

Successful treatment of persistent bacteremia after endoscopic injection of N-butyl-2-cyanoacrylate for gastric varices bleeding

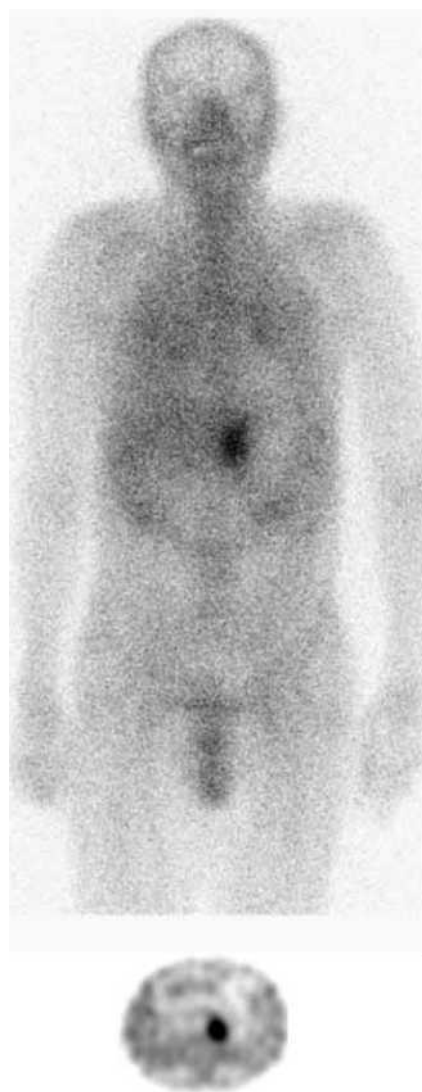


Figure 1 Whole-body gallium scan showing a hot spot located at the upper middle abdomen, which was consistent with the location of gastric varices injection.

Local injection of N-butyl-2-cyanoacrylate has been used successfully for the hemostatic treatment of bleeding gastric varices [1]. Various complications associated with the procedure have been reported [2]. The prevalence of infectious complications could range from 4.3% to 50%, and most are transient and uneventful [3]. Because prolonged and persistent septic complications have been rarely reported, the appropriate strategy of man-

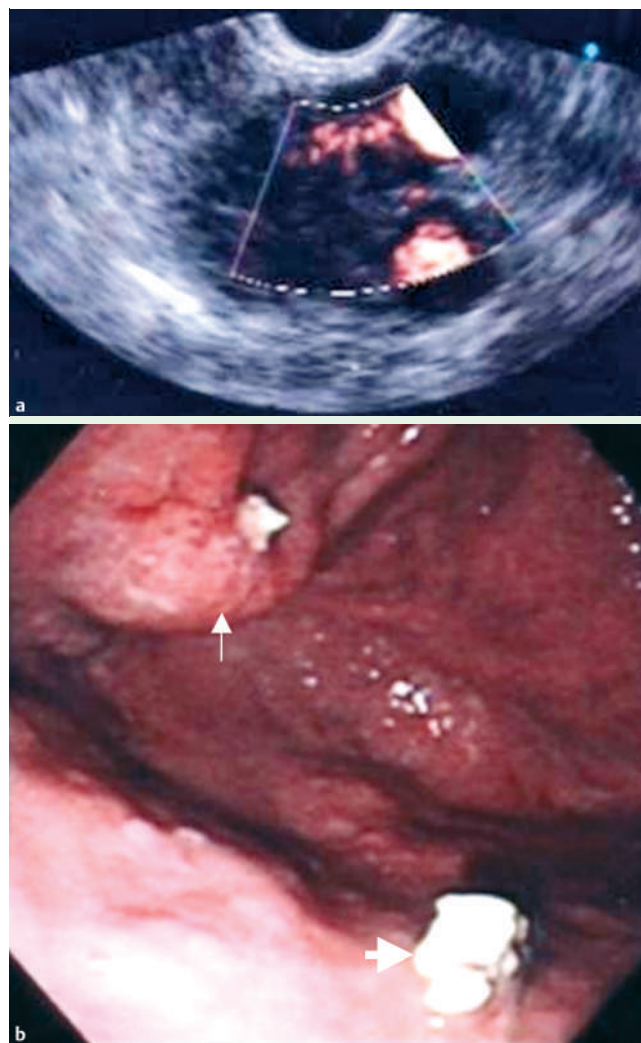


Figure 2 **a** Endoscopic ultrasonography (EUS) showing incomplete obturation of perigastric varices flow. **b** Endoscopic view of gastric fundus after EUS procedure showing gastric varices after histoacryl obturation (thin arrow) and a dropped cast (thick arrow).

agement in this situation has become a challenge.

A 70-year-old man and a 61-year-old woman with a history of liver cirrhosis underwent local injection of N-butyl-2-cyanoacrylate for bleeding gastric varices. Prolonged and persistent fever with bacteremia occurred after the procedure despite systemic antibiotic administration for more than 1 month. Initial evaluations to determine the source of sepsis were unremarkable in both patients.

