Optimal surgery timing after colonic stent insertion for malignant colonic obstruction

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Background/Aims: Self-expandable metal stents (SEMS) could be indicated for symptomatic patients with malignant colonic obstruction as bridge to elective surgery; however, it remains unclear for the optimal time of surgery after stent insertion. We compared short-term and long-term outcome according to the time interval to surgery after stent insertion, in addition, these were compared with emergency surgery (ES) without stenting.

Methods: Patients with symptomatic malignant colonic obstruction were included retrospectively between 2008 and 2018; 133 patients visited emergency room and subsequently underwent ES and 220 patients were initially treated with SEMS and subsequently underwent elective surgery. The time interval between SEMS and elective surgery was classified as< 11 days, 11-17 days, and > 17 days. The surgical outcome and survival outcome were compared.

Results: Time interval 11-17 days in SEMS group had fewer hospital days compared to the time interval < 11 days, and the proportion of stoma formation was lower than the time interval > 17 days. The overall survival was higher in time interval 11-17 days in SEMS group than ES group (HR 0.48; 95% CI 0.24-0.97); without difference between the time intervals < 11 days, 11-17 days, and > 17 days in SEMS group. There was no difference in disease-free survival between the time intervals classified in the SEMS group and the ES group.

Conclusions: In patients with symptomatic malignant colonic obstruction, elective surgery with approximately 2 weeks after stent insertion is recommended considering the surgical and survival outcome.

	Overall			Time interval between SEMS and elective surgery				
	Emergency surgery (n=133)	SEMS (n=220)	*P* value‡	<11 (n=68)	11-17 (n=97)	>17 (n=55)	*P* value†,**	
Laparoscopic approach	5 (3.8)	82 (32.3)	<0.001	16 (23.5)	(39 (40.2)	27 (49.1)	0.06	0.62
Stoma formation	10 (7.5)	12 (5.5)	0.44	3 (4.4)	1 (1.0)	8 (14.6)	0.61	0.003
Operation time, min	152 (126, 200)	144 (115,191)	0.19	144 (100, 250)	142 (113, 180)	149 (117, 221)	0.98	0.66
Estimated blood loss, ml	150 (100, 250)	100 (50, 150)	<0.001	100 (50, 200)	100 (50, 100)	100 (50, 200)	0.20	0.49
Harvested LN, number	24 (16, 31)	26 (20,34)	0.039	26 (19, 34)	26 (22, 33)	24 (19, 34)	0.90	0.68
Positive LN, number	1 (0, 2)	1 (0, 2)	0.30	1 (0, 3)	1 (0, 2)	1 (0, 2)	0.96	0.93
Surgery-related complication < 90days	12(9.0)	9 (4.1)	0.06	4 (5.9)	3 (3.1)	2 (3.6)	0.90	0.99
Major adverse event (≥ CD G3)	18 (13.5)	18 (8.2)	0.11	4 (5.9)	8 (8.3)	6 (10.9)	0.99	0.99
Leakage	0	3		0	2	1		
Dehiscence	3	2		2	0	0		
Wound infection	3	0		0	0	0		
Abscess	2	1		0	1	0		
Fistula	1	1		0	1	0		
Adhesive ileus	2	3		0	1	2		
Ureter stricture	5	7		2	2	3		
Stenosis	1	0		0	0	0		
Hernia	0	1		0	1	0		
Ischemia	1	0		0	0	0		
Hospital days†	12 (10, 16)	9 (7, 15)	<0.001	15 (10, 18)	8 (7, 10)	10 (8, 13)	<0.001	0.10
Adjuvant chemotherapy	95 (71.4)	128 (58.2)	0.012	47 (69.1)	57 (58.8)	24 (43.6)	0.39	0.18

LN, lympho node; CD Grade, Clavien- Dindo classification.
Values are expressed as n (%) unless otherwise specified.

†Value is median (IQR, interquartile range).
‡*P* value calculated using Student's t test and Wilcoxon rank sum testfor continuous variables or Chi-square test and Fisher's exact test for categorical variables.
†*P* value was a comparison of <11and 11-17 groups and **P* value was a comparison of 11-17 and >17.*P* value†,** were compared using Tukey's test after rank-transformationand Fisher's exact test with Bonferroni method.