Clinical feasibility of endoscopic full-thickness resection and closure using O-ring and over-the-scope clip system

Endoscopic full-thickness resection (EFTR) has been developed to treat gastrointestinal stromal tumors (GISTs) of < 3 cm [1]. The challenges were to secure the surgical field and to establish a reliable endoscopic closure method [2]. Therefore, we have developed a novel strategy of traction-assisted EFTR followed by O-ring band [3] and over-the-scope clip closure through an animal study [4]. We describe a clinical case in which this strategy was feasible (Video 1).

A man in his 40s presented with an intraextraluminal mixed-growth type GIST (22 mm in diameter) located in the middle stomach. First, a single port aimed at pneumoperitoneal control was created. Then, a whole circumferential submucosal incision was performed around the lesion, followed by 5-mm perforations at both central ends. A 4-cm loop of suture was anchored on the muscle–serosal layer at both perforation sites (Fig. 1). After EFTR of the distal half, the proximal half was resected using clip-line traction (Fig. 2). After the lesion was retrieved orally, the anchored loop was grasped and pulled into the endoscopic variceal ligation hood (MD-48720U; Sumius, Tokyo, Japan), and then the anchor clips at both ends were ligated with an O-ring band [3] and an endoloop snare (HX-400U-30; Olympus, Tokyo, Japan) (Fig. 3). This procedure enabled the full-thickness defect to be reduced and the surgical field to be secured. After the two defects around the band ligation were approximated using Twin Grasper forceps (Ovesco Endoscopy, Tübingen, Germany), full-thickness inverted closure was completed by deploying the over-the-scope clips (Fig. 4). Laparoscopic observation revealed no leakage on indigo carmine air leak test and confirmed inverted full-thickness closure (Fig. 5). The procedure time was 80 minutes for traction-assisted EFTR and 35 minutes for O-ring and over-the-scope clip closure. No complications occurred. Histological examination confirmed curative resection of low risk GIST. Traction-assisted EFTR followed by O-ring and over-the-scope clip closure were clinically feasible.

Competing interests

The authors declare that they have no conflict of interest.
The authors

Takehiro Iwasaki1, Kunihisa Uchita1, Nobuya Kobayashi2, Koji Kojima1, Noriko Nishiyama2, Hiromichi Yamai3, Hideki Kobara2

1 Department of Gastroenterology, Kochi Red Cross Hospital, Kochi, Japan
2 Department of Gastroenterology and Neurology, Faculty of Medicine, Kagawa University, Kagawa, Japan
3 Department of Surgery, Kochi Red Cross Hospital, Kochi, Japan

Corresponding author
Takehiro Iwasaki, MD
Department of Gastroenterology, Kochi Red Cross Hospital, 1-4-63-11 Hadaminanamimachi, Kochi 780-8562, Japan
space-rendez-vous@sings.jp

References


Bibliography

Endoscopy
DOI 10.1055/a-1959-1764
ISSN 0013-726X
published online 2022
© 2022. The Author(s).
This is an open access article published by Thieme under the terms of the Creative Commons Attribution-NonDerivative-NonCommercial License, permitting copying and reproduction so long as the original work is given appropriate credit. Contents may not be used for commercial purposes, or adapted, remixed, transformed or built upon. (https://creativecommons.org/licenses/by-nc-nd/4.0/)
Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany

Fig. 3 The procedure of defect approximation. a Grasping the prepared suture loop using hemostatic forceps. b Capturing two deployed clips into the endoscopic variceal ligation hood by pulling the thread. c Reinforcing the O-ring by applying a detachable snare below the O-ring. d Successful defect approximation.

Fig. 4 The two defects were completely closed by Twin Grasper (Ovesco Endoscopy, Tübingen, Germany)-assisted over-the-scope clip deployment.

Fig. 5 Laparoscopic observation revealed no leakage and confirmed inverted full-thickness closure (yellow arrows).