

## Prospective analysis of delayed colonic post-polypectomy bleeding

<sup>1</sup>성균관대학교 의과대학 강북삼성병원 내과학교실, <sup>2</sup>성균관대학교 의과대학 강북삼성병원 소화기암센터

\* 유태경<sup>1</sup>, 박수경<sup>1,2</sup>, 양효준<sup>1,2</sup>, 정윤숙<sup>1,2</sup>, 박동일<sup>1,2</sup>

**Backgrounds/Aims:** Although post-polypectomy bleeding is the most frequent complication after colonoscopic polypectomy, there are few studies which investigate incidence of bleeding prospectively. The aim of this study was to prospectively investigate the incidence of delayed post-polypectomy bleeding and its associated risk factors. **Methods:** Patients who underwent colonoscopic polypectomy at the Kangbuk Samsung Hospital from January 2013 to December 2014 were prospectively enrolled in this study. Trained nurses contacted patients by telephone at 7 and 30 days after the polypectomy and completed a standardized questionnaire that asked about the development of bleeding. Post-polypectomy bleeding was characterized as either minor or major (a > 2 g/dl drop in hemoglobin, requirement for hospitalization for control of bleeding, or transfusion) by the amount of bleeding as well as late delayed (i.e., bleeding after 24 hours) by the time of bleeding. **Results:** A total of 8,175 colonoscopic polypectomies were performed in 3887 patients. Overall, 133 (3.