Urgent therapeutic endoscopy is recommended for foreign bodies lodged in the upper gastrointestinal tract such as sharp and pointed objects, magnets, batteries, and large or long objects [1]. However, endoscopic foreign body extraction is sometimes difficult and time-consuming due to copious food residue. Gel immersion endoscopy is useful in securing the visual field from residue and bleeding [2, 3]. Here, we report the implementation of gel immersion endoscopy with enhanced visualization of a foreign body in the stomach, despite being filled with residue.

A 20-year-old woman suffering from an exacerbation of post-traumatic stress disorder and developmental delay was admitted to our hospital having intentionally ingested an AA battery after dinner. The battery was observed by abdominal radiography to have been retained in the stomach; urgent endoscopy was contemplated for battery extraction. However, large amounts of food residue hindered visualization because of the timing of foreign body ingestion, following a meal (▶ Fig. 1a, ▶ Fig. 2a, b). To enhance visibility, we attempted turning the patient’s body and using endoscopic suctioning; however, the maneuvers were ineffective. Therefore, after confirming the position of the battery under fluoroscopy, a gel substance (OS-1 Jelly; Otsuka Pharmaceutical Factory, Tokushima, Japan) was injected through the forceps channel of the endoscope with an attachment (D-201-11804; Olympus, Tokyo, Japan) equipped at the tip (▶ Fig. 1b). The gel displaced the residue and dramatically enhanced visualization, facilitating detection of the battery (▶ Fig. 2c, ▶ Fig. 3a). In the gel-filled field, ensnaring the battery was facilitated (SD-210L-15, Olympus) (▶ Fig. 2d, ▶ Fig. 3b, ▶ Video 1). A flexible overtube (MD-48519; Sumitomo Bakelite, Tokyo, Japan) was also used to protect the esophageal/pharyngeal mucosa from injury by the battery and prevent aspiration. The extracted battery was 5 cm in length and was found intact (▶ Fig. 4).

Endoscopic extraction with gel immersion endoscopy was implemented easily and is potentially useful for ingestion cases complicated by large amounts of food residue.

Competing interests

The authors declare that they have no conflict of interest.
The authors

Tadashi Ochiai, Masaki Ominami, Yasuaki Nagami, Taku Manabe, Mitsuhiro Kono, Shusei Fukunaga, Yasuhiro Fujiwara
Department of Gastroenterology, Osaka City University Graduate School of Medicine, Osaka, Japan

Corresponding author

Yasuaki Nagami, MD
Department of Gastroenterology, Osaka City University Graduate School of Medicine, 1-4-3, Asahimachi, Abeno-ku, Osaka, 545-8585, Japan
Fax: +81-6-6645-3813
yasuaki1975@hotmail.com

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