Radiology Case Reports 13 (2018) 1130–1132

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/radcr

Case Report

Successful embolization of ileal conduit stomal varices with N-butyl cyanoacrylate via a recanalized paraumbilical vein

Yasuyuki Onishi, MD[a,], Hiroyuki Kimura, MD, PhD[a], Mitsunori Kanagaki, MD, PhD[a], Shojiro Oka, MD[a], Genki Fukumoto, MD[a], Tomoaki Otani, MD[a], Naoko Matsubara, MD[a], Kazuna Kawabata, MD, PhD[a], Tomihiko Yasufuku, MD, PhD[b], Yuji Yamada, MD, PhD[b]*

[a] *Department of Diagnostic Radiology, Hyogo Prefectural Amagasaki General Medical Center, Amagasaki, Japan*
[b] *Department of Urology, Hyogo Prefectural Amagasaki General Medical Center, Amagasaki, Japan*

ARTICLE INFO

Article history:
Received 8 July 2018
Revised 16 July 2018
Accepted 16 July 2018
Available online 13 September 2018

Keywords:
Ectopic varix
Portal hypertension
Embolization
N-butyl cyanoacrylate
Paraumbilical vein

ABSTRACT

A 77-year-old woman with liver cirrhosis was admitted to our hospital for marked hemorrhage in her ileal conduit stoma. She had a history of cystectomy and urinary diversion for bladder carcinoma 2 years ago. Contrast-enhanced CT demonstrated varices in the ileal conduit stoma. We accessed the varices via a recanalized paraumbilical vein to avoid pain from the transhepatic approach, and selectively embolized the varices with N-butyl cyanoacrylate (NBCA). We consider antegrade embolization of ileal conduit stomal varices with NBCA to be effective and feasible. Access via a paraumbilical vein is a useful alternative to the transhepatic approach.

Introduction

Ileal conduit stomal varices are a rare complication of urinary diversion and can develop in patients with portal hypertension. Life-threatening hemorrhage can occur from the varices [1,2]. Treatments for ileal conduit stomal varices are diverse, and include the transjugular intrahepatic portosystemic shunt (TIPS) procedure, transhepatic embolization, direct percutaneous embolization, balloon-occluded retrograde

Funding: This study was not supported by any funding.
Declarations of interest: None.
Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. For this type of study formal consent is not required.
Informed consent: Informed consent was obtained from the patient.
Consent for publication: Consent for publication was obtained for the patient's data included in the study.
* Corresponding author.
E-mail address: robounoishi6114@yahoo.co.jp (Y. Onishi).
https://doi.org/10.1016/j.radcr.2018.07.024

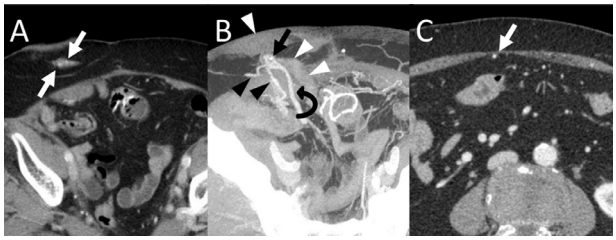

Fig. 1 – (A) Contrast-enhanced CT shows ileal conduit stomal varices (white arrows). (B) Maximum intensity projection image of portal-phase contrast-enhanced CT demonstrates varices (black arrow) in the ileal conduit stoma (white arrowheads). A feeding ileal vein (black curved arrow) and two draining veins (black arrowheads) are visible. (C) Contrast-enhanced CT shows a deep and small paraumbilical vein (white arrow). At this level, the vein was punctured with ultrasound guidance.

transvenous obliteration (BRTO), and surgery [3]. Here, we report a case of ileal conduit stomal varices successfully embolized with N-butyl cyanoacrylate (NBCA) via a paraumbilical vein.

Case report

A 77-year-old woman with liver cirrhosis caused by hepatitis B infection was admitted to our hospital for marked hemorrhage in her ileal conduit stoma. She underwent cystectomy and urinary diversion for bladder carcinoma 2 years ago. In the past year, she was admitted several times for bleeding in her ileal conduit stoma.

On admission, she was hypotensive. Laboratory studies revealed hemoglobin of 9.6 g/dL, albumin of 3.1 g/dL, bilirubin of 1.5 g/dL, prothrombin time of 94.6%, and platelet count of 190,000/μL. Her Child-Pugh score was 6 (Child-Pugh class A). After saline infusion and transfusion of two units of packed red blood cells, she became normotensive.

