

Endoscopic sealing of a pancreatic fistula using ethyl-2-cyanoacrylate

Pancreaticoduodenal fistulas are occasionally resistant to treatment by endoscopic or even surgical methods [1]. We describe a patient whose intractable pancreaticoduodenal fistula was successfully sealed endoscopically using N-butyl-2-cyanoacrylate [2].

A 66-year-old woman was hospitalized because of severe acute pancreatitis. She was managed conservatively but spiked a fever whenever she took in nutrients. Imaging studies revealed two pancreaticoduodenal fistulas that had no connection with the pancreatic duct itself (Figure 1). Endoscopic naso-pancreatic and naso-fistula drainage were not effective, so she underwent endoscopic sealing of the pancreaticoduodenal fistulas using cyanoacrylate.

An Olympus JF-240 duodenoscope and an Olympus PR-104Q catheter (Olympus, Tokyo, Japan) were used for this procedure. The injection agent used was a mixture of ethyl-2-cyanoacrylate (Sankyo, Tokyo, Japan) and Lipiodol Ultra-Fluid (Schering, Tokyo, Japan) in a ratio of 0.5 ml ethyl-2-cyanoacrylate to 0.3 ml Lipiodol Ultra-Fluid. The catheter was prepared by filling it with 1.8 ml of 5% glucose solution. Approximately 1.5 ml of the glucose solution was then discarded (for the dead-space volume), and the catheter was inserted from the juxtapaillary fistula to the bottom of the cavity. Cyanoacrylate was then injected and the catheter was removed relatively quickly while confirming that the cavity was filled with cyanoacrylate by injecting further volumes of cyanoacrylate (a total of 1.6 ml). The fistula was completely covered by a mass of cyanoacrylate (Figure 2). Follow-up treatment was performed twice after that, once with 0.8 ml cyanoacrylate and once with 0.5 ml cyanoacrylate. No procedure-related complications were observed. After 3 weeks, computed tomography revealed Lipiodol pooling throughout the entire cyst cavity (Figure 3a). The patient had no further fevers, even after restarting meals. Three months later, computed tomography

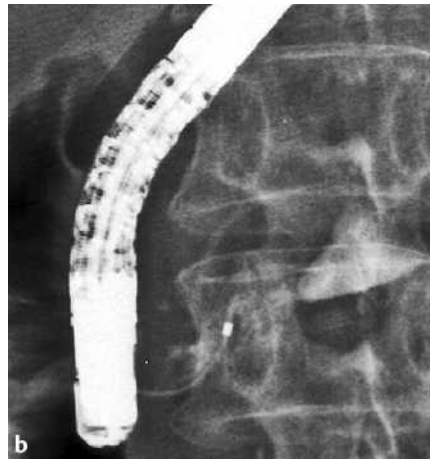
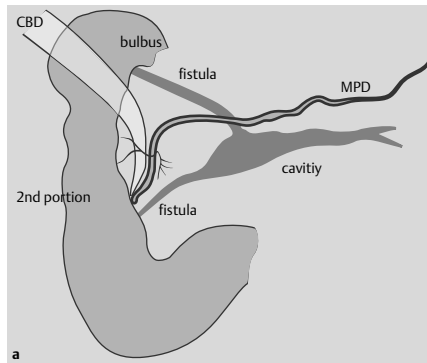


Figure 1 Images of the patient's duodeno-pancreatic fistulas. **a** Schematic representation of the endoscopic retrograde cholangiopancreatography image (CBD, common bile duct; MPD, main pancreatic duct). **b** Contrast radiography showed the confluence of the fistulas in the cyst, proximal to the pancreatic head.

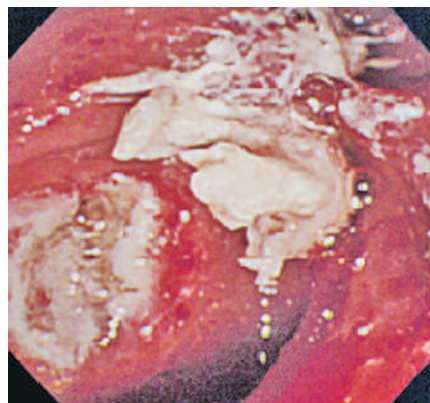


Figure 2 The endoscopic image revealed some leakage of cyanoacrylate, and the juxtapaillary fistula was completely covered with the cyanoacrylate mass.

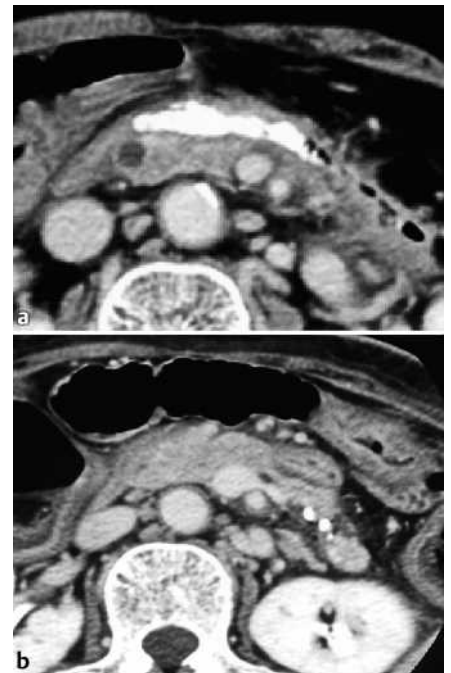


Figure 3 Post-treatment computed tomography scans. **a** Three weeks after treatment, a pool of Lipiodol could be seen filling the entire cyst cavity. **b** Three months after treatment, the fistula had shrunk and disappeared.

showed that the fistula had shrunk and disappeared (Figure 3b).

In conclusion, this case demonstrated that endoscopic fistula sealing using cyanoacrylate is one treatment option for patients with intractable pancreaticoduodenal fistulas.

Endoscopy_UCTN_Code_TTT_1AR_2AG

DOI: 10.1055/s-2006-944723

**A. Sofuni¹, T. Itoi¹, T. Tsuchiya¹,
F. Itokawa¹, T. Kurihara¹, F. Moriyasu¹,
T. Kawai²**

¹ Division of Gastroenterology,
Department of Internal Medicine, Tokyo
Medical University, Tokyo, Japan

² Department of Endoscopy Center, Tokyo
Medical University, Tokyo, Japan.

References

- ¹ Costamagna G, Mutignani M, Ingrassio M et al. Endoscopic treatment of postsurgical external pancreatic fistulas. *Endoscopy* 2001; 33: 317–322
- ² Seewald S, Brand B, Groth S et al. Endoscopic sealing of pancreatic fistula by using N-butyl-2-cyanoacrylate. *Gastrointest Endosc* 2004; 59: 463–470

Corresponding Author

A. Sofuni, M.D.

Division of Gastroenterology
Department of Internal Medicine
Tokyo Medical University
6-7-1 Nishishinjuku

Shinjyuku-ku
Tokyo 160-0023

Japan

Fax: +81-3-5381-6654

E-mail: a-sofuni@amy.hi-ho.ne.jp