A loop cutter is an ideal gripper for endoscopic removal of press-through-package sheets

A press-through package (PTP) sheet is sometimes accidentally swallowed [1]. PTP sheets have sharp edges (Fig. 1) and may cause mucosal damage and/or perforation to the gastrointestinal tract [2, 3]. Thus, ingested PTP sheets should be removed endoscopically as soon as possible. Several methods have been reported using hoods and covers to prevent mucosal damage during removal [4, 5]. However, a firm grip on the PTP sheet is necessary for successful removal. Grasping forceps or a snare are commonly used as grasping devices but can often fail because the PTP is slippery with saliva and the working space is insufficient for snaring. To address this, we used a Loop Cutter (FS-5L-1; Olympus, Tokyo, Japan), whose teeth can penetrate the PTP plastic sheet to secure a firm grip. The Loop Cutter’s strong grip allows the PTP to be easily removed.

To evaluate the gripping force of various devices, we attached a PTP sheet to the tip of the spring scale to evaluate the gripping force of various devices.

A 70-year-old woman presented to our hospital complaining of a sore throat after accidentally ingesting PTP sheets. a, b A computed tomography scan showed the PTP sheets located in the esophagus.
tip of a spring scale (▶Fig. 2). The gripping force was measured until the PTP was detached from the grasping device. The mean gripping force of each thirty times was 498 g in Standard Fenestrated Biopsy Forceps (FB-25K-1, Olympus), 404 g in the Radial Jaw 4 Pediatric Biopsy Forceps (M00513440; Boston Scientific, Marlborough, Massachusetts, USA), 37 g in the Rat Tooth with Alligator Jaw Grasping Forceps (FG-47L-1; Olympus), and 1440 g in the Loop Cutter (▶Fig. 3).

A 70-year-old woman presented to our hospital complaining of a sore throat after accidentally ingesting PTP sheets. A computed tomography (CT) scan showed the PTP location in the esophagus (▶Fig. 4). The second case was a 63-year-old man with dementia. PTP sheets were successfully and safely removed endoscopically in both cases by grasping the PTP sheet using a Loop Cutter (▶Fig. 5, ▶Video 1).

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Competing interests

The authors declare that they have no conflict of interest.

The authors

Yuji Ino ☞Masafumi Kitamura ☞Yoshie Nomoto ☞Chihiro Iwashita, Yoshimasa Miura, Tomonori Yano ☞Hironori Yamamoto ☞Department of Medicine, Division of Gastroenterology, Jichi Medical University, Shimotsuke, Japan

Video 1 A Loop Cutter is an ideal gripper for endoscopic removal of press-through packages.
Corresponding author

Tomonori Yano, MD
Jichi Medical University, 3311-1 Yakushiji,
Shimotsuke, Tochigi, 329-0498, Japan
tomonori@jichi.ac.jp

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