

# Case Report – Direct Percutaneous Approach to Treat Peristomal Varices: A Simple and Effective Option

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## Research Article

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# Abstract

## Introduction:

Bleeding secondary to peristomal varices is a rare but potentially fatal complication of portal hypertension. TIPS is its first-line etiologic treatment in the setting of cirrhosis with portal hypertension. However, TIPS is not always feasible, especially in cases of contraindication or portal trunk occlusion.

## Case presentation:

A patient of 63-year old male was referred for persistent peristomal variceal bleeding. He had a past history cirrhosis with portal hypertension due to alcohol consumption and more recently, rectal cancer with metachronous liver metastasis. He was treated by proctectomy with placement of a stoma in the left flank. An evaluation CT scan showed a tumour-like occlusion of the portal vein, the origin of which is uncertain.

He was regularly referred to the emergency department for peristomal bleeding with anaemia, without haemodynamic instability. CT-scan angiogram confirmed ectopic peristomal varices without active bleeding. After multidisciplinary meeting, a minimal invasive approach was decided. Under local anaesthesia and ultrasoung guidance, the varicose vein was punctured by direct percutaneous access using a 22G-needle, and embolized using a mixture of N-Butyl-Cyanoacrylate and Lipiodol. The patient had no complication, and no recurrent bleeding occurred after more than 6 months of follow-up. He was discharged from the hospital 8 days later.

## Conclusion:

The percutaneous approach is a simple and effective technique. This approach should be the first line treatment when TIPS is not indicated.

# Background

Peristomal varices are ectopic varices developed secondary to portal hypertension. They represent a potential life-threatening complication in patients with chronic liver disease or other etiology of increased portal pressure. Diagnosis and management are not well established. Medical treatment by compression is feasible in a stable patient, but is subject to a significant risk of recurrence[1]. Surgical revision of the stoma has been reported to be an effective but invasive treatment[2], not suitable for patients with a short life expectancy. Decrease portal pressure, by creation of Transjugular Intrahepatic Portosystemic Shunt (TIPS), associated or not with varices embolization should always be considered[3]. However, this option is not always feasible, especially in case of post-sinusoidal portal hypertension and chronic portal occlusion. Balloon-occluded retrograde transvenous obliteration, embolization by trans-hepatic or trans-splenic approach have been reported in these cases. However, these approaches require general

anaesthesia and are associated with a significant risk of bleeding along the access. Direct percutaneous approach is a poorly described technique without any contra-indication.

We described a rare case of bleeding from peristomal varices in a patient with chronic tumour portal vein occlusion, treated under local anaesthesia using a mixture of N-Butyl-Cyanoacrylate and Lipiodol lipiodol mixture and a 22G needle.

## Case Presentation

A 63-year-old patient was referred to the emergency for anaemia and active bleeding through the colostomy orifice located in the left iliac fossa. He had a history of weaned alcoholic cirrhosis and an operated adenocarcinoma of the upper rectum, with synchronous bilobar liver metastases. One month after surgery, the patient was hospitalized for melena through the gastrostomy tube, and deglobulisation, without haemodynamic instability. He was treated medically with proton pump inhibitor and was transfused of one red blood cell unit. He was referred to the emergency one month later for recurrence of bleeding through the colostomy orifice. Haemoglobin dropped to 5.5 g/dl. Emergency CT scan angiogram showed peristomal ectopic varices and chronic tumoral portal thrombosis. After multidisciplinary discussion, a decision was to perform variceal embolization by direct transcutaneous access, in view of portal chronic thrombosis.

First the patient was placed on decubitus position. Ultrasound echography confirmed hepatofugal flow of a draining mesenteric inferior vein branch. After strict asepsis, the peristomal varix was punctured with a 22G needle. The injection of 10 ml of iodine contrast agent (Xenetix, Guerbet, Villepinte, France) confirmed the right position of the needle, with a strict hepatofugal flow filling the varicose vein nest without systemic venous outflow or portosystemic shunt. Embolization was performed using a 3cc mixture of NBCA (Glubran 2, (GEM<sup>®</sup>, Viareggio, Italy) and Lipiodol (Guerbet<sup>®</sup>, Villepinte, France) with a 1/3 ratio, using a 22G-needle, after priming with 5% dextrose, under fluoroscopic guidance. The fluoroscopic control showed a good diffusion of the NBCA-Lipiodol mixture in the peristomal varicose vein nest. The patient had no pain during the procedure, and presented no post-procedural complications. He received 2 RBC units during hospitalization. Two days after the procedure, the CT scan angiogram showed no repermeabilisation of the variceal nidus. He was discharged 8 days after from the hospital. The patient did not present any recurrence of haemorrhage after more than 2 months of follow-up.

