

## Successfully Treated Patient with Accidental Swallowing A Press-Through Package (PTP) Sheet

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### Abstract

The patient is 65-year-old male who has accidental swallowing of press-through package (PTP) sheet when taking pills. He visited our clinic and received gastrofiberscopic (GF) examination of upper gastrointestinal (GI) tract. By usual biopsy forceps, PTP was successfully picked up, and endoscope with PTP were pulled out in smooth procedure. For such episodes, adequate procedure is necessary according to certain guideline such as European Society of Gastrointestinal Endoscopy (ESGE). Foreign PTP sheets should be removed until esophagus and stomach. If it comes to intestine with symptoms as abdominal pain, it will cause high-risk situation of perforation and/or abdominal operation..

**Keywords:** Press-through package (PTP); Accidental swallowing of PTP; Gastrofiberscopic (GF) examination; European Society of Gastrointestinal Endoscopy (ESGE); Polyvinyl chloride (PVC)

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### Introduction

Various clinical practice has been continued with the useful endoscopic examination and treatment for long. Among them, some cases have episodes of accidental swallowing of press-through package (PTP) sheet when taking medical pills [1]. For removal of foreign bodies in the upper gastrointestinal (GI) tract, certain guideline has been presented [2]. PTP images are not necessarily detected by the radiograph exams due to its radiolucency. Foreign PTP sheets should be removed in the esophagus and stomach. If it comes to intestine with some abdominal pain, it will cause high-risk situation of perforation and abdominal operation [3]. Concerning mis-swallowing of PTP, prevention would be most important, where elder adults have multiple taken tablets and capsules. To prepare medicines for cutting PTP sheets of blister-wrapped tablets should be avoided [4]. The actual piece of PTP is square and small, with sharp edges [3]. If it is ingested inadvertently, it will be lodged in the GI tract, and it will cause a risk of bowel perforation. Such episodes are frequently observed in the elderly and patients with visual or mental impairment [5]. By Japanese statistics, 28 cases were reported with perforation of small intestine from swallowing of PTP [6]. Authors, co-researchers and staffs have experienced endoscopic procedures in the patients with various diseases so far [7]. Recently, we have clinically impressive case of accidental

swallowing of PTP and successfully treated. General situation and some perspectives are described in this article.

### Case Presentation

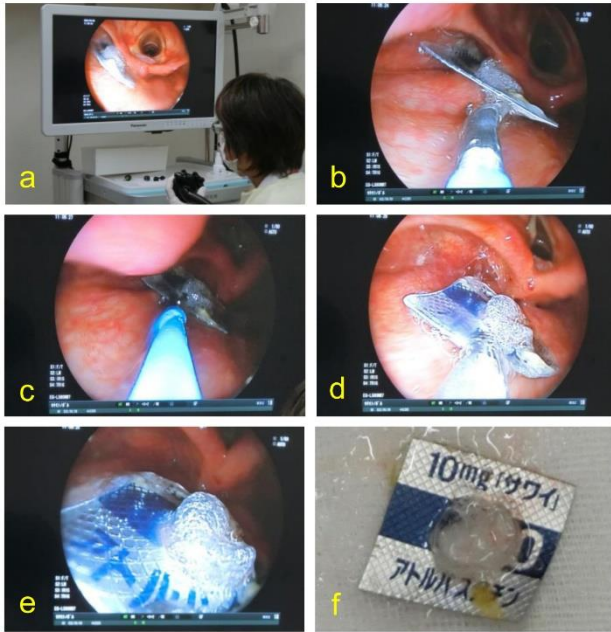
#### Medical History

A 65-year-old Japanese male visited our hospital for urgent problem. He had ordinary breakfast in the morning, and just after he took several medicine pills as usual. At that time, he accidentally swallowed the press-through package (PTP) sheet. He did not complain of pain in the throat or neck, but he felt somewhat vague discomfort in the anterior neck and upper chest. Our medical staffs have consulted together how to manage this urgent case, and we tried to respond the emergent situation by performing upper gastrofiberscopic (GF) examination.

#### Results

For this emergency case, we started the GF examination (Figure 1a). The gastrofiberscope was inserted smoothly into the esophagus and stomach, where no particular injury was found on the surface of mucosa. It was not likely that certain material with sharp edge has passed leading injury on the mucosa. During pulling out the fiberscope slowly, the PTP sheet was found at the junction of the esophagus and bronchus (Figure 1b,c). By detecting the sheet and confirming the problem situation around the circumstance, we

evaluated that it would be possible for picking up the PTP sheet by using biopsy forceps. By usual biopsy forceps, PTP was successfully retrieved, and endoscope with PTP were pulled out in smooth procedure (Figure 1d,e). The PTP sheet showed the original shape that is made of artificial plastic material (Figure 1f). These treatments took approximately 5 minutes.



**Figure 1:** Endoscopic procedure for the current patient.

- a. Overview of exam with unremarkable for esophagus and stomach
- b. Detection of PTP at the junction of the esophagus and bronchus
- c. Preparation of using the ordinary biopsy forceps
- d. Grasping the PTP by the forceps
- e. Retrieval of PTP sheet by the forceps
- f. Successful retrieval of PTP sheet

## Discussion

PTP sheets are structured so that each tablet cannot be separated to prevent people from accidentally swallowing of PTP. However, patients sometimes use scissors to cut it into each tablet. That is the main cause of the accidental mis-swallowing. Then, some guidelines have found for these procedures, such as European Society of Gastrointestinal Endoscopy (ESGE) [2]. Accident swallowing of PTP sheet has been most common foreign body ingestion in Japan. It may result in esophageal damage, but the evaluation of risk for esophageal injury was not established. For experiments, 4 scratch tests were conducted using round PTP, soft PThPa, disposable scalpel and polyvinylidene chloride (PVDC)-coated polyvinyl chloride (PVC) PTP [8]. As a result, GI damage by accidental PTP swallowing would be lower for round PTP and soft PTP.

In several years, some novel measures for PTP matters have been reported. Accidental swallowing of PTP sheet may bring increased risk for GI injury and perforation. However, X-ray procedure often fail to detect it, and CT scan receive moderate radiation exposure.

Then, tomosynthesis can be applied to identify the ingested PTP, associated with the benefit of 1/10 of exposure of CT and 1/3 of cost of CT [9]. In a recent report, a case had PTP sheet in the cervical esophagus. It was not removed by grasping forceps due to its slippery in the endoscopic procedure. However, it could be successfully removed by a detachable snare that was usually used in colorectal polypectomy [10]. Another measure for picking up PTP sheet is reported. Since grasping forceps often fail due to slippery situation and narrow working space, a loop cutter can penetrate it to secure a firm grip, that is the product of Olympus, Tokyo as FS-5L-1 [1].

## Conclusion

From mentioned above, our medical staffs have to remember and give messages to lots of patients in the following. To prevent accidental ingestion, the packaging sheet has been perforated only in one direction, either horizontally or vertically, so that each tablet cannot be separated. Then, do not use scissors to cut into individual tablets. The packaging sheet has sharp edges when cut off. Then, if swallowed accidentally, it can damage the GI tract and possible may cause an injured hole in the GI tract. Furthermore, the material of the PTP would be plastic, where it cannot be detected on X-rays. Thus, its trouble may be discovered late and the condition may become serious state.

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