

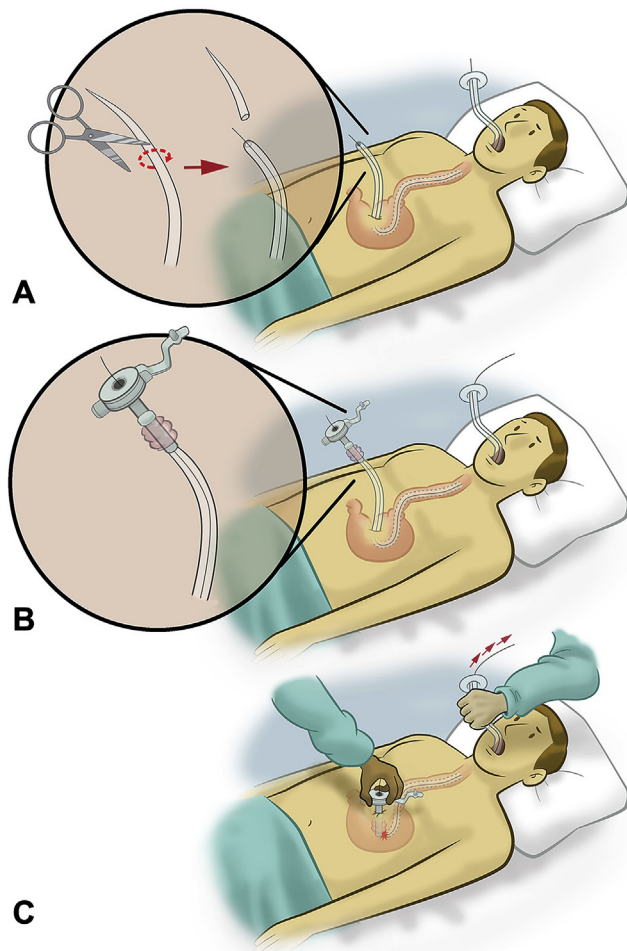


Figure 1. Key steps for same-day skin-level gastrostomy tube placement.

a new, over-the-wire technique for SLG tube placement during a single, same-day endoscopic procedure.

First, we identify the existing fistula between the skin and the gastric body. We gently probe the gastrostomy tract and establish it with a guidewire under direct endoscopic vision. We grasp the guidewire with an endoscopic snare and withdraw it through the mouth in a standard manner. Second, we pass a stoma measuring device over the wire to measure the tract length. This is a vital step because tracts can elongate over time, and the true tract length can differ from the initial marking at the external bolster. After measurement, we remove and discard the stoma measuring device. Third, we insert a push-type gastrostomy tube over the oral side of the guidewire to dilate the tract, dragging the push-type gastrostomy tube *only so far that the internal bolster remains at the patient's mouth*. We then cut the dilating plastic portion of the push gastrostomy tube at an appropriate spot, taking care not to damage the guidewire within. After discarding the dilating portion of the tube, we pass the SLG tube over the wire and engage it over the cut plastic end of

the push gastrostomy tube (Fig. 1A). Fourth, we apply traction on both the wire and the internal bolster while simultaneously feeding the SLG tube through the tract into place in the patient's abdomen (Fig. 1B). Grasping the external portion of the SLG tube, we use simultaneous gentle traction on the extraoral portion of the push gastrostomy tube and the SLG tube to disengage the push gastrostomy tube from the SLG tube (Fig. 1C). Finally, we remove the wire and inflate the internal balloon of the SLG tube, which may be done under direct endoscopic vision or followed by repeat endoscopy to confirm final positioning.

Other clinicians may find this method useful for patients who have accidentally dislodged a recent gastrostomy tube and are thought to be at risk for repeated dislodgements. We have now used this technique 8 times, and in all 8 cases we were able to reestablish the tract and place the SLG tube without excessive difficulty. The patients received prophylactic antibiotics as they would for an initial gastrostomy tube placement, and there were no cases of peritonitis, SLG tube dislodgement, or other significant adverse events.

