

Small intestinal perforation caused by folded polyethylene drug-wrapping film

Sayako Maeda MD, PhD  | Koji Takaori MD, PhD

Division of Nephrology, Department of Internal Medicine, Japanese Red Cross Otsu Hospital, Otsu, Japan

Correspondence

Sayako Maeda, Department of Internal Medicine, Division of Nephrology, Japanese Red Cross Otsu Hospital, 1-1-35 Nagara, Otsu, Shiga 520-8511, Japan.
Email: sa.ya.ya@suisui.ne.jp

Keywords: polyethylene drug-wrapping film, intestinal perforations

An 81-year-old female patient was admitted to our hospital because of urinary tract infection due to urinary retention, which improved with urethral catheterization and sulbactam sodium and ampicillin sodium. A day prior to discharge, the patient complained of abdominal pain, diarrhea, and a fever of 38.0°C.

The patient reported a history of undergoing peritoneal dialysis 5 years ago for a duration of 5 months because of end-stage renal disease due to diabetic nephropathy and subsequent hemodialysis three times a week for 4 years. About 1 year ago, she had uterine

sutures placed because of perforative peritonitis due to pyometra with uterine perforation.

Her blood pressure was 130/60 mmHg, and body temperature was 36.7°C. Her abdomen was hard with rebound tenderness. Laboratory data demonstrated a white blood cell count of 12 300/ μ L, hemoglobin 11.4 g/dL, platelet count 339 000/ μ L, CRP 22.1 mg/dL, serum creatinine 3.1 mg/dL, and BUN 23.5 mg/dL.

Her computed tomography revealed a rupture in the wall of the small intestine and fluid collection in the abdominal cavity



FIGURE 1 A rupture in the wall of the small intestine and fluid collection in the abdominal cavity underneath it, suggesting small intestinal perforation

This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2021 The Authors. *Journal of General and Family Medicine* published by John Wiley & Sons Australia, Ltd on behalf of Japan Primary Care Association.

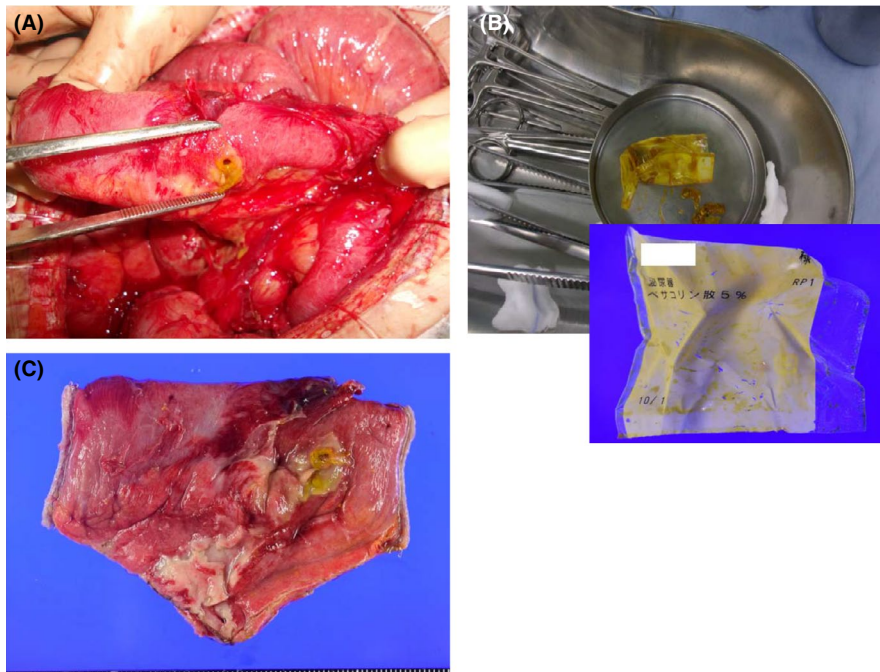


FIGURE 2 A 5-mm-sized hole was found approximately 100 cm from the ileocecal region (A), and a half-folded, empty polyethylene wrapping film was found within the hole (B). The resected ileum revealed a layer of pus (C)

underneath it, suggesting small intestinal perforation (Figure 1). She underwent an emergent surgery during which the surgeons found a 5-mm-sized hole about 100 cm from the ileocecal region (Figure 2A), and, within it just near the hole, a half-folded, empty polyethylene wrapping film was found (Figure 2B). As she had severe adhesions in the abdominal cavity, 20 cm of her ileum around the hole was excised. The resected ileum revealed a layer of pus and infiltration of neutrophils in the serous membrane and a layer of tissue under the serosa, consistent with peritonitis (Figure 2C). The patient completely recovered following the operation.

Of note, the pharmacists place all tablets and powders together in a clear film. A few days before the operation, while the patient was sound asleep, her nurse had cut one side of the film package and left it on her bedside. When the patient, who had mild dementia and poor eyesight, woke up, she found the film package, folded it into a smaller size, and swallowed it, mistaking it for her prepared package wrapped by a self-dissolving wafer paper. The nurse remembered that a few days prior to the operation, the patient had complained about hardness of the wrapping film of the drugs.

Polyethylene drug-wrapping film is thin and soft, but when folded, the corners are hard and sharp, which could be stuck in a narrow space in the intestinal cavity with severe adhesions after prior perforative peritonitis. Moreover, she had obstinate constipation.

Several cases of intestinal perforations due to aspiration of press through package (PTP) have been reported¹⁻⁴; however, corners of the folded polyethylene drug-wrapping film could also injure the intestine. Therefore, special care should be taken for old patients to avoid unguarded ingestion of not only PTP but also clear polyethylene drug-wrapping film. To prevent the accidental drug-wrapping film ingestion by elderly people with dementia, developing a safe “dementia-resistant package” is expected and desirable, similar to the “child-resistant package” for children⁵.

ACKNOWLEDGEMENTS

None.

CONFLICT OF INTEREST

The authors have stated explicitly that there are no conflicts of interest in connection with this article.

INFORMED CONSENT

Patient consent was obtained, and patient anonymity was preserved.

ORCID

Sayako Maeda  <https://orcid.org/0000-0003-4166-915X>

REFERENCES

- Alari FS, Gutierrez I. Multiple intestinal perforations due to blister pill pack ingestion. *BMJ Case Rep.* 2018;bcr2017222746. <https://doi.org/10.1136/bcr-2017-222746>
- Kim JS, Cha JM, Kwak MS, Yoon JY, Jeon JW, Shin HP, *et al.* Small bowel perforation caused by press-through package. *J Gastroenterol.* 2017;70(5):261-4. <https://doi.org/10.4166/kjg.2017.70.5.261>. PMID: 29161796
- Hashizume T, Tokumaru AM, Harada K. Small intestine perforation due to accidental press-through package ingestion in an elderly patient with Lewy body dementia and recurrent cardiopulmonary arrest. *BMJ Case Rep.* 2015;2015:bcr2015212723. <https://doi.org/10.1136/bcr-2015-212723>
- Domen H, Ohara M, Noguchi M, Nakanishi Y, Komuro K, Iwashiro N, *et al.* Inadvertent ingestion of a press-through package causing perforation of the small intestine within an incisional hernia and panperitonitis. *Case Rep Gastroenterol.* 2011;5(2):391-5. <https://doi.org/10.1159/000330290>. Epub 2011 Jul 13 PMID: 21792348
- Mizoguchi M, Miura G, Ojima F, Zasshi Y. Study of child-resistant packaging technologies to prevent children from accidental ingestion of drugs in Japan. *Yakugaku Zasshi.* 2018;138(8):1103-10. <https://doi.org/10.1248/yakushi.18-00013>. PMID: 30068851