Hemorrhagic gastric ulcer after endoscopic ultrasound-guided fine needle aspiration of a pancreatic adenocarcinoma

A 64-year-old man presented with a chief complaint of back pain. A contrast-enhanced computed tomography (CT) scan showed a 3-cm hypovascular, irregular, tumorous lesion in the body of the pancreas invading the celiac, splenic, and common hepatic arteries (Fig. 1 a). Inferior vena cava (IVC) invasion was thought to be due to lymph node metastasis (Fig. 1 b), and thrombi in the peripheral veins were causing extensive blockage. An endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) was performed (2 times, 10 strokes each) on the pancreatic lesion with a 22-gauge needle (Expect; Boston Scientific, Tokyo, Japan) (Fig. 2). Pathological findings indicated invasive pancreatic ductal cancer. The patient was diagnosed with stage IVB cancer of the pancreatic body (Union for International Cancer Control classification). Systemic chemotherapy was planned, and edoxaban was administered for the venous thrombi caused by the IVC invasion.

On day 10 after the EUS-FNA, a small amount of hematemesis occurred. Upper gastrointestinal tract endoscopy showed a distinct ulcer, about 20 mm in size in the upper gastric body on the posterior wall of the greater curvature, on a background of atrophied gastric mucosa. Part of the ulcer was bleeding (Fig. 3). Coagulation hemostasis was performed with coagulation forceps (Coagrasper; Olympus Medical Systems). Subsequently, no further bleeding occurred. From the lesion's location, the changes were thought to have occurred after the EUS-FNA. Bleeding due to EUS-FNA occurs 0.13% of the time [1], but there have been no reports of hemorrhagic gastric ulcers...
caused by EUS-FNA, making the present case rare. The hemorrhagic gastric ulcer possibly occurred because the patient’s serum tested positive for *Helicobacter pylori* antibodies and he was receiving ongoing edoxaban treatment. New oral anticoagulants, including edoxaban, have become widely used for atrial fibrillation and venous thrombosis [2,3]. A recent meta-analysis found a greater risk of gastrointestinal bleeding with edoxaban than with warfarin or other conventional therapies [4]. Therefore, care should be taken when performing EUS-FNA in patients who are receiving anticoagulants.

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**Competing interests:** None

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