

Self-expandable metal stents for obstructing colonic and extracolonic cancer: European Society of Gastrointestinal Endoscopy (ESGE) Guideline – Update 2020

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Main recommendation

After diagnostic evaluation – CT scan

Strong recommendation

1. Clinical symptoms + radiological sign of cancer obstruction without perforation, no prophylactic stent placement
2. Stenting as bridge to surgery, Lt sided colon
3. Treatment for palliative malignant colonic obstruction
4. Should be performed or directly supervised by expert

Week recommendation

5. Proximal colon, bridge for surgery or palliative setting
6. Time interval 2 weeks until surgery in Lt sided colon cancer
7. Decompressing stoma can be option if stent is not available

Introduction

- 2014 guideline update
- Large bowel obstruction occurs 8-13% of colon cancer
- All published RCT excluded within 8 to 10cm of the anal verge, proximal to the splenic flexure
 - > only apply to left sided colon cancer

Recommendation and statements

1. General considerations before colonic stenting

RECOMMENDATION

ESGE recommends colonic stenting to be reserved for patients with clinical symptoms and radiological signs of malignant large-bowel obstruction, without signs of perforation. ESGE does not recommend prophylactic stent placement.
Strong recommendation, low quality evidence.

Absolute contraindication

RECOMMENDATION

ESGE recommends performing contrast-enhanced computed tomography (CT) scan when malignant colonic obstruction is suspected.
Strong recommendation, low quality evidence.

Diagnose obstruction
Define level
Identify etiology

RECOMMENDATION

ESGE recommends examination of the remaining colon to exclude synchronous pathology in patients with potentially curable colonic cancer, either before or no more than 6 months after alleviation of the colonic obstruction.
Strong recommendation, low quality evidence.

3-4% synchronous cancer
CT – stenosing colon에서
정확도 떨어짐

RECOMMENDATION

ESGE recommends that colonic stenting for diverticular disease should be avoided.
Strong recommendation, low quality evidence.

Acute diverticulitis
Perforation risk 높아짐

RECOMMENDATION

ESGE recommends to take endoscopic biopsies of an obstructing tumor; however pathological confirmation of malignancy should not persistently be pursued in an urgent setting, such as during stent placement for acute colonic obstruction.
Strong recommendation, low quality evidence.

Urgent setting에서는
Bx 필수 아님

RECOMMENDATION

ESGE suggests that patients with a colonic obstruction should receive preparation with an enema to clean the colon distal to the stenosis in order to facilitate stricture visualization and stent placement.
Weak recommendation, low quality evidence.

RECOMMENDATION

ESGE recommends that colonic stenting should be performed or directly supervised by an operator who can demonstrate competence in both colonoscopy and fluoroscopic techniques and who performs colonic stenting on a regular basis.
Strong recommendation, low quality evidence.

10개 이상 시행한 군에서
성공률 더 높음

RECOMMENDATION

ESGE does not recommend antibiotic prophylaxis specifically for colonic stenting.
Strong recommendation, low quality evidence.

Risk of fever, bacteremia
Is very low

2. Technical considerations of colonic stenting

RECOMMENDATION

ESGE suggests that colonic stenting should be performed with the combined use of endoscopy and fluoroscopy.
Weak recommendation, low quality evidence.

Through-the-scope or
Over-the-wire technique
Both use

RECOMMENDATION

ESGE recommends not to perform stricture dilation in the setting of colonic stenting.
Strong recommendation, low quality evidence.

Balloon dilatation – 효과없음
Stricture dilatation –
risk of perforation

RECOMMENDATION

ESGE recommends the use of uncovered SEMS in the curative setting.
Strong recommendation, low quality evidence.

RECOMMENDATION

ESGE suggests the use of uncovered SEMS in the palliative setting.
Weak recommendation, low quality evidence.