A gallium scan for unknown fever was carried out and revealed a significant hot spot in the upper middle abdomen in the first patient (● **Figure 1**) but not in the second. We repeated esophagogastro-

duodenal endoscopy and endoscopic ultrasonography (EUS) in both patients. The first patient had incomplete obturation of perigastric varices flow (● **Figure 2a**). During the procedure, the injected histoacryl cast fell apart (● **Figure 2b**). Fever subsided dramatically on the same day. In the second patient, we found a soft tissue ball in the gastric varices with blood flow passing through (● **Figure 3a,b**). We injected an additional amount of N-butyl-2-cyanoacrylate to obturate the flow of gastric varices completely (● **Figure 3c**), and then fever subsided.

From our cases, the cause of persistent fever and bacteremia after tissue adhesive

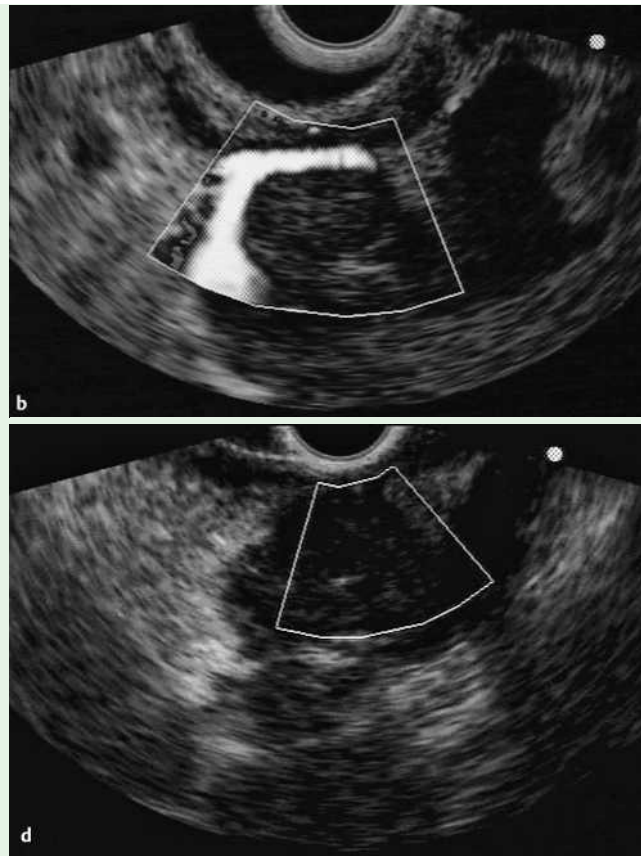
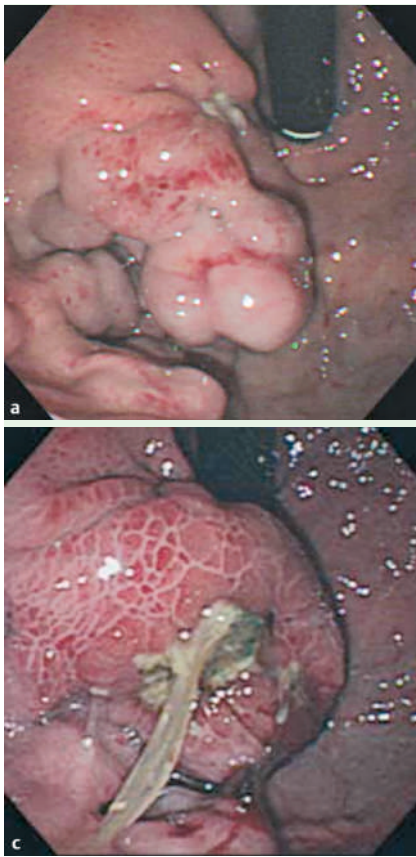


Figure 3 Endoscopic ultrasonography (EUS) and endoscopic studies before and after repeat histoacryl injection. **a** Endoscopic view of gastric fundus showed severe gastric varices with previous histoacryl injection. **b** EUS showed large collateral vessels on the perigastric area and a soft tissue ball in the gastric varices with blood flow passing through. **c** Endoscopic view of gastric varices after repeat histoacryl injection. **d** EUS view showing no blood flow passing through the vegetation after complete histoacryl obturation.

injection could be incomplete obliteration of gastric varices with bacterial seeding on the soft tissue or adhesive cast. Gallium scan may be helpful in identifying the injection site as the infectious source, as was the case in our first patient. EUS can be used to evaluate residual blood flow of gastric varices, perigastric collateral, and to identify the possible infectious loci [4]. Repeated and complete obliteration of gastric varices are needed to cure this complication in addition to prolonged antibiotic treatment. Another option could be to wait for spontaneous expulsion of the cast and repair of the tissue defect. Surgical intervention should be delayed if clinical circumstances allow [5].

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S. C. Liao¹, C. W. Ko^{1,2}, H. Z. Yeh^{1,2},
C. S. Chang¹, S. S. Yang¹, G. H. Chen¹

¹ Division of Gastroenterology, Department of Internal Medicine, Taichung Veterans General Hospital, Taiwan

² Division of Gastroenterology, Department of Internal Medicine, National Yang-Ming University, Taiwan

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Corresponding author

C. W. Ko, MD

Division of Gastroenterology
Department of Internal Medicine
Taichung Veterans General Hospital
No. 160, Sec. 3, Chung-Kang Rd
Taichung 40705
Taiwan

Fax: 886-4-23741331

b8401084@yahoo.com.tw