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Cyanoacrylate injection to treat recurrent bleeding from Dieulafoy's lesion

To the Editor:

Dieulafoy's lesions are associated with GI hemorrhage that frequently recurs in spite of repeated endoscopic therapy. A 41-year old-woman, with a previous episode of GI

bleeding of uncertain source that had occurred 10 years earlier, was admitted to our hospital for melena, and endoscopic examination revealed blood oozing from the second portion of the duodenum, without visible macroscopic lesions. Injection therapy with epinephrine was carried out. Bleeding recurred 4 days later and was treated with epinephrine injection plus hemocclipping. However, within the next 10 months, the patient experienced 4 more bleeding episodes, which were treated by endoscopic placement of hemoclips and argon plasma coagulation. Because of the persistence of arterial flow at Doppler assessment during endosonography, N-butyl-2-cyanoacrylate injection was performed. The procedure was complicated by acute pancreatitis, possibly because of embolic adverse events,¹ which resolved within 3 days; there was no further bleeding during the 2 years of follow-up.

To our knowledge, this is the third report to describe the use of N-butyl-2-cyanoacrylate and demonstrate that tissue adhesive may constitute an efficacious alternative treatment in cases of recurrent bleeding of Dieulafoy's lesions.^{2,3} Presently, there is no consensus on the treatment of Dieulafoy's lesions.⁴ Among a total of published 27 studies on 778 patients that evaluated the effectiveness of endoscopic treatments for bleeding Dieulafoy's lesions, epinephrine injection was most frequently used, followed by hemocclipping. The primary hemostasis rate was not different between the 2 methods (87% vs 88%). By contrast, the primary hemostasis rate was higher for combined therapy (epinephrine plus hemocclipping or epinephrine plus thermal contact) with respect to epinephrine alone

(100% vs 88%, $P = .02$). Likewise, the use of combined endoscopic treatment (epinephrine and hemocclipping) was more effective in preventing rebleeding than was epinephrine alone (4% vs 16%, $P = .09$) (Table 1, available online at www.giejournal.org). In conclusion, combined endoscopic therapy seems to be more effective to treat bleeding Dieulafoy's lesions, and N-butyl-2-cyanoacrylate injection (with or without US guidance) can be used as a rescue option.

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TABLE 1. Endoscopic treatments for Dieulafoy lesions and outcome: review of the literature

Author (year)	Dieulafoy/total GI bleeding, n	Prevalence (%)	Hemostatic methods	Primary hemostasis n (%)	Rebleeding, n (%)	Surgery, n (%)	Mortality related to GI bleeding, n (%)	Follow-up, range (mean mo)
Asaki (1988)	44/44	100	EPI	44 (100%)	5 (11%)	1	NA	NA
Pointner (1988)	22/1466	1.5	EPI	19 (86%)	4 (18%)	4	NA	NA
Stark (1992)	19/1118	1.7	EPI TC Laser	19 (100%)	1 (5%)	1	NA	9.8
Baetting (1993)	28/480	5.8	EPI	27 (96%)	1 (3.5%)	2	0 (0%)	28.3
Skok (1998)	25/2150	1.35	EPI (20) Laser (5)	18 (90%) 5 (100%)	6 (30%) 1 (20%)	2	1 (4%)	29.4
Parra-Blanco (1997)	26/26	100	EPI (2) HC (18) TC (6)	2 (100%) 18 (100%) 6 (100%)	1 (50%) 1 (5.55%) 2 (33.3%)	1	0 (0%)	36.4
Chung (2000)	28/812	3.45	HC (9) EBL (3) EPI (12)	8 (88.8%) 3 (100%) 9 (75%)	1 (11%) 0 4 (33.3%)	0 2	NA	18.7
Nikolaides (2001)	23/NA	NA	EBL	22 (96%)	5 (1.15%)	1	NA	18
Kasapidis (2002)	18/1750	1.03	EPI (9) TC (1) EPI+TC (7)	9 (100%) 1 (100%) 7 (100%)	1 (11%) 0 4 (57.14%)	1	0 (0%)	32
Park (2002)	32/1325	2.4	HC (16) EPI (16)	15 (93.8%) 14 (87.5%)	0 5 (35.7%)	0 2	NA	15
Mumtaz (2003)	23/23	100	EBL (14) TC (2) EPI + TC (5)	14 (100%) 2 (100%) 5 (100%)	0 0 1 (20%)	0	0	NA
Yamaguchi (2003)	34/1307	2.6	HC	32 (94.1%)	9 (3.16%)	0	NA	53.8
Romaozinho (2004)	69/1745	4	EPI (64) HC (2) EBL (3)	63 (91.3%)	18.8 (13.16%)	12	6 (8.6%)	69
Sone (2004)	61/1521	4	EPI (2) HC (6) EPI + HC (53)	100	0 0 2 (1.22%)	0	0 (0%)	47
Park (2004)	29/1309	2.2	EBL (13) HC (13)	13 (100%) 13 (100%)	1 (7.7%) 1 (7.7%)	0	NA	NA
Cheng (2004)	29/1393	2.1	EPI (11) Histo (4) EPI + TC (10) HC (2)	8 (72.72%) 4 (100%) 10 (100%) 2 (100%)	2 (18.18%) 0 0 0	2	1 (3.7%)	18
Katsinelos (2005)	23/936	2.5	EPI (14) HC (3) EPI + HC (5)	13 (93%) 3 (100%) 5 (100%)	4 (30.77%) 0 0	5	1 (4.3%)	29.8
Yilmaz (2005)	28/28	100	EPI (28)	26 (92.8%)	2 (7.14%)	1	1 (3.57%)	23