Uncovered vs covered
Fewer complication,
Less tumor overgrowth
Less SEMS migration
Longer SEMS patency
Fewer re-insertions
Risk of tumor ingrowth higher

RECOMMENDATION

ESGE suggests to individually tailor the length of the stent to the length of the stenosis and location of the tumor, whereby the stent should preferably extend beyond the stricture at both ends by 1.5 – 2 cm.
Weak recommendation, low quality evidence.

Limited to ideal stent diameter, length

3. Clinical indication : colonic stenting as bridge to elective surgery

RECOMMENDATION

ESGE recommends stenting as a bridge to surgery to be discussed, within a shared decision-making process, as a treatment option in patients with potentially curable left-sided obstructing colon cancer as an alternative to emergency resection. This discussion should include the following factors: availability of required stenting expertise, risk of stent-related perforation, higher recurrence rates, similar overall survival and postoperative mortality, lower overall complication rates and permanent stoma rates, higher proportion of laparoscopic one-stage surgery procedures, and technical and clinical failure rates of stenting.

Strong recommendation, high quality evidence.

RECOMMENDATION

ESGE suggests reluctance regarding colonic stenting of long-segment stenosis in a curative setting.

Weak recommendation, low quality evidence.

Long stricture – associated benign disease
& higher risk of perforation

Technical fail rate : up to 25%, influenced by expertise, technique, location of obstruction

Stent group vs surgery

Low morbidity rate, higher overall recurrence

No difference in 5 year disease free survival

For individual, young – stent / elder – stoma ?

RECOMMENDATION

ESGE suggests a time interval of approximately 2 weeks until resection when colonic stenting is performed as bridge to elective surgery in patients with curable left-sided colon cancer.

Weak recommendation, low quality evidence.

Surgey : 10 to 15 days 이상 시
postop complication 감소

Stent : 18일 이상 시
independent risk factor

RECOMMENDATION

ESGE suggests that a decompressing stoma as bridge to elective surgery is a valid option if the patient is not a candidate for colonic stenting or when stenting expertise is not available.

Weak recommendation, low quality evidence.

Stent 불가능할 경우 좋은 option
Higher chance of primary anastomosis

► **Table 1** Meta-analyses of short-term outcomes of self-expandable metal stent (SEMS) placement as a bridge to elective surgery in patients with malignant colonic obstruction.

First author, year	Study population	Results	Study design Level of evidence
Foo, 2019 [107]	Patients with acute left-sided malignant colonic obstruction 7 RCTs Preoperative SEMS (n = 222) Emergency surgery (n = 226)	SEMS vs. emergency surgery: <ul style="list-style-type: none"> Lower overall complication risk (RR 0.605, 95 %CI 0.382 – 0.958) No significant difference in 30-day mortality (RR 0.963, 95 %CI 0.468 – 1.982) 	Meta-analysis of RCTs High quality evidence
Yang, 2018 [108]	Patients with acute left-sided obstructive colorectal cancer 8 RCTs Preoperative SEMS (n = 251) Emergency surgery (n = 246)	SEMS vs. emergency surgery: <ul style="list-style-type: none"> Lower direct stoma rate (OR 0.46, 95 %CI 0.30 – 0.70) Higher successful primary anastomosis rate (OR 2.29, 95 %CI 1.52 – 3.45) Fewer post-procedural complications (OR 0.39, 95 %CI 0.18 – 0.82) Fewer wound infections (OR 0.49, 95 %CI 0.27 – 0.87) 	Meta-analysis of RCTs High quality evidence
Allievi, 2017 [115]	Patients with left-sided malignant colorectal obstruction 7 RCTs Preoperative SEMS (n = 222) Emergency surgery (n = 226)	SEMS vs. emergency surgery: <ul style="list-style-type: none"> Fewer postoperative complications (RR 0.6, 95 %CI 0.38 – 0.96) Fewer stomas (RR 0.64, 95 %CI 0.51 – 0.80) No significant difference in primary anastomosis rate (RR 1.20, 95 %CI 0.95 – 1.52) No significant difference in anastomotic leakages (RR 0.93, 95 %CI 0.45 – 1.92) No significant difference in in-hospital mortality (RR 0.98, 95 %CI 0.53 – 1.82) 	Meta-analysis of RCTs High quality evidence
Arezzo, 2017 [116]	Patients with left-sided malignant colonic obstruction 8 RCTs Preoperative SEMS (n = 251) Emergency surgery (n = 246)	SEMS vs. emergency surgery: <ul style="list-style-type: none"> Lower overall morbidity rate (RR 0.59, 95 %CI 0.38 – 0.93) Fewer temporary stomas (RR 0.67, 95 %CI 0.54 – 0.83) Higher primary anastomosis rate (RR 1.29, 95 %CI 1.01 – 1.66) No significant difference in overall mortality < 60 days after surgery (RR 0.98, 95 %CI 0.53 – 1.82) 	Meta-analysis of RCTs High quality evidence
Wang, 2017 [117]	Patients with left-sided colorectal cancer with malignant obstruction 9 RCTs Preoperative SEMS (n = 281) Emergency surgery (n = 313)	SEMS vs. emergency surgery: <ul style="list-style-type: none"> Higher one-stage anastomosis rate (OR 2.56, 95 %CI 1.79 – 3.66, $P < 0.0001$) No significant difference in anastomotic leakages (OR 1.12, 95 %CI 0.55 – 2.30, $P = 0.75$) Lower postoperative mortality rate (OR 0.51, 95 %CI 0.26 – 0.98, $P = 0.04$) Fewer minor complications (OR 0.65, 95 %CI 0.45 – 0.93, $P = 0.02$) 	Meta-analysis of RCTs High quality evidence
Huang, 2014 [118]	Patients with acute left-sided malignant colonic obstruction 7 RCTs Preoperative SEMS (n = 195) Emergency surgery (n = 187)	SEMS vs. emergency surgery: <ul style="list-style-type: none"> Higher primary anastomosis rate (OR 2.01, 95 %CI 1.21 – 3.31) Lower overall complication rate (OR 0.30, 95 %CI 0.11 – 0.86) Fewer wound infections (OR 0.31, 95 %CI 0.14 – 0.68) No significant difference in anastomotic leakage rate (OR 0.74, 95 %CI 0.33 – 1.67) No significant difference in mortality (OR 0.88, 95 %CI 0.40 – 1.96) 	Meta-analysis of RCTs High quality evidence
Zhao, 2014 [119]	Patients with left-sided malignant colonic obstruction 6 RCTs Preoperative SEMS (n = 136) Emergency surgery (n = 137)	SEMS vs. emergency surgery: <ul style="list-style-type: none"> Lower overall colostomy rate (RR 0.77, 95 %CI 0.61 – 0.96, $P = 0.02$) Fewer surgical site infections (RR 0.51, 95 %CI 0.28 – 0.92, $P = 0.03$) No significant difference in overall complication rate (RR 0.58, 95 %CI 0.30 – 1.10, $P = 0.09$) No significant difference in primary anastomosis rate (RR 1.29, 95 %CI 0.86 – 1.94, $P = 0.22$) No significant difference in anastomotic leakage rate (RR 0.73, 95 %CI 0.32 – 1.71, $P = 0.47$) No significant difference in operation-related mortality (NA) 	Meta-analysis of RCTs High quality evidence

CI, confidence interval; NA, not available; OR, odds ratio; RCT, randomized controlled trial; RR, risk ratio; SEMS, self-expandable metal stent.

► **Table 2** Oncological outcome of self-expandable metal stent (SEMS) placement versus emergency surgery in patients with malignant colonic obstruction.

First author, year	Study population	Results	Study design Level of evidence
Foo, 2019 [107]	Patients with acute left-sided malignant colonic obstruction 7 RCTs Preoperative SEMS (n = 222) Emergency surgery (n = 226)	SEMS vs. emergency surgery: <ul style="list-style-type: none"> Higher overall recurrence rate (RR 1.425, 95 %CI 1.002 – 2.028) Higher systemic recurrence rate (RR 1.627, 95 %CI 1.009 – 2.621) No significant difference in locoregional recurrence (RR 1.110, 95 %CI 0.593 – 2.078) No significant difference in 3-year disease-free survival (OR 1.429, 95 %CI 0.801 – 2.550) No significant difference in 3-year overall survival (OR 1.659, 95 %CI 0.930 – 2.962) 	Meta-analysis of RCTs High quality evidence
Amelung, 2018 [100]	Patients with acute left-sided malignant colonic obstruction 5 RCTs, 4 prospective nonrandomized comparative studies, 12 retrospective comparative studies Preoperative SEMS (n = 938) Emergency surgery (n = 981)	SEMS vs. emergency surgery: <ul style="list-style-type: none"> No significant difference in locoregional recurrence (OR 1.32, 95 %CI 0.78 – 2.23) No significant difference in overall recurrence (OR 1.06, 95 %CI 0.76 – 1.47) No significant difference in 3-year disease-free survival (OR 0.96, 95 %CI 0.73 – 1.26) and 5-year disease-free survival (OR 0.86, 95 %CI 0.54 – 1.36) No significant difference in 3-year overall survival (OR 0.85, 95 %CI 0.68 – 1.08) and 5-year overall survival (OR 1.04, 95 %CI 0.68 – 1.57) 	Meta-analysis Moderate quality evidence
Yang, 2018 [108]	Patients with acute left-sided obstructive colorectal cancer 8 RCTs Preoperative SEMS (n = 251) Emergency surgery (n = 246)	SEMS vs. emergency surgery: <ul style="list-style-type: none"> Higher odds of tumor recurrence (OR 1.79, 95 %CI 1.09 – 2.93) 	Meta-analysis of RCTs High quality evidence
Arezzo, 2017 [116]	Patients with left-sided malignant colonic obstruction 8 RCTs Preoperative SEMS (n = 251) Emergency surgery (n = 246)	SEMS vs. emergency surgery: <ul style="list-style-type: none"> No significant difference in relative risk of tumor recurrence (RR 1.80, 95 %CI 0.91 – 3.54) 	Meta-analysis of RCTs High quality evidence
Arezzo, 2017 [94]	Patients with acute symptomatic malignant left-sided large-bowel obstruction (splenic flexure to 15 cm from anal margin as diagnosed by CT imaging) (n = 115) <ul style="list-style-type: none"> SEMS as bridge to surgery (n = 56) Emergency surgery (n = 59) 	Recurrence at median follow-up of 36 months ($P = 0.685$) <ul style="list-style-type: none"> SEMS 30.3 % Surgery 33.9 % No significant difference in overall survival ($P = 0.998$) and progression-free survival ($P = 0.893$)	RCT High quality evidence
Ceresoli, 2017 [120]	Patients with malignant left-sided colonic obstruction 5 RCTs, 3 prospective nonrandomized comparative studies, 9 retrospective comparative studies Preoperative SEMS (n = 688) Emergency surgery (n = 655)	SEMS vs. emergency surgery: <ul style="list-style-type: none"> No significant difference in overall recurrence (RR 1.11, 95 %CI 0.84 – 1.47, $P = 0.47$) No significant difference in local recurrence (RR 1.41, 95 %CI 0.89 – 2.23, $P = 0.14$) No significant difference in 3-year recurrence (RR 1.15, 95 %CI 0.95 – 1.39, $P = 0.14$) No significant difference in 5-year recurrence (RR 1.05, 95 %CI 0.88 – 1.25, $P = 0.59$) No significant difference in 3-year mortality (RR 0.90, 95 %CI 0.73 – 1.12, $P = 0.34$) No significant difference in 5-year mortality (RR 1.00, 95 %CI 0.82 – 1.22, $P = 0.99$) 	Meta-analysis Moderate quality evidence
Matsuda, 2015 [121]	Patients with malignant large-bowel obstruction 11 studies of which 2 RCTs, 2 prospective nonrandomized comparative studies, 7 retrospective comparative studies Preoperative SEMS (n = 432) Emergency surgery (n = 704)	SEMS vs. emergency surgery: <ul style="list-style-type: none"> No significant difference in overall survival (RR 0.95, 95 %CI 0.75 – 1.21, $P = 0.66$) No significant difference in disease-free survival (RR 1.06, 95 %CI 0.91 – 1.24, $P = 0.43$) No significant difference in recurrence (RR 1.13, 95 %CI 0.82 – 1.54, $P = 0.46$) 	Meta-analysis Moderate quality evidence

