

Gauze extension method for specimens resected by endoscopic submucosal dissection



Satoshi Ono, MD, PhD,^{1,2} Daiki Nemoto, MD, PhD,³ Yoshikazu Hayashi, MD, PhD,⁴ Mitsuhiro Fujishiro, MD, PhD²

Endoscopic submucosal dissection (ESD) is a standard and reliable procedure for resection of GI neoplasms. Although ESD allows en bloc resection of large GI neoplasms,¹ ESD specimens tend to contract because of burning and scarring of the margins during ESD (Fig. 1). When preparing ESD specimens for pathologic examination, including evaluation of the margins, specimens should be extended and pinned on a fixing board as quickly as possible.^{2,3} However, in most cases, the normal marginal mucosa from ESD specimens is thin and fragile, especially from the colon. Without dedicated devices, handling specimens by using forceps and/or needles with excessive force can lead to specimen damage.⁴ In addition, prolonged specimen preparation time can cause autolysis or drying. Only a limited number of chemicals, including adrenaline and scopolamine butyl-bromide, have been reported to be

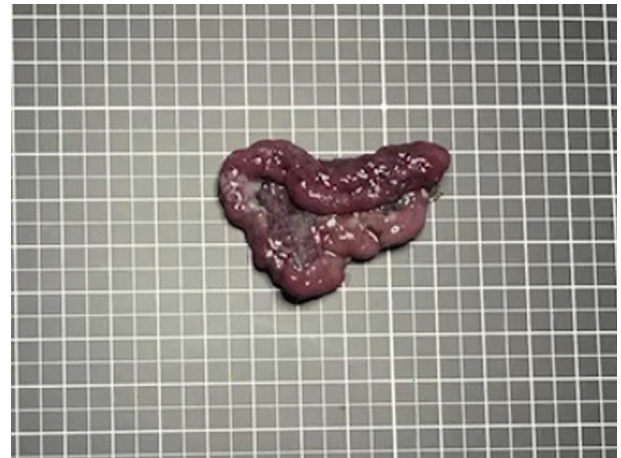


Figure 1. A resected contracted specimen.

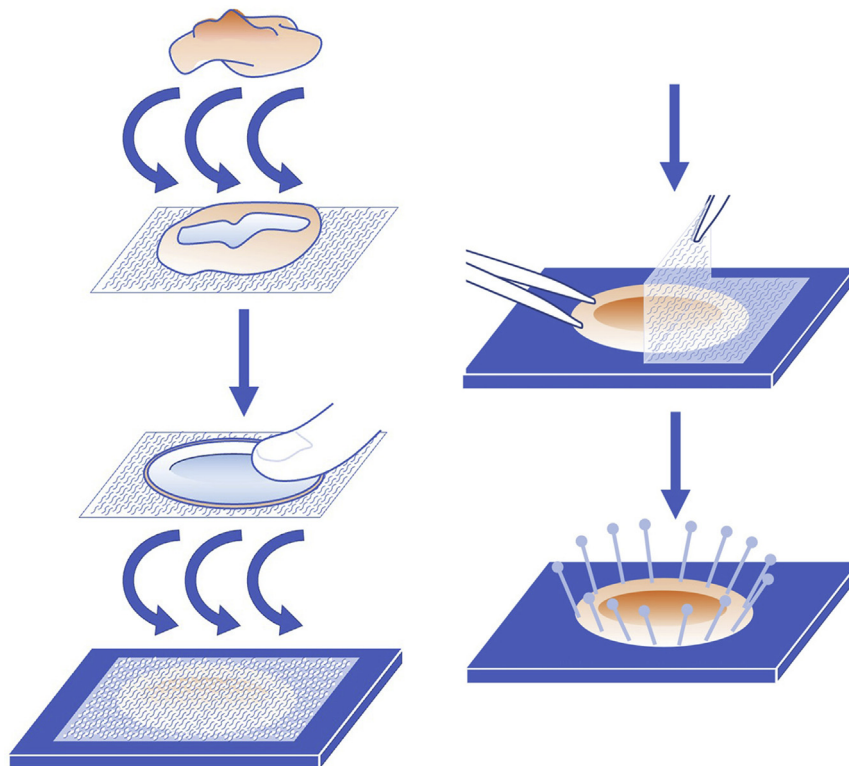


Figure 2. The scheme of the gauze extension method for extending resected specimens.