## Conclusion

A wide range of options are available to treat peristomal varices (Table 1). TIPS is the most commonly described in order to treat varices in decreasing portal pressure and may be helpful to treat other complications of portal hypertension. However, TIPS has a rebleed rate of up to 21–37% in ectopic varices cases [4]. Moreover, in patients with chronic portal thrombosis and post sinusoidal hypertension, TIPS is not possible. The other minimal invasive options are Balloon retrograde transvenous

obliteration[5] [6], anterograde transhepatic obliteration [7] [8] [9] anterograde transsplenic obliteration[10], and direct transcutaneous approach [11] [12] [13].

Table 1  
Main treatment options of variceal peristomal bleeding

Medical :
-Stoma compression
-Beta blockade
-Sclerotherapy
Interventional :
-Transjugular Intrahepatic Portosystemic Shunt (TIPS)
-Transhepatic balloon-occluded retrograde transvenous obliteration (BARTO)
-Transhepatic antegrade embolization
-Transsplenic antegrade embolization
-Direct percutaneous embolization
Endoscopic :
-Embolization under echo-endoscopic guidance
Surgery :
-Splenectomy
-Liver transplantation
-Stomal revision
-Portosystemic shunt

The transhepatic approach is widely used. It allows the realization of portal-caval gradient and embolization of perigastric varices. In case of hepatopetal flow, balloon occlusion must be associated to avoid non-target migration. However, this approach must be performed under general anaesthesia, exposes the risk of bleeding complications, and cannot be performed in case of portal vein occlusion. Balloon Retrograde Transvenous Obliteration. has been described by Clements et al[5]. This approach avoids bleeding complications associated to the access but requires the presence of a systemic flow toward the femoral vein.

Purushothaman et al. reported embolization of peristomal varices by the trans-splenic approach[10] using a fine needle and a microcatheter. This option is feasible in case of portal vein chronic occlusion. It limits the risk of bleeding complication of the hepatic approach, in particular when a TIPS is planned. However, this type of approach is associated with an access tract bleeding risk and splenic vein tear.

Percutaneous embolization then represents a low-cost, fast and effective approach to occlude peristomal varices[11]. In contrast to the transhepatic approaches, this technique is feasible in case of pre-sinusoidal portal hypertension, especially in case of portal vein occlusion. The procedure is feasible under local anaesthesia. Thouveny et al.[14] reported among their first two patients, an episode of brief, deep pain during the injection of Histoacryl and Lipiodol and the need to perform subsequent procedures under general anaesthesia. We did not observe such pain using Glubran 2©.

Use of a fine 22G-needle allows easy passage through soft and gastrointestinal tissue without injury, and reduces the risk of bleeding during needle puncture. Some authors recommended to use a 3- or 5-French inner micropuncture sheath[12] insertion following Seldinger technique. This may increase the stability of navigation through the veins during the procedure but increases the number of manoeuvres and may increase the duration of the procedure. The use of a 22G-needle allows a low flow embolization, which limits the risk of glue non-target embolization. Contrary to Thouveny et al[14] who used a low Glue/Lipiodol ratio (1/9), we decided to use a high NBCA/Lipiodol ratio (1/3) to minimize the risk of non-target embolization, with a good diffusion of the mixture in the varicose vein nest. Coils can be used alone or in combination with a liquid agent when the flow is hepatopetal [7], but are subject to the potential risk of migration. However, many coils may be required, necessarily lengthening the procedure[8]. In addition, cases of recanalization with peristomal varices have already been described in the literature[9]. The use of coils does not seem useful when the flow is strictly in the direction of the varicose vein or when the inferior mesenteric drainage vein can be compressed under the ultrasound probe in case of hepatopetal circulation. NBCA use allows direct thrombosis of the varicose vein especially in cases of haemostasis disorders. In this case series of 7 patients, no complication and no technical failure was reported, with a mean follow-up of 14.1 months. Only two patients had recurrences during the follow-up. Peristomal varices are classified into 1a (without portosystemic collateral or shunt component), 2a and 3a (with a degree of portosystemic collateral or shunt component)[3]. In case of venous systemic outflow (type 2a and 3a) ultrasound compression should be performed during embolization, to prevent glue migration and non-target embolization. If systemic outflow compression is not possible or if there is high mesenteric flow, the use of coils may be preferred.

