CASE REPORT – OPEN ACCESS

International Journal of Surgery Case Reports 5 (2014) 448–450

Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

Colo-vesical fistula: Complete healing without surgical intervention

M. Khanbhai [a], C. Hodgson [b], K. Mahmood [b], M.C. Parker [c], M. Solkar [b,*]

[a] Academic Surgery Unit, University Hospital of South Manchester, United Kingdom
[b] Tameside General Hospital NHS Foundation Trust, United Kingdom
[c] University of Aarhus, Denmark

ARTICLE INFO

Article history:
Received 6 November 2013
Received in revised form 30 January 2014
Accepted 20 March 2014
Available online 24 May 2014

Keywords:
Colo-vesical fistula
Diverticular complications
Non-operative management

ABSTRACT

INTRODUCTION: Colo-vesical (CV) fistulae are the most common type of fistulae associated with diverticular disease. Surgery remains the mainstay of treatment, without which, CV fistulae rarely achieve complete healing.
PRESENTATION OF CASE: Herein, we report the case of a 62-year-old man who developed a CV fistula after reversal of Hartmann's procedure (initially for management of diverticular abscess), which healed with conservative management alone.
DISCUSSION: We discuss possibilities of the aetiology of this fistula. The CV fistula may have been initially present, which came to light only after his reversal. Or an iatrogenic fistula that developed at the time of reversal of Hartmann's.
CONCLUSION: This is the first time that such a fistula has been demonstrated clinically and radiologically to have healed spontaneously without surgery. We recommend that conservative management of CV fistulae should be considered.

1. Introduction

The most common cause of colo-vesical (CV) fistulae is diverticular disease, followed by malignancy and Crohn's disease.[1–3] The preferred management of CV fistula is primary resection with anastomosis performed as a 1-stage procedure. However, there are reports of patients with CV fistula secondary to diverticular disease managed medically for prolonged periods of time without operative intervention[4,5] but without achieving complete healing. This article reports a patient with a CV fistula, which healed without any surgical intervention. To the best of our knowledge, this has not been reported previously in the literature.

2. Case report

A 62-year-old gentleman with known diverticular disease presented to Accident and Emergency (A&E) in June 2009 with suprapubic pain, pyrexia, haematuria and elevated inflammatory markers. He was treated with Ciprofloxacin for a urinary tract infection (UTI) and was discharged. He was also being investigated for lower abdominal pain and weight loss by a colorectal surgeon. A clinical diagnosis of diverticular abscess was made which was confirmed on computed tomography (CT) scan. The CT images demonstrated moderate diverticular disease in the sigmoid colon with a 7 cm × 6 cm abscess and a small pocket of air in the urinary bladder but no direct CV fistulous communication seen (Fig. 1). A colonoscopy was attempted in July 2009 but was abandoned due to patient discomfort. A subsequent flexible cystoscopy revealed a raised, inflamed area on the posterior wall of the urinary bladder.

The patient gave a past medical history of osteoarthritis, appendicectomy and transurethral resection of the prostate. A colorectal multidisciplinary team meeting decided that he should undergo a Hartmann's procedure, which was performed on 13th July 2009. The intra-operative findings revealed an inflammatory mass involving the sigmoid colon, which was attached to the bladder and a segment of small bowel. The mass was dissected off the bladder wall but no obvious fistula was identified. The involved small bowel segment was resected and a side-to-side anastomosis was performed. The diseased segment of sigmoid colon was resected and a colostomy was fashioned in the left iliac fossa. The histology of the sigmoid colon was consistent with diverticulitis and the resected small bowel specimen revealed features consistent with peritonitis, with no evidence of malignancy in either specimen.

He made an uneventful recovery and was discharged on 27th July 2009. The patient was reviewed in clinic in November 2009. He was asymptomatic and was listed for reversal of Hartmann's. This was carried out laparoscopically on 28th January 2010. The intraoperative findings revealed multiple adhesions, which were carefully freed. The rectal stump was mobilised and anastomosed at approximately 16 cm from the anal verge using a stapling device. No leak was identified during an insufflation test. He was discharged on 1st February 2010 after an uneventful recovery.

One week following the reversal he presented to his General Practitioner (GP) with rigours, fever, dysuria, macroscopic

* Corresponding author.
E-mail address: mamoon.solkar@tgh.nhs.uk (M. Solkar).

http://dx.doi.org/10.1016/j.ijscr.2014.03.019

Fig. 1. Colon is abutting the urinary bladder with evidence of a tiny air-pocket (red arrow) in the bladder. Colo-vesical fistula suspected, although no direct communication seen. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of the article.)

haematuria and pneumaturia. A UTI was diagnosed by analysing a midstream urine specimen (MSU), which subsequently grew mixed faecal flora. He was treated with Trimethoprim and Clarithromycin. Three days later, on 11th February 2010 he was admitted as an emergency, now with suprapubic pain and faecaluria. Microbiology advice was sought and intravenous Gentamicin and Metronidazole was commenced in addition to Clarithromycin and Trimethoprim. The CT images revealed a direct fistulous communication with the urinary bladder containing oral contrast with the presence of air in the bladder (Fig. 2). The patient improved clinically as did his inflammatory markers. He was discharged on 23rd February 2010. He was reviewed in clinic in March 2010 and was asymptomatic. A barium enema was performed which showed no evidence of a fistula. Unfortunately, in August 2010 he saw his GP with further supra-pubic pain and dysuria. An MSU revealed WBCs > 2000 with RBCs and a growth of *Escherichia coli*. He was reviewed again in the outpatient clinic in August 2010. A repeat CT was organised (Fig. 3) which demonstrated no evidence of a collection and no air in the

Fig. 2. There is clear fistulation between the sigmoid colon and urinary bladder (red arrow). Air seen in the urinary bladder. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of the article.)

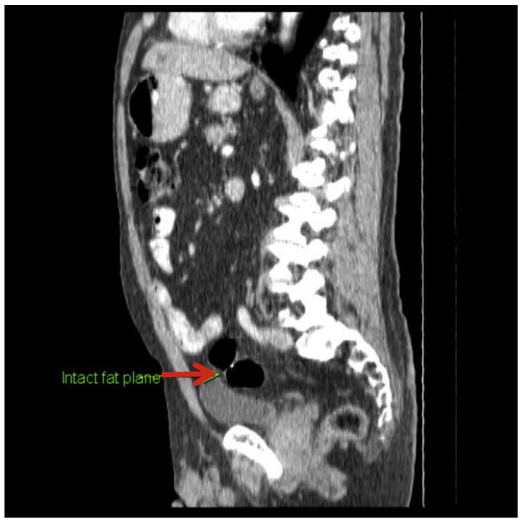

Fig. 3. No fistula visualised due to intact fat plane (red arrow) between sigmoid colon and urinary bladder. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of the article.)

urinary bladder. The fat plane between the colon and the urinary bladder was intact. He was reviewed on a final occasion in August 2013 and he remains asymptomatic. A CT scan done in September 2013 showed no communication between the bowel and urinary bladder and he was therefore discharged.

3. Discussion

CV fistula is the most common type of fistula associated with diverticular disease of the colon. Diverticular fistulae occur when a phlegmon or abscess extends or ruptures into the adjacent bladder. Up to 65% of CV fistulae may be diverticular in origin.[6] Pneumaturia and faecaluria are common presenting symptoms[3] and are considered pathognomic of a CV or an entero-vesical fistula.

Investigations usually include a CT scan, barium enema and cystoscopy. CT scans are diagnostic in 90–100% of patient with a CV fistula.[7,8] The sensitivity of either cystoscopy or a barium enema in making the diagnosis of CV fistula is reported to be 38–48%.[9] Although useful in excluding other diagnoses, sigmoidoscopy and colonoscopy rarely permit visualisation of a fistula.[9] Staged surgical procedures remain the mainstay of CV fistula treatment.

However, CV fistulae can sometimes be managed conservatively. There are case reports of CV fistulae treated conservatively because patients either did not want an operation or were too high a surgical risk.[10–12] Only one case report documents complete healing of a procto-vesical fistula secondary to rectal cancer with the use of Octreotide.[13] The authors postulate that Octreotide reduces gastrointestinal tract secretions and therefore closure of the fistula may have been related to reduced inflow of gastrointestinal tract secretions into the bladder via the fistula. Two studies detailing medical management of CV fistula have been reported in the literature. Amin et al.,[5] recruited thirty patients with CV fistula. Six patients observed for 3–14 years encountered little inconvenience and were without significant complications while on intermittent antibacterial therapy alone. In another retrospective study, Solkar et al.,[4] studied six patients who declined surgical intervention. They were monitored over a 12-year period and were found to exhibit no significant changes in renal function and urosepticaemia was not documented. However, none of these reports document complete healing of the pathology.

There are two possibilities of the aetiology of this fistula. Firstly, that he had a primary diverticular disease induced CV fistula at initial presentation, which came to light only after his reversal.

An alternative view is that it was an iatrogenic fistula that developed at the time of reversal of Hartmann's. Points supporting a primary fistula are that he had UTI at first presentation, which is common in CV fistulae and rare in otherwise normal males. Patients with fistulae secondary to a benign cause tend to be commoner in men, suggesting that the uterus affords some protection against its formation in women.[6] Secondly, cystoscopy demonstrated a raised inflamed area in the posterior wall of the urinary bladder suggestive of a CV fistula. However a CT scan at that time failed to show a fistula. This gives credence to the second possibility of this being an iatrogenic fistula since it appeared after the reversal and with supportive radiological evidence. There are reports of iatrogenic fistulae induced by surgical procedures, including coloanal anastomoses[14] augmentation cystoplasty,[15] prostatectomy, rectal resections and laparoscopic inguinal hernia repair,[16,17] or endoscopic procedures such as colorectal stenting for malignant obstruction.[18] From the above examples, conservative management was documented in only one report,[14] but this did not achieve complete healing. Whatever the aetiology this is the first time that such a fistula has been demonstrated clinically and radiologically to have healed spontaneously without surgery.

