualized the study and

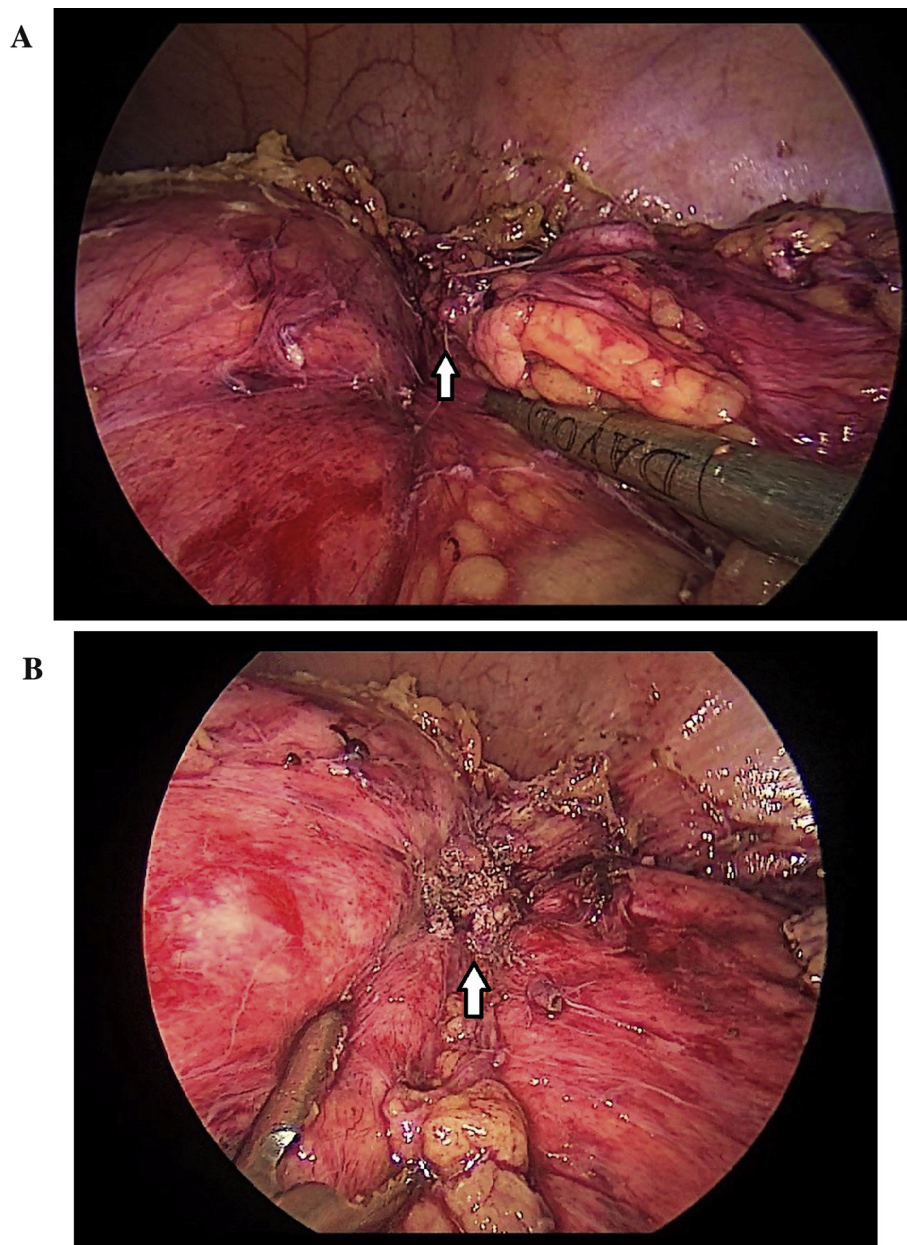


Fig. 3. A. Intraoperative picture showing the fistula tract beginning from the lower pole laterally and extending into the descending colon, after the colon was mobilized. B. After the fistula was divided.

collected data for writing. AA, NM interpreted the data and drafted the paper. AA, RF and NM proofread and finalized the paper for publication.

Guarantor

Awais Ashfaq.

References

- [1] G.D. Schmit, R.H. Thompson, N.S. Buttar, Colorectal fistula repair using a combined percutaneous CT-guided and endoscopic approach, *J. Vasc. Interv. Radiol.* 27 (6) (2016) 896–897.

- [2] B.A. Vanderbrink, A. Rastinehad, D. Caplin, M.C. Ost, I. Lobko, B.R. Lee, Successful conservative management of colorectal fistula after percutaneous cryoablation of renal-cell carcinoma, *J. Endourol.* 21 (7) (2007) 726–729.
- [3] A.I. Morgan, A. Doble, R.J. Davies, Successful conservative management of a colorectal fistula complicating percutaneous cryoablation of renal tumors: a case report, *J. Med. Case Rep.* 6 (2012) 365.
- [4] R.A. Agha, A.J. Fowler, A. Saetta, I. Barai, S. Rajmohan, D.P. Orgill, the SCARE Group, The SCARE statement: consensus-based surgical case report guidelines, *Int. J. Surg.* 34 (2016) 180–186.
- [5] J.D. Wysocki, V. Joshi, J.W. Eiser, N. Gil, Colo-renal fistula: an unusual cause of hematochezia, *World J. Gastrointest. Pathophysiol.* 1 (3) (2010) 106–108.

Open Access

This article is published Open Access at sciedirect.com. It is distributed under the [IJSCR Supplemental terms and conditions](#), which permits unrestricted non commercial use, distribution, and reproduction in any medium, provided the original authors and source are credited.