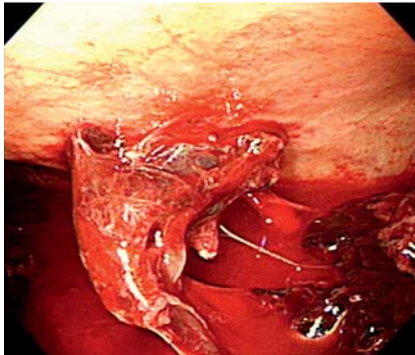
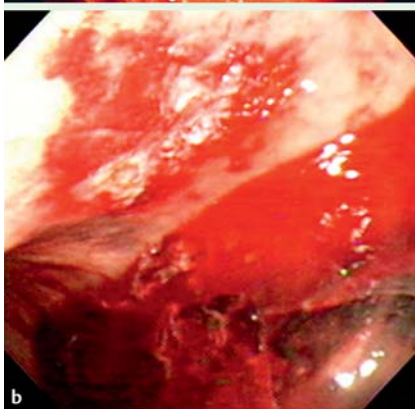
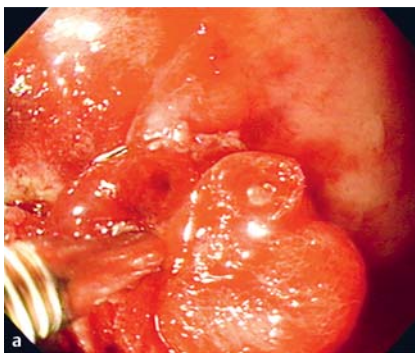


## Endoscopic hemostasis using a gauze-ball compression method

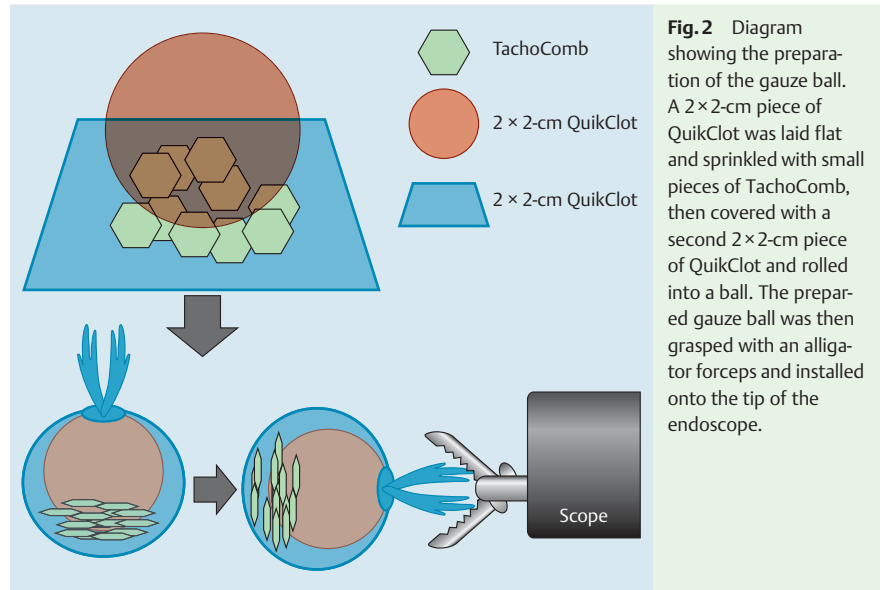


**Fig. 1** View during follow-up endoscopy showing active bleeding from the posterior wall of the upper gastric body.



**Fig. 3** Endoscopic views showing: **a** the gauze ball being applied to the bleeding site with compression being maintained for about 3 minutes; **b** cessation of the bleeding immediately after compression with the gauze ball.

Direct compression of a bleeding site is the most fundamental hemostatic method. Despite this, endoscopic methods based on this principle have yet to be reported. Herein, we describe our experience with endoscopic hemostasis using a gauze-ball compression method.

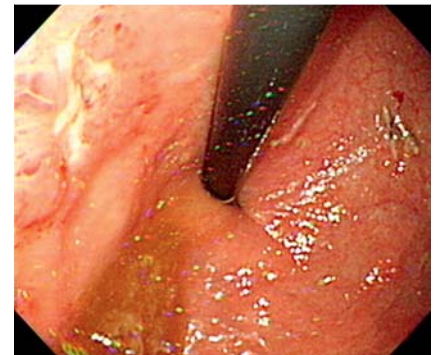


**Fig. 2** Diagram showing the preparation of the gauze ball. A 2×2-cm piece of QuikClot was laid flat and sprinkled with small pieces of TachoComb, then covered with a second 2×2-cm piece of QuikClot and rolled into a ball. The prepared gauze ball was then grasped with an alligator forceps and installed onto the tip of the endoscope.

A 76-year-old man was hospitalized for hematemesis. His blood pressure dropped to 72/44 mmHg, his pulse rate was elevated at 102 beats per minute, and his hemoglobin level decreased to 7.5g/dL. Immediate endoscopy showed a gastric ulcer with active bleeding on the posterior wall of the upper body.

To control the ulcer bleeding, an epinephrine solution was first injected, and this was followed by the application of three hemoclips; however, this failed to work because of the friability of the mucosa. Argon plasma coagulation and fibrin glue injection also failed. After these attempts at hemostasis failed, angiography was performed, during which contrast leakage from the branch of the left gastric artery was noted. Embolization also failed, however, because superselection of the bleeding vessel was not possible owing to technical difficulties.

A further endoscopy was performed the next day. Active bleeding was noted at the posterior wall of the upper body (Fig. 1). A gauze ball was prepared as shown in the diagram (Fig. 2), then grasped by alligator forceps and held at the tip of the endoscope. The prepared endoscope was then inserted into the stomach through an overtube and the gauze ball was used to mechanically compress the bleeding site (Fig. 3a). After 3 minutes of mechanical compression with the gauze ball, the



**Fig. 4** Follow-up endoscopy showing no further signs of bleeding.

bleeding stopped (Fig. 3b). Follow-up endoscopy 10 days later showed no further signs of bleeding (Fig. 4).

In addition to the direct compression on the bleeding site, the hemostatic contribution from two different topical hemostatic agents seemed to work effectively. The main ingredient of QuikClot is kaolin. When kaolin comes into contact with blood, it absorbs the smaller water molecules from the blood. The larger platelets and clotting factors remain in a highly concentrated form, thereby promoting rapid natural clotting [1].

TachoComb, a collagen-bound fibrin sealant, contains human fibrinogen with equine collagen as a carrier. It works by mimicking the final steps of the natural

blood clotting process, creating a fibrin clot at the bleeding site [2]. This case supports the potential value of a method involving application of gauze-ball compression for endoscopic hemostasis.

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