CASE REPORT

Fistula formation between the external iliac artery and ileal conduit following a radical cystoprostatectomy: a rare complication with prewarning signs of haemorrhage

Anisha Sukha, Niamh Smyth

Royal Shrewsbury Hospital,
Shrewsbury, UK

Correspondence to
Anisha Sukha,
anishasukha@doctors.org.uk

Accepted 26 February 2015

SUMMARY

A 76-year-old man was admitted with bleeding per-urostomy following a collapse at home. Three weeks prior to the admission, he had undergone a radical cystoprostatectomy and formation of ileal-conduit for an extensive bladder carcinoma. A CT angiogram revealed a possible small source of bleeding within the ileal-conduit itself, which settled with conservative management. However, prior to discharge he developed profuse fresh bleeding from the urostomy, which could not be controlled. The patient underwent an emergency endoscopy of the conduit and laparotomy, which revealed a fistula between the right external iliac artery and the proximal end of the ileal-conduit. The right iliac artery was ligated and an emergency left-to-right femoral-femoral crossover bypass was performed. The right ureter was stented and rediverted through the ileal-conduit and the left ureter was stented at a later date. He unfortunately had a stormy postoperative recovery with further episodes of per-urostomy bleeding and no identified source.

BACKGROUND

Fistula formation between the external iliac artery and an ileal-conduit is a rare complication.^{1–5} There needs to be increased awareness and recognition of prewarning signs of bleeding from a urostomy following a radical cystectomy. Diagnostic uncertainty is often encountered even when investigating sentinel bleeds with imaging, and settling of signs can be misleading. A prewarning bleeding episode from the urostomy is an important sign and requires the immediate consideration of an arterial fistula formation, as left untreated it can result in a life-threatening situation requiring emergency intervention, as highlighted in this case.

CASE PRESENTATION

A 76-year-old Caucasian man with G3 pT2 transitional cell carcinoma at the right vesicoureteric junction of the bladder and a moderate benign prostatic hyperplasia underwent a bilateral pelvic lymph node dissection and a radical cystoprostatectomy following neoadjuvant chemotherapy. The procedure was uneventful and postoperatively the patient recovered well with haemoglobin of 127 g/L. He was discharged with a healthy stoma 14 days later having had a slightly prolonged inpatient stay for social reasons.

He was readmitted 6 days later (20 days from the initial procedure) with blood per-stoma following a collapse at home. On examination, his abdomen was soft, non-tender and the patient did not report of any pain. The urostomy itself was healthy but there was fresh frank blood and old clots in the bag and the patient was transfused 1 unit of blood on admission and then a further 2 units of blood the same day. He was prescribed tranexamic acid and resuscitated for conservative management. The following day he had a CT angiogram of the abdomen, which revealed a wisp of contrast enhancement in the conduit anterior to the stents, suggesting a possible bleeding site from within the proximal conduit; no other bleeding was seen. By the third day of admission, the bleeding had settled, the haemoglobin and observations had stabilised, urine was clear and plans were made for discharge.

On the day of discharge (day 38), the patient suddenly developed profuse bleeding from the urostomy, which could not be controlled on the ward. He was taken to theatre within 1 h to investigate the source of the bleeding and required resuscitation with 7 units of packed red blood cells and 6 units of fresh frozen plasma. At the time, fistula formation was not suspected.

INVESTIGATIONS

On admission, a 3 phase CT angiogram of the abdomen was performed with precontrast, arterial and portal venous phase scans. It was reported as 'a wisp of contrast extravasation in the conduit anterior to the stents' (figure 1), suggesting a possible bleeding site within the proximal conduit, but no other bleeding was seen. There was also a small left iliac collection/lymphocele (6 cm), which did not appear to have any significance.

Haemoglobin was 107 g/L on admission and stabilised at 116 g/L prior to discharge. However, at the time of catastrophic bleeding, the haemoglobin dropped to 82 g/L.

DIFFERENTIAL DIAGNOSIS

Prior to the emergency endoscopy of the conduit and laparotomy, there were two differential diagnoses in mind.

1. Bleeding point on the wall of the proximal stoma;
2. Ureteric transitional cell carcinoma recurrence.

CrossMark

To cite: Sukha A, Smyth N. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2014-208914

Figure 1 A 3 phase CT angiogram (precontrast, arterial phase and portal venous phase). By comparing with precontrast imaging the 'wisp' of contrast extravasation was shown to occur in the arterial phase, which persisted in the portal venous phase. White arrow: (1) contrast extravasation. Red arrow: (2) ureteric stents in the conduit. Blue arrow: (3) external iliac artery.