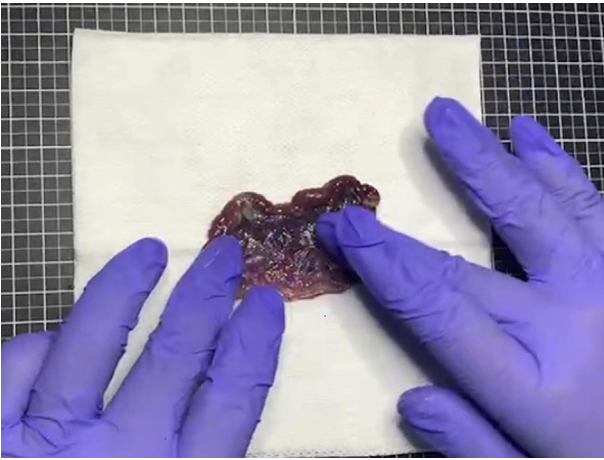


Figure 3. Extending the specimen by gloved fingers.

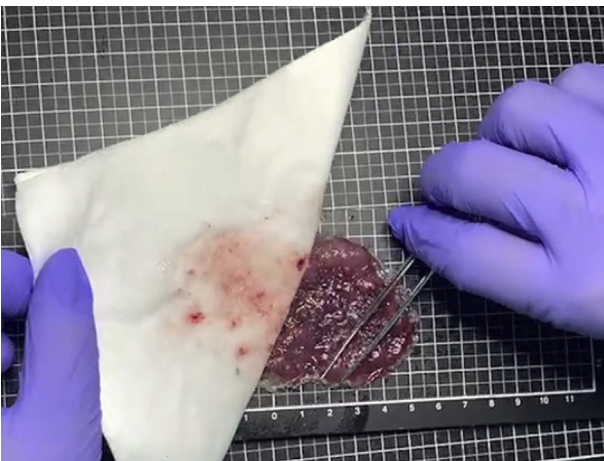


Figure 4. Removing the gauze by countertraction using forceps.

useful for extending ESD specimens. Both are applied by dripping onto the back of the specimen to relax the smooth musculature.⁵ However, these methods incur additional costs and require a certain amount of skill. These chemicals cannot extend margins that roll after burning and scarring during ESD. Additional time is also needed to remove stuck mucus or residue, such as coagulated blood or other material from the specimen, that can interfere with examination of macroscopic details.

We present the gauze extension method as a simple technique to resolve these problems quickly, allowing extension and pinning of contracted ESD specimens without troublesome procedures or additional chemicals (Fig. 2). Immediately after resection by ESD, the contracted specimen is placed with the mucosal side down on a clean sheet of dry gauze. The specimen is then gently extended radially from the center to the outside by using a gloved finger (Fig. 3). Even if the lateral marginal mucosa of the specimen is curled and fragile, the extended mucosa sticks to the gauze in this procedure. After extension, the

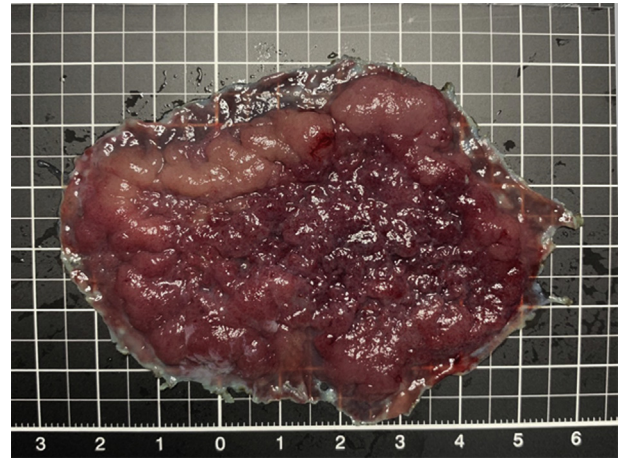


Figure 5. Extended specimen after gauze removal.

