Double-balloon enteroscopy-assisted closure of perforated duodenal diverticulum using polyglycolic acid sheets

Polyglycolic acid (PGA) sheets and fibrin glue adhere firmly and for a long time, are naturally absorbable, and are used in various fields, including endoscopic therapy [1–8]. We report a case of perforation of a duodenal diverticulum that was treated with an endoscopic tissue-shielding method using PGA sheets and fibrin glue.

A 58-year-old man was hospitalized in the nephrology department of our hospital for exacerbation of chronic renal failure due to lupus nephritis. He developed a sudden onset of severe abdominal and back pain, and an abdominal computed tomography (CT) scan showed free air in the retroperitoneum. We diagnosed a perforated diverticulum of the third portion of the duodenum.

We used an elemental diet tube to reduce the gastrointestinal (GI) pressure without surgery. However, leakage of contrast medium into the retroperitoneum was demonstrated by upper GI tract radiography (Fig. 1). We decided that it would not be possible to conservatively treat the duodenal perforation and therefore opted to perform endoscopic tissue shielding using PGA (Neoveil; Gunze, Kyoto, Japan) sheets and fibrin glue (Bolheal; Kaketsuken, Kumamoto, Japan).

We used double-balloon endoscopy (EC-450BI; Fujifilm, Tokyo, Japan) to approach the diverticulum in the third portion of the duodenum. A 100×100-mm PGA sheet was cut into 20×10-mm pieces, which were held with a biopsy forceps and delivered to the duodenal diverticulum through the channel of the scope. Once the lesion had been covered sufficiently with several PGA sheets, the fibrin sealant Bolheal was applied. First, 3 mL of solution A (fibrinogen) was applied using a catheter (PR-104Q; Olympus, Tokyo, Japan), then the same type of catheter was used to spray 3 mL of solution B (thrombin) onto the sheets to fix them to the duodenal diverticulum (Fig. 2; Video 1). Leakage of contrast medium into the retroperitoneum disappeared after the endoscopic therapy (Fig. 3). This method may be useful for diverticular perforation of the GI tract.

Endoscopy_UCTN_Code_TTT_1AQ_2AG

Competing interests: None
References
6 Itano H. The optimal technique for combined application of fibrin sealant and bioabsorbable felt against alveolar air leakage. Eur J Cardiothorac Surg 2008; 33: 457–460
8 Takimoto K, Imai Y, Matsuyama K. Endoscopic tissue shielding method with polyglycolic acid sheets and fibrin glue to prevent delayed perforation after duodenal endoscopic submucosal dissection. Dig Endosc 2014; 26: 46–49

Bibliography
Endoscopy 2015; 47: E204–E205
© Georg Thieme Verlag KG Stuttgart · New York
ISSN 0013-726X

Corresponding author
Sasaki Fumisato
Kagoshima University Graduate School of Medical and Dental Sciences
Digestive and Lifestyle Diseases
Department of Human and Environmental Sciences
8-35-1 Sakuragaoka
Kagoshima
Kagoshima-shi 890-8544
Japan
Fax: +81-99-2643504
bungohs@m2.kufm.kagoshima-u.ac.jp