TREATMENT

The patient underwent an emergency endoscopic visualisation of the urostomy using a rigid cystoscope. This showed a large clot in the stoma, which re-accumulated despite multiple wash-outs. The bleeding could not be controlled and the source could not be identified, leading to an exploratory laparotomy. At laparotomy, the patient was found to have a fistula between the right external iliac artery and the ileal conduit.

Initially, attempts were made to gain arterial control with closure using a 3.0 prolene; however, the extensive calcification in the common iliac made this impossible. The right iliac artery was therefore ligated and the patient had a left-to-right femoral-femoral crossover. An 8 mm reinforced graft was tunnelled superficially, trying to avoid the laparotomy wound, and a limited endarterectomy was also performed on the heavily calcified right common femoral artery. A right ureter was stented intraoperatively; however, the left ureter could not be identified and two drains were placed intra-abdominally.

OUTCOME AND FOLLOW-UP

The patient was nursed in the intensive therapy unit and initially he recovered well with postoperative haemoglobin of 116 g/L. The urostomy, however, had low urine output and the patient had high outputs from his intra-abdominal drain. His postoperative ultrasound scan did not reveal hydronephrosis and he underwent further bilateral nephrostomies. The urine output was greatest via the nephrostomies and he had minimal output via his urostomy.

The patient went on to have his left ureter stented via the ileal conduit. The bypass graft remained patent and his feet were bilaterally warm and well perfused. He did not have pedal pulses in either foot, however, this was not unexpected, given the degree of vessel calcification.

Unfortunately, the patient developed further episodes of bleeding and no source was identified. A CT Kidney Triple phase showed no extravasation of contrast seen at the femoral-femoral crossover graft. The subsequent CT angiograms did not

reveal any source of bleeding and no fistula was demonstrated. The nephrogram was also normal.

The patient continued to be resuscitated and managed with blood transfusions, however, after a total of 12 units of blood the patient was palliated and passed away. A postmortem was not undertaken.

DISCUSSION

This is an extremely rare case and a full literature search on Medline, Embase, BMJ Case reports revealed five cases of fistula formation between the external iliac artery and ileal conduit following a radical cystectomy.^{1–5} Management of such cases requires emergency treatment and urgent vascular intervention. Previously reported cases have been managed either by a vascular bypass or an endovascular stent graft, which have been successful. Two of the cases describe preceding signs of bleeding, which settled periodically prior to the haemorrhagic event. Any delay to the operating theatre is potentially life-threatening and any episode of bleeding from a urostomy should be investigated thoroughly and monitored to prevent fatalities. Interestingly, the CT angiogram and loopogram investigations did not raise any suspicions of an underlying fistula. Had this patient not been an inpatient for social reasons he is unlikely to have survived such a catastrophic haemorrhage at home.

Learning points

- ▶ Fistula formation between the external iliac artery and ileal conduit is a rare but potentially life-threatening complication associated with a radical cystectomy.
- ▶ If a prewarning episode of bleeding ('sentinel bleed') from the stoma has been reported it must not be neglected.
- ▶ A high index of clinical suspicion is required, as diagnosis is often difficult and imaging is not always conclusive.
- ▶ Vascular intervention is required as an endovascular or open vascular bypass.

Acknowledgements The authors thank Miss Catherine Merriman, Consultant Vascular Surgeon; Mr Christopher Beacock, Consultant Urology Surgeon; and Dr Jennifer Rowlands, Consultant Radiologist.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Beaugie JM. Fistula between external iliac artery and ileal conduit. *Br J Urol* 1971;43:450–2.
- 2 Castillo OA, Campos Juanatey F, Vives Rivera F, *et al*. Fistula between external iliac artery and ileal conduit after radical cystectomy: a life-threatening complication. *Arch Esp Urol* 2013;66:967–9.
- 3 Murai R, Kubota S, Imoto K, *et al*. Several treatments with endovascular stent graft for ureteroarterial fistula after construction of cutaneous ureterostomy: report of a case. *Hinyokika Kyo* 2013;59:647–50.
- 4 Sasaki T, Onishi T, Hoshina A. Fistula between the external iliac artery and the body of an ileal conduit. *Int J Urol* 2011;18:260–1.
- 5 Yamasaki T, Yagihashi Y, Shirahase T, *et al*. Endovascular stent graft for management of ureteroarterial fistula: a case report. *Hinyokika Kyo* 2004;50:641–4.

Copyright 2015 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow