악성 대장 폐쇄 환자에서 자가팽창성 금속 스텐트의 임상적 효과: 내시경적 및 방사선적 삽입법 비교

김지원, 정지봉, 이국래, 김병관, 정용진, 김원, 김휘영, 안동원, 고성준, 이재경
서울대학교 의과대학 보라매병원 내과학교실

Comparison of Clinical Outcomes between Endoscopic and Radiologic Placement of Self-expandable Metal Stent in Patients with Malignant Colorectal Obstruction

Ji Won Kim, Ji Bong Jeong, Kook Lae Lee, Byeong Gwan Kim, Yong Jin Jung, Won Kim, Hwi Young Kim, Dong Won Ahn, Seong-Joon Koh and Jae Kyung Lee
Department of Internal Medicine, Seoul National University Boramae Hospital, Seoul National University College of Medicine, Seoul, Korea

Background/Aims: This study compared the clinical outcomes between endoscopic and radiologic placement of self-expandable metal stent (SEMS) in patients with malignant colorectal obstruction.

Methods: In total, 111 patients were retrospectively enrolled in this study between January 2003 and June 2011 at Seoul National University Boramae Hospital. Technical and clinical success rates, complication rates, and stent patency were compared between using an endoscopic (n=73) or radiologic (n=38) method during the SEMS placement procedure.

Results: The technical success rate was higher in the endoscopic method than in the radiologic method (100% [73/73] vs. 92.1% [35/38], respectively; p=0.038). In addition, in 3 of the remaining 35 patients in the radiologic-method group, adjuvant endoscopic assistance was required. In the six patients (including the three aforementioned patients), the causes of technical failure were the inability to pass the guidewire into an obstructive lesion due to a tortuous, curved angulation of the sigmoid or descending colon (n=4), and a difficult approach to a lesion located at the descending or transverse colon (n=2). The clinical success rate, complication rate, and stent patency did not differ significantly between the two methods (p=0.424, 0.303, and 0.423, respectively).

Conclusions: When the colorectal obstruction had a tortuous, curved angulation of the colon or was located at or proximal to the descending colon, the endoscopic method of SEMS placement appears to be more useful than the radiologic method. However, once SEMS placement was technically successful, the clinical success rate, complication rate, and stent patency did not differ with the method of insertion. (Korean J Gastroenterol 2013;61:22-29)

Key Words: Colorectal neoplasm; Stent; Endoscope; Interventional radiology

INTRODUCTION

It is well known that placement of a self-expandable metal stent (SEMS) is a safe and effective option as a palliative treatment for colorectal cancer in patients with inoperable disease, and as a bridge to surgery in patients with acute colorectal obstruction caused by colonic neoplasm involving the rectum or colon.1-3 According to a meta-analysis, colorectal SEMS placement has technical and clinical success rates of 94% and 91%, respectively.4 However, it has been reported


This is an open access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (http://creativecommons.org/licenses/by-nc/3.0) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

교신저자: 정지봉, 156-707, 서울시 동작구 보라매로 5길 20, 서울대학교 의과대학 보라매병원 내과학교실
Correspondence to: Ji Bong Jeong, Department of Internal Medicine, Seoul National University Boramae Hospital, Seoul National University College of Medicine, 20, Boramae-ro 5-gil, Dongjak-gu, Seoul 156-707, Korea. Tel: +82-2-870-2222, Fax: +82-2-870-3863, E-mail: jibjeong@snu.ac.kr

Financial support: None. Conflict of interest: None.
recently that the clinical outcome of colorectal SEMS placement is significantly affected by operator experience,\(^4\) type of stent,\(^5\) type of stricture,\(^4\)\(^-\)\(^7\) and use of chemoradiation.\(^5\)

Colorectal SEMS placement can be performed using either an endoscopic method with the assistance of fluoroscopy, by endoscopists, or a radiologic method using fluoroscopy alone, by interventional radiologists. Although the clinical outcomes of colorectal SEMS placement are known to be similar for the two methods,\(^8\) few studies have compared the clinical outcomes of these two methods of colorectal SEMS placement. The purpose of this study was therefore to directly compare the technical success rate, clinical success rate, complication rate, and stent patency between the endoscopic and radiologic methods of colorectal SEMS placement.

SUBJECTS AND METHODS

1. Patients

A total of 118 consecutive patients underwent SEMS placement for symptomatic colorectal obstruction at Seoul National University Boramae Hospital between January 2003 and June 2011. All SEMS placements were performed using either the endoscopic or radiologic method.

All of the patients underwent CT scan to determine the extent of the tumors and to evaluate the site, degree, and length of the obstructive lesion. The histopathologic diagnosis was confirmed by analyzing the results of an endoscopic biopsy procedure that was performed either before or at the time of stent placement. All of the patients underwent colorectal SEMS placement for preoperative colonic decompression or palliation of a malignant obstruction of unresectable cancer.

The inclusion criteria were colorectal malignant obstruction identified using clinical obstructive symptoms and a radiologic examination. The exclusion criteria included nonsymptomatic patients with colorectal obstruction, perforation or peritonitis with clinical evidence, concomitant small-bowel obstruction, or colorectal obstruction caused by benign stricture.

Of the 118 patients who received colorectal SEMS placement, 7 patients were excluded because of follow-up loss of patients during the study. The remaining 111 patients were retrospectively enrolled in our study. We performed this study in accordance with the guidelines of our institutional review board, which approved the study.

2. Colorectal SEMS placement

The stent type was selected according to the preference and experience of each endoscopist or interventional radiologist. Stent length was selected by allowing for the exposure of at least an additional 2-4 cm distal and proximal to the obstructive lesion. The three types of stent used in our study were (1) uncovered Niti-S colonic D type stent (Taewoong Medical, Seoul, Korea); (2) covered Niti-S colonic stent (Taewoong Medical); and (3) the newly developed, covered Comvi stent (Taewoong Medical). The uncovered Niti-S stent is constructed with a mesh of a single strand of nitinol, and has a cylindrical design without flared ends. The covered Niti-S colonic stent is covered with silicone and has uncovered flared end. The covered Niti-S Comvi stent is covered with polytetrafluoroethylene membrane between layers of metal meshwork with uncovered ends. These stents are available in diameters of 18, 20, 22, and 24 mm and lengths of 60, 80, 100, and 120 mm.

All of the stents were placed using either the endoscopic approach by two expert endoscopists (J.B.J. and J.W.K.) or the radiologic approach by two experienced interventional radiologists (Y.H.C. and Y.H.S.). For the endoscopic stent placement, the endoscope (GIF-2T240 or CF-260; Olympus, Tokyo, Japan) was carefully inserted toward the lesion and then one or two clips were placed at least 2 cm distal to the lesion. A 0.035-inch guidewire (Trace Metro, Cook, Bloomington, IN, USA) was passed across the obstruction, into its proximal part. A 5-F biliary catheter was advanced above the stricture over the guidewire across the obstruction, and the length of the obstructive lesion was measured with the aid of an injection of water-soluble contrast dye (Gastrografin; Schering Espana, Madrid, Spain) through the 5-F biliary catheter. A stent-delivery system was advanced over the guidewire through the working channel of the endoscope and was inserted into the obstruction under fluoroscopic guidance. The stent was deployed at the stricture site while pulling back the outer sheath, under combined fluoroscopic and endoscopic guidance.

For the radiologic stent placement, a 0.035-inch guidewire (Radifocus; Terumo, Tokyo, Japan) was advanced across the obstruction under fluoroscopic guidance alone. A 5-F catheter (Torcon NB; Cook) was advanced above the stricture over