Ileal conduit endoscopy was unremarkable. Contrast-enhanced CT demonstrated varices in the ileal conduit stoma (Fig. 1A and B). The varices were fed by an ileal vein and drained into collateral veins in the abdominal wall. A recanalized paraumbilical vein was also observed on CT (Fig. 1C). The feeding vein was relatively short and straight, whereas the draining veins were tortuous and long. We considered antegrade embolization of the varices by the percutaneous transhepatic approach to be easier than BRTO or direct percutaneous embolization. As the patient was worried about the pain associated with the transhepatic approach, we decided to approach from the paraumbilical vein. We chose NBCA (Histoacryl; B. Braun, Melsungen, Germany) as the sclerosant because we considered it easy to select the feeding vein and embolization with NBCA to be effective for treating varices.

Under local anesthesia, the paraumbilical vein was punctured percutaneously under real-time ultrasound guidance using a 20-gauge needle. At the puncture site, the vein was approximately 2 mm in diameter and 28 mm deep from the skin. Considering the risk of bowel injury, this puncture was

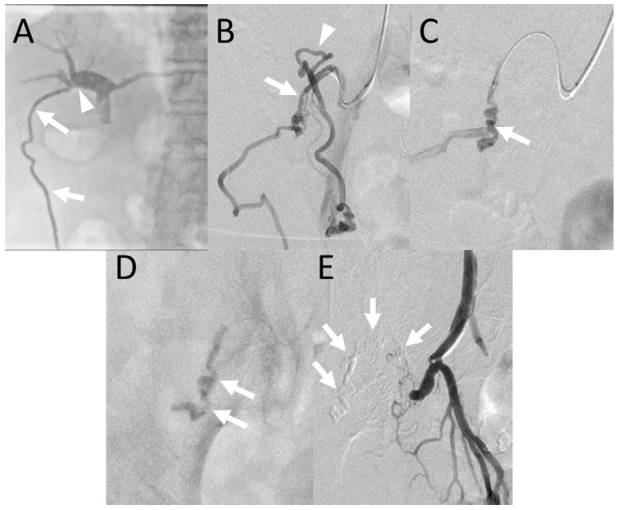

Fig. 2 – Venography and embolization of the ileal conduit stomal varices. (A) Venography from the paraumbilical vein shows a patent paraumbilical vein (white arrows) connected to the umbilical portion of the portal vein (white arrowhead). (B) Venography from the feeding ileal vein shows two portosystemic shunts (white arrow and white arrowhead). (C) Venography of the shunt, denoted by a white arrow in (A), indicates the ileal conduit stomal varices (white arrow). (D) After embolization of the shunt shown in (B), the NBCA and Lipiodol mixture (white arrows) is observed in the varices. (E) Venography after embolization from two sites demonstrates occlusion of the portosystemic shunts and varices. The NBCA and Lipiodol mixture (white arrows) can be seen in the shunts and varices.

performed very carefully to penetrate the anterior wall only on the long axis view. The 0.018-inch wire and the 4-F coaxial dilator in a percutaneous access set (MAK mini access kit, Merit Medical Systems, South Jordan, UT) were used, and the outer part of the coaxial dilator was set in the paraumbilical vein as a 4-F sheath. Angiography from the sheath revealed that a patent paraumbilical vein connected to the portal system (Fig. 2A). A 4-F catheter and 2.7-F microcatheter were advanced coaxially into the feeding ileal vein. Two portosystemic shunts between the ileal vein and the abdominal wall were noted on venography of the feeding ileal vein (Fig. 2B). Both of the two shunting veins fed the varices at the ileal conduit stoma. A 1.6-F microcatheter (Carnelian Marvel Selective; Tokai Medical Products, Aichi, Japan) was advanced through the 2.7-F microcatheter and one of the two shunting veins was selected with the 1.6-F microcatheter (Fig. 2C). The varices fed by this vein were embolized with NBCA mixed with iodized oil (Lipiodol; Andre Guerbet, Aulnay-sous-Bois, France) at a ratio of 1:4 (Fig. 2D). Then, a 1.9-F microcatheter (Carnelian Marvel non-taper; Tokai Medical Products, Aichi, Japan) was advanced through the 2.7-F microcatheter into the other shunting vein; however, we were unable to select the vein, probably due to thrombus formation after NBCA embolization of the first feeding vein. We injected NBCA mixed with Lipiodol at a ratio of 1:2 from the point, where these two shunting veins separated. Venography after embolization demonstrated occlusion of the

varices (Fig. 2E). After sheath removal, manual compression was applied for 10 minutes.