4. Conclusion

The management of patients with CV fistula must be tailored to the individual. We would therefore suggest that in benign CV fistula resolution through conservative management might be considered as a first option, especially in those who, due to their co morbidities would be poor surgical candidates. Although some small studies have suggested that conservative management might be a reasonable option, no randomised controlled trials have supported conservative management. Until such evidence becomes available careful selection with close follow-up is advised.

Conflict of interest

None.

Funding

None.

Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contributions

Khanbhai contributed to acquisition of data and writing manuscript. Hodgson contributed to writing manuscript. Mahmood contributed to analysis and interpretation of data and writing manuscript. Parker contributed to writing manuscript. Solkar contributed to study conception and design and writing manuscript.

References

1. Walker KG, Anderson JH, Iskander N, McKee RF, Finlay IG. Colonic resection for colovesical fistula: 5-year follow-up. *Colorectal Dis* 2002;**4**(4):270–4.
2. Driver CP, Anderson DN, Findlay K, Keenan RA, Davidson AI. Vesico-colic fistulae in the Grampian region: presentation, assessment, management and outcome. *J R Coll Surg Edinb* 1997;**42**(3):182–5.
3. McBeath RB, Schiff Jr M, Allen V, Bottaccini MR, Miller JI, Ehreth JT. A 12-year experience with enterovesical fistulas. *Urology* 1994;**44**(5):661–5.
4. Solkar MH, Forshaw MJ, Sankararajah D, Stewart M, Parker MC. Colovesical fistula – is a surgical approach always justified? *Colorectal Dis* 2005;**7**(5):467–71.
5. Amin M, Nallinger R, Polk Jr HC. Conservative treatment of selected patients with colovesical fistula due to diverticulitis. *Surg Gynecol obstet* 1984;**159**(5):442–4.
6. Woods RJ, Lavery IC, Fazio VW, Jagelman DG, Weakley FL. Internal fistulas in diverticular disease. *Dis Colon Rectum* 1988;**31**(8):591–6.
7. Morris J, Stellato TA, Lieberman J, Haaga JR. The utility of computed tomography in colonic diverticulitis. *Ann Surg* 1986;**204**(2):128–32.
8. Jarrett TW, Vaughan Jr ED. Accuracy of computerized tomography in the diagnosis of colovesical fistula secondary to diverticular disease. *J Urol* 1995;**153**(1):44–6.
9. Vasilevsky CA, Belliveau P, Trudel JL, Stein BL, Gordon PH. Fistulas complicating diverticulitis. *Int J Colorectal Dis* 1998;**13**(2):57–60.
10. Henderson MA, Small WP. Vesico-colic fistula complicating diverticular disease. *Br J Urol* 1969;**41**(3):314–9.
11. West Jr CF. Vesico-enteric fistulas. *Surg Clin N Am* 1973;**53**(3):565–70.
12. Carpenter WS, Allaben RD, Kambouris AA. One-stage resections for colovesical fistulas. *J Urol* 1972;**108**(2):265–7.
13. Shinjo T, Kondo Y, Harada K, Yamazaki J, Okada M. Treatment of malignant enterovesical fistula with octreotide. *J Palliat Med* 2009;**12**(10):965–7 [Epub 08.10.09].
14. Fleshner PR, Schoetz Jr DJ, Roberts PL, Murray JJ, Coller JA, Veidenheimer MC. Anastomotic-vaginal fistula after colorectal surgery. *Dis Colon rectum* 1992;**35**(10):938–43.
15. Gofrit ON, Pode D, Landau EH. Vesicocolonic fistula four years after augmentation colocystoplasty. *Urol Int* 1999;**62**(2):117–8 [Epub 26.08.99].
16. Daniels IR, Bekdash B, Scott HJ, Marks CG, Donaldson DR. Diagnostic lessons learnt from a series of enterovesical fistulae. *Colorectal Dis* 2002;**4**(6):459–62 [Epub 07.06.03].
17. Tamam M, Yavuz HS, Hacimahmutoglu S, Mulazimoglu M, Kacar T, Ozpacaci T. Direct radionuclide cystography imaging in colovesical fistula due to inguinal hernia operation complication. *Ann Nucl Med* 2009;**23**(7):693–6 [Epub 17.06.09].
18. Athreya S, Moss J, Urquhart G, Edwards R, Downie A, Poon FW. Colorectal stenting for colonic obstruction: the indications, complications, effectiveness and outcome – 5 year review. *Eur J Radiol* 2006;**60**(1):91–4 [Epub 30.06.06].