Despite various options for peristomal varices embolization, percutaneous embolization using NBCA/Lipiodol mixture seems to be the most fast, safe and effective option for treating, under local anesthesia, patients with refractory or recurrent peristomal variceal bleeding, particularly in case of portal occlusion. This approach should be performed as a first-line procedure when TIPS cannot be performed.

## Abbreviations

NBCA : N-Butyl-Cyanoacrylate RBC : packed Red blood Cell CTscan : Computed CT scan

## Declarations

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#### Authors' contributions

RG performed the intervention. All authors were involved in writing the manuscript. All authors read and approved the final manuscript.

Competing interests : The authors declare that they have no competing interests.

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#### Availability of data and materials

Data sharing is not applicable to this article as no datasets were generated or analysed during the current study.

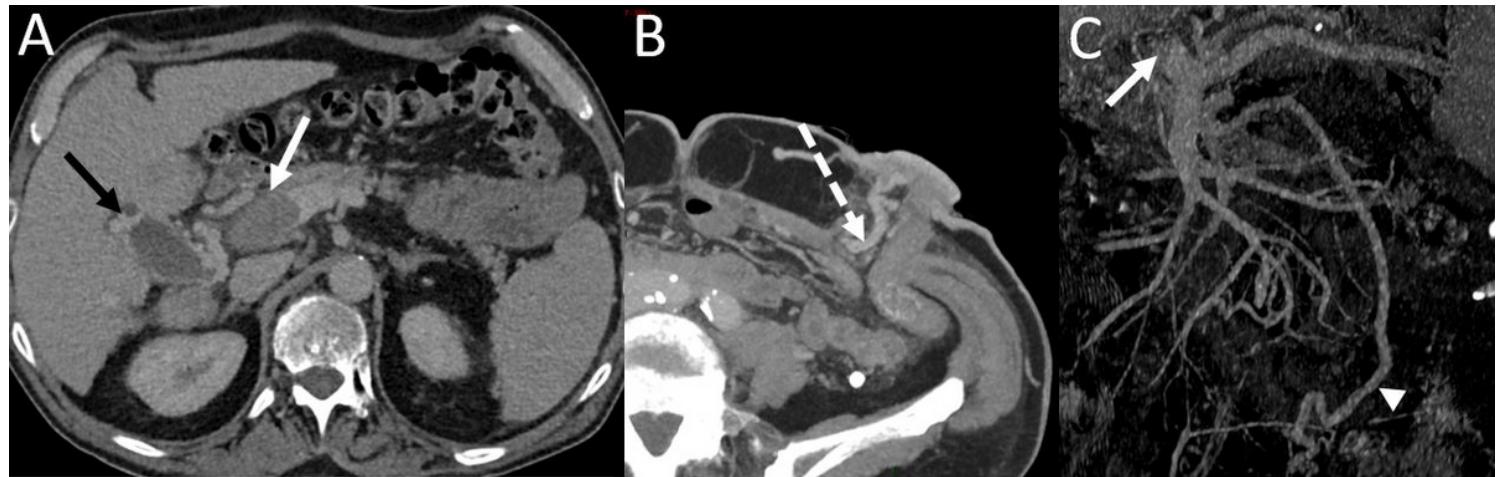
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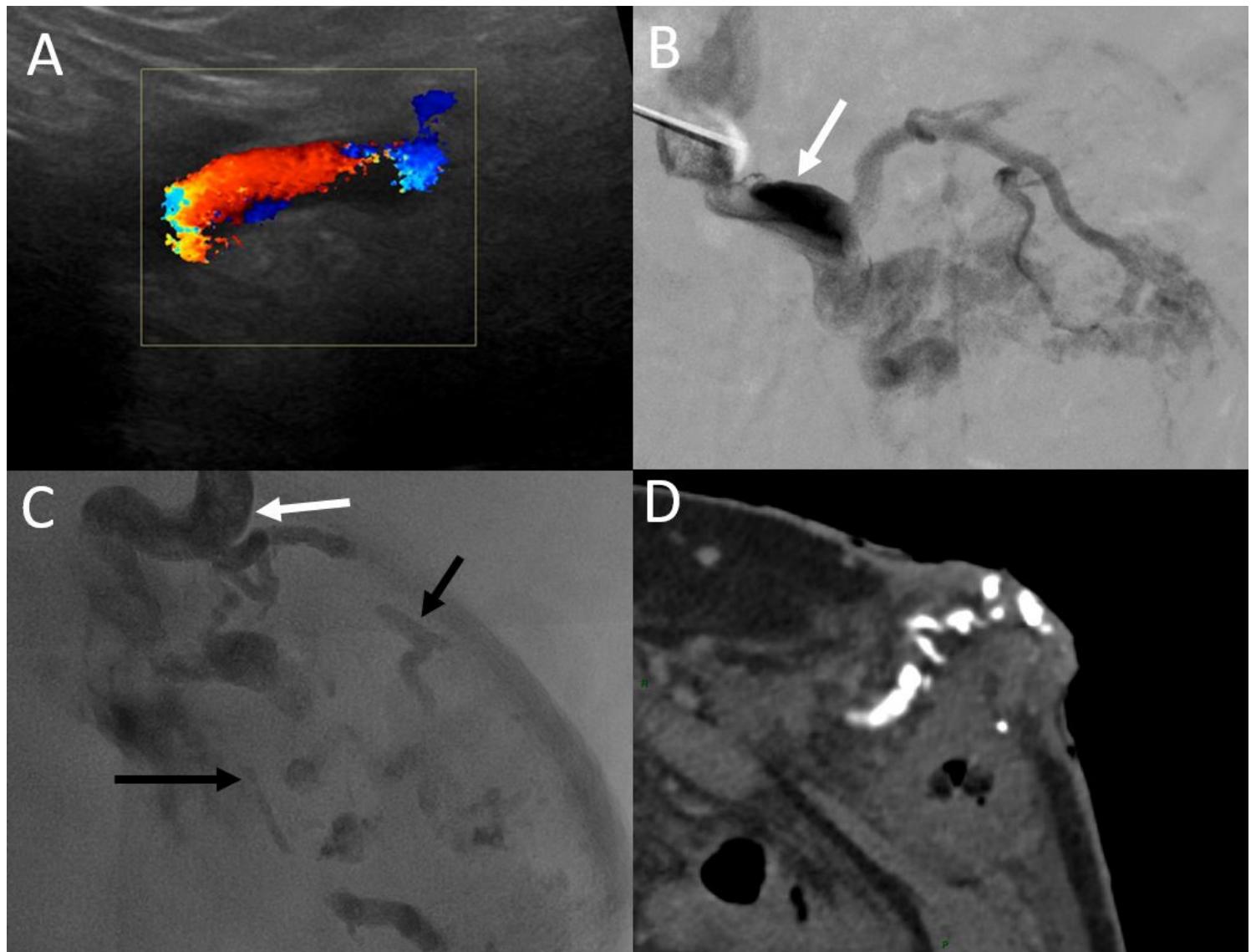
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## Figures



**Figure 1**

CT scan angiogram showing a chronic occlusion and enlargement of the portal vein (white arrow) with development of peri-vesicular varices (black arrow) explaining infra-sinusoidal portal hypertension (A). Imaging also shows peri-stomatal varices (dotted white arrow) without digestive interface with the main varicose vein and the skin surface, suggesting the possibility of direct percutaneous access (B). Coronal view image shows occlusion of the portal vein (white arrow) with dilatation of a single branch of the inferior mesenteric vein supplying the peristomal varices (white arrow's head) (C).



**Figure 2**

Before the procedure, Doppler ultrasound shows the accessibility, patency and hepatofugal flow of the inferior mesenteric branch (A). Opacification with iodinated contrast medium confirms the hepatojejunal direction of the venous circulation and the correct positioning of the needle (B). Post-embolization fluoroscopic image depicting stasis in the variceal nidus (white arrow) and in the proximal aspect of a draining inferior mesenteric vein branch (black arrow)(C). Two days after embolization, CT scan angiogram shows no permeabilization of the varices and no extravasation of NBCA/Lipiodol mixture (D)