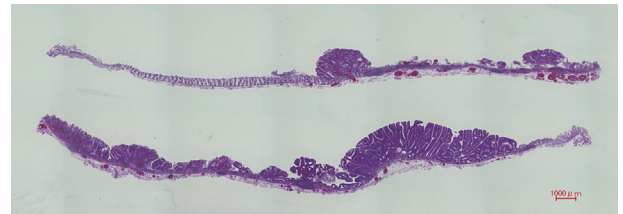


Figure 6. Histopathological image of the well-extended specimen without any damage.

specimen is placed on a fixing board with the submucosal side down before the gauze is carefully removed by countertraction by using forceps (Fig. 4). In this step, the gauze can be easily removed after wetting with water droplets. The specimen is instantly extended on the board. Finally, the lateral edges are correctly arranged by using forceps and carefully pinned to the board (Fig. 5). The overall procedure, including gauze extension, is relatively quick, does not demand extensive experience to master, and minimizes damage. Additionally, the gauze removes mucus and residue from the specimen, facilitating macroscopic examination and discernment of the pathologically important areas of the specimen without damage (Fig. 6).

This method is useful for ESD specimens from any GI organ and is even useful for protruding lesions, such as 0–Is lesions (Paris classification), by preparing a dented gauze foundation.

In conclusion, the gauze extension method is efficient for pinning ESD specimens before formalin fixation to facilitate precise and detailed histopathological assessment.

SUMMARY

The gauze extension method is a simple technique to extend and pin contracted ESD specimens without any troublesome procedures or any additional chemicals. It

also removes mucus on the surface of the ESD specimens before formalin fixation to allow histopathological assessment precisely and in detail (Video 1, available online at www.giejournal.org).

ACKNOWLEDGMENTS

We would like to thank the Tips project and Mr. Toshihiro Ouri for the fruitful comments during preparation of this article. We also appreciate Prof. Alan Kawarai Lefor of the Department of Surgery at Jichi Medical University for English language editing of this article.

DISCLOSURE

All authors disclosed no financial relationships.

Abbreviation: ESD, endoscopic submucosal dissection.

REFERENCES

- Hayashi Y, Shinozaki S, Sunada K, et al. Efficacy and safety of endoscopic submucosal dissection for superficial colorectal tumors more than 50 mm in diameter. *Gastrointest Endosc* 2016;83:602-7.
- Mojtahed A, Shimoda T. Proper pathologic preparation and assessment of endoscopic mucosal resection and endoscopic submucosal dissection specimens. *Tech Gastrointest Endosc* 2011;13:95-9.
- Ebigbo A, Probst A, Messmann H, et al. Topographic mapping of a specimen after endoscopic submucosal dissection. *Endosc Int Open* 2019;7:E521-4.
- Kim SH, Choi HS, Chun HJ, et al. A novel fixation method for variable-sized endoscopic submucosal dissection specimens: an in vitro animal experiment. *PLoS One* 2016;11:e0146573.
- Nishizawa T, Kinoshita S, Mori H, et al. Use of adrenaline for specimen fixation after endoscopic submucosal dissection. *Endoscopy* 2019;51:E204.

Department of Gastroenterology, Chiba-nishi General Hospital, Matsudo, Chiba, Japan (1), Department of Gastroenterology, The University of Tokyo Hospital, Tokyo, Japan (2), Department of Coloproctology, Fukushima Medical University Aizu Medical Center, Fukushima, Japan (3), Department of Medicine, Division of Gastroenterology, Jichi Medical University, Tochigi, Japan (4).

If you would like to chat with an author of this article, you may contact Dr Ono at satoshi-ky@umin.ac.jp.

Copyright © 2022 American Society for Gastrointestinal Endoscopy. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

<https://doi.org/10.1016/j.vgje.2022.01.013>

**Read Articles in Press Online Today!
Visit www.videogie.org**

VideoGIE posts in-press articles online in advance of their appearance in a monthly edition of the journal. These articles are available on the *VideoGIE* website by clicking on the “Articles in Press” tab. Articles in Press represent the final edited text of articles that are accepted for publication but not yet scheduled to appear in a specific issue. They are considered officially published as of the date of Web publication, which means readers can access the information and authors can cite the research months prior to its availability in an issue. To cite Articles in Press, include the journal title, year, and the article’s Digital Object Identifier (DOI), located in the article footnote. Visit the website today to stay current on the latest research in the field of gastrointestinal endoscopy.