(continued on next page)

TABLE 1. Continued

Author (year)	Dieulafoy/total GI bleeding, n	Prevalence (%)	Hemostatic methods	Primary hemostasis n (%)	Rebleeding, n (%)	Surgery, n (%)	Mortality related to GI bleeding, n (%)	Follow-up, range (mean mo)
Valera (2006)	4/4	100	EPI (1) EPI + EBL (3)	1 (100%) 3 (100%)	1 (100%) 0		NA	10
Linhares (2006)	15/NA	NA	EPI (14) Surgery (1)	13 (93%)	1 (7.14%)	1	1 (6.66%)	NA
Ljubcic (2006)	21/1920	1.09	HC (21)	20 (95.2%)	2 (9.5%)	1	1 (4.8%)	12
Nagri (2007)	15/834	1.79	EPI (5) EPI + TC (7) TC (1) EPI + HC (2)	5 (100%) 7 (100%) 1 (100%) 2 (100%)	2 (28.57%)		1 (6.6%)	18
Ibanez (2007)	41/2645	1.55	EPI (11) EPI + sclerosant (10) EPI + TC (18) EPI + HC (3) APC (2)	11 (100%) 10 (100%) 18 (100%) 3 (100%) 2 (100%)	3 (27.27%) 0 0 0 0	0	2 (4.87%)	NA
Alis (2009)	18/588	3.1	EBL(10) EPI (8)	100 100	0 6 (75%)	1	NA	NA
Lim (2009)	44/312	14.10	EBL (4) EPI (2) HC (12) EPI + HC (20) Angiography (3)	39 (87%)	1 (25%) 1 (50%) 3 (25%) 1 (5) 1 (33)	2	NA	15
Lara (2010)	63/1380	4.5	HC (14) EPI (8) TC (6) EPI + HC (16) EPI + TC (14) EPI + EBL (1)	14 (100%) 8 (100%) 6 (100%) 16 (100%) 14 (100%) 1 (100%)	0 0 1 (16.6%) 1 (6.25%) 2 (14.28%) 0	1	11 (17%)	NA
Jamanca-Poma (2012)	29/2582	1.23	Monotherapy: EPI (8) APC (1) Combination of EPI/APC/HC: (20)	26 (89%)	6 (67%) 2 (10%)	NA	2 (6.89%)	NA

APC = argon plasma coagulation; EBL = endoscopic band ligation; EPI = epinephrine injection; HC = hemoclippling; Histo = Histoacryl injection; NA = not available; TC = thermal contact.