4. Clinical indication : palliative colonic stenting

RECOMMENDATION

ESGE recommends colonic stenting as the preferred treatment for palliation of malignant colonic obstruction. Strong recommendation, high quality evidence.

Vs surgery
Shorter hospitalization
Lower intensive care
No difference in mortality & morbidity

RECOMMENDATION

ESGE suggests consideration of colonic stenting as an alternative to decompressive surgery as palliative treatment for obstruction caused by extracolonic malignancy, although technical and clinical success rates are inferior to those reported in stenting of primary colonic cancer. Weak recommendation, low quality evidence.

RECOMMENDATION

ESGE recommends chemotherapy as a safe treatment in patients who have undergone palliative colonic stenting. Strong recommendation, low quality evidence.

Chemotherapy
Reduce risk of mortality

Bevacizumab
May be higher perforation risk

RECOMMENDATION

ESGE suggests that antiangiogenic therapy (e.g. bevacizumab) can be considered in patients following colonic stenting. Weak recommendation, low quality evidence.

Stent during bevacizumab
Significant risk factor for complication

RECOMMENDATION

ESGE does not suggest colonic stenting while patients are receiving antiangiogenic therapy, such as bevacizumab. Weak recommendation, low quality evidence.

Ex) peritoneal metastasis

Malignant obstruction of the proximal colon

RECOMMENDATION

ESGE suggests consideration of colonic stenting for malignant obstruction of the proximal colon either as a bridge to surgery or in a palliative setting.

Weak recommendation, low quality evidence.

Low quality evidence!

1. Right-sided stent vs Lt-sided stent

Lower technical success rate, Longer procedure time

2. Comparing with emergency surgery

Lower mortality, Less major morbidity, Lower risk of anastomotic leakage

3. Palliative setting vs stoma

No difference of morbidity, mortality

5. Adverse events related to colonic stenting

RECOMMENDATION

In the palliative setting, ESGE recommends endoscopic re-intervention by stent-in-stent placement for colonic stent obstruction, or stent replacement when migration occurs.

Strong recommendation, low quality evidence.

RECOMMENDATION

In the curative setting, ESGE suggests early surgery rather than repeat colonic stenting when stent obstruction or migration occurs in patients being bridged to surgery.

Weak recommendation, low quality evidence.

RECOMMENDATION

ESGE recommends that emergency resection should be considered in patients with stent-related perforation. Strong recommendation, low quality evidence.

Complication 20-30% : perforation, stent failure, migration, re-obstruction

Delayed complication 20% : stent migration, perforation

Perforation	7.4%, mortality 50% -> emergency op	Guidewire malpositioning, stricture dilatation, stent induced perforation, longer, angulated, diverticular strictures
Patency	3 to 12 months	
Migration	1 to 10%	Tumor shrinkage
Occlusion	3-29%	Malignant tissue, tumor ingrowth, fecal impaction
Migration, re-obstruction : stent replacement or stent-in-stent		

감사합니다