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Low-pressure self-expandable metal stent insertion for obstructive colon cancer using water and gel immersion

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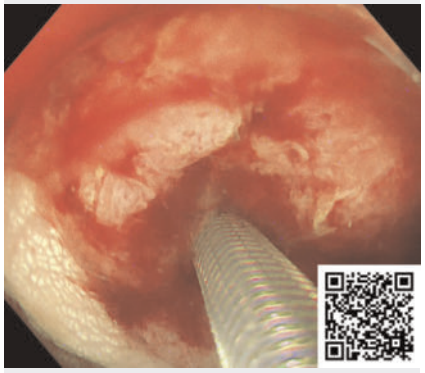
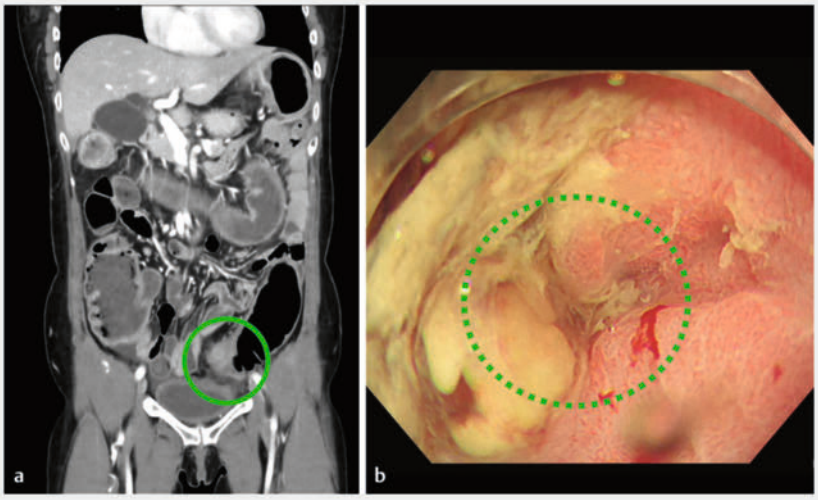


Video 1 Low-pressure insertion of a self-expandable metal stent for obstructive colon cancer using water and gel immersion.



▶ **Fig. 1** Computed tomography (CT) and endoscopic image of sigmoid colon cancer. **a** The CT image shows wall thickening of the sigmoid colon (green circle) and dilation of the proximal colon. **b** The luminal opening of the tumor (green dotted circle).

Self-expandable metal stents (SEMSs) are commonly used as a bridge-to-surgery or palliative treatment for obstructive colorectal cancer [1]. Although technical and clinical success rates are high, adverse events such as perforation, migration, and sepsis [2–4] may occur owing to the poor visual field due to stool and failure to identify the luminal opening of the tumor, air over-insufflation, and unreasonable guidewire manipulation. Gel immersion can be used to improve the endoscopic view [5]. Herein, we describe a SEMS insertion with a clear view and lower intraluminal pressure using water and gel immersion (▶ **Video 1**).

A 55-year-old woman presented with abdominal pain and nausea. She was diagnosed with bowel obstruction to sigmoid colon cancer (▶ **Fig. 1 a**), and a SEMS was inserted as a bridge-to-surgery treatment. First, we removed the gas from the lumen and filled it with water to create underwater conditions (▶ **Fig. 2 a, b**). Because the visual field was poor due to stool and residue, gel was injected (VISCOCLEAR; Otsuka Pharmaceutical Factory, Inc., Tokushima, Japan). The visual field was cleared, and the endoscope reached the tumor (▶ **Fig. 2 c, d**). As the tumor was covered with stool and mucus, it was gently washed with water and gel, and the luminal opening was identified (▶ **Fig. 1 b**, ▶ **Fig. 2 e–g**). Subsequently, the catheter was inserted into the stricture and the proximal colon was confirmed via contrast (▶ **Fig. 2 h**). A wire-guided biopsy was then performed; however, bleeding occurred. The gel injection reduced the momentum of bleeding and improved the endoscopic view (▶ **Fig. 2 i–l**). Finally, the stent was successfully inserted (22 × 120-mm Niti-S Enteral Colonic Uncovered Stent; Taewoong Medical Co., Ltd., Seoul, Korea) (▶ **Fig. 2 m–o**).

In conclusion, low-pressure insertion of a SEMS with water and gel immersion may prevent air over-insufflation and ensure a good endoscopic field view. This method may reduce patient discomfort and enable safe stent insertion.