Two days after the procedure, occlusion of the varices and the shunting veins were observed on contrast-enhanced CT of the abdomen, but thrombi were noted in the superior mesenteric vein and the umbilical portion of the portal vein. Anticoagulation therapy (heparin, 20,000 IU/day) was started. Heparin infusion was continued for 7 days and switched to an oral anticoagulant (Apixaban, 10 mg/day). Two months after the procedure, disappearance of the thrombi was observed on contrast-enhanced CT and oral anticoagulant therapy was discontinued. Currently, the patient has had no bleeding for 6 months.

Discussion

Ileal conduit stomal varices rarely develop in patients with portal hypertension after urinary diversion. Reports on ileal conduit stomal varices are limited and most are case reports [2–4]. Hemorrhage is a serious problem of ileal conduit stomal varices, and can be life-threatening [1,2].

Treatment options for ileal conduit stomal varices include the transjugular intrahepatic portosystemic shunt (TIPS) procedure, transhepatic embolization, direct percutaneous embolization, BRTO, and surgery [3]. Surgery is invasive and requires general anesthesia. TIPS was reported to be the definitive treatment [3], but it is the most invasive procedure among the endovascular procedures above. We considered percutaneous antegrade embolization to be suitable for this patient because the feeding vein was short and straight. Transhepatic access is usually employed for antegrade embolization, but this approach is associated with severe pain [5]. As the patient was worried about pain from the transhepatic approach, we selected paraumbilical vein access instead of transhepatic access because we considered it to be less painful. The usefulness and safety of paraumbilical vein access has been reported [6,7], and this approach has been applied to embolization procedures [7,8]. We successfully punctured the paraumbilical vein with a diameter of approximately 2 mm under real-time ultrasound guidance, although paraumbilical veins with a diameter of less than 3 mm at the puncture site have been associated with failed catheterization [6]. In embolization of ileal conduit stomal varices, coils are mostly used [2,3], but the usefulness of NBCA for treatment of ileal conduit stomal varices has also been reported [9]. NBCA is a liquid embolic material and may be more effective than coils in obliterating ileal conduit stomal varices that are complex in structure [9]. In addition, NBCA occludes blood vessels and varices regardless of coagulation status and is advantageous for patients with coagulopathy [8].

Conclusion

We consider antegrade embolization of ileal conduit stomal varices with NBCA to be effective and feasible. Access via a paraumbilical vein is a useful alternative to the transhepatic approach.

REFERENCES

[1] Staubli SE, Gramann T, Schwab C, Semela D, Hechelhammer L, Engeler DS, et al. Life-threatening bleeding from peristomal varices after cystoprostatectomy: multimodal approach in a cirrhotic, encephalopathic patient with severe portal hypertension. Case Rep Urol 2015;2015:785010.
[2] Yao DH, Luo XF, Zhou B, Li X. Ileal conduit stomal variceal bleeding managed by endovascular embolization. World J Gastroenterol 2013;19(44):8156–9.
[3] Naidu SG, Castle EP, Kriegshauser JS, Huettl EA. Direct percutaneous embolization of bleeding stomal varices. Cardiovasc Intervent Radiol 2010;33(1):201–4.
[4] Oderda M, Mondino P, Lucca I, Fiorito C, Gillo A, Zitella A, et al. Fatal haematuria in a patient with an orthotopic neobladder and chronic liver failure. Urol Int 2009;83(3):368–9.
[5] Castéra L, Nègre I, Samii K, Buffet C. Pain experienced during liver biopsy. Hepatology 1999;30(6):1529–30.
[6] Chin MS, Stavas JM, Burke CT, Dixon RG, Mauro MA. Direct puncture of the recanalized paraumbilical vein for portal vein targeting during transjugular intrahepatic portosystemic shunt procedures: assessment of technical success and safety. J Vasc Interv Radiol 2010;21(5):671–6.
[7] Cho YJ, Kim HC, Kim YW, Hur S, Jae HJ, Chung JW. Percutaneous access via the recanalized paraumbilical vein for varix embolization in seven patients. Korean J Radiol 2014;15(5):630–6.
[8] Onishi Y, Kimura H, Kanagaki M, Oka S, Fukumoto G, Otani T, et al. Successful embolization of bleeding ileal varices with n-butyl cyanoacrylate via a recanalized paraumbilical vein. Cardiovasc Intervent Radiol 2018;41(8):1291–4.
[9] Choi JW, Kim HC, Jae HJ, Jung HS, Hur S, Lee M, et al. Transcatheter embolotherapy with N-butyl cyanoacrylate for ectopic varices. Cardiovasc Interv Radiol 2015;38(2):344–51.