Endoscopy_UCTN_Code_TTT_1AQ_2AF

Acknowledgement

We would like to thank Editage (www.editage.jp) for English language editing.

Conflict of Interest

The authors declare that they have no conflict of interest.

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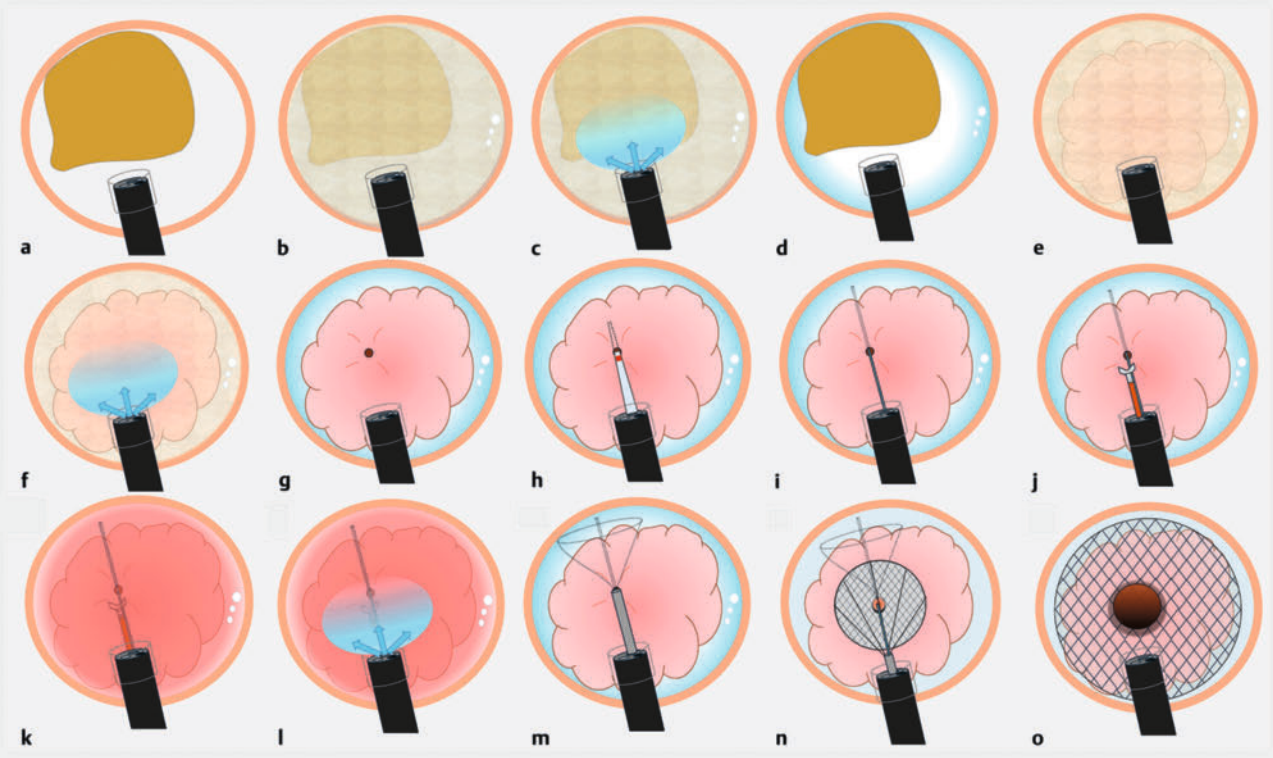

▶ **Fig. 2** Schema of the low-pressure insertion of a self-expandable metal stent using water and gel immersion. **a** View under gas. **b** Removal of the gas from the lumen and filling it with water. **c** Injecting the gel. **d** The endoscopic view clearly changes. **e** The tumor is covered with stool and mucus. **f** The tumor is gently washed with water and gel. **g** The luminal opening is identified. **h** The catheter is inserted into the stricture. **i** A guidewire is placed. **j** Biopsy of the tumor. **k** Bleeding occurs and negatively impacts the endoscopic view. **l** Injecting the gel. **m** A colonic stent is deployed. **n** Careful deployment of the stent continued. **o** The stent is inserted successfully.

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Endoscopy 2024; 56: E888–E889
DOI 10.1055/a-2433-0576
ISSN 0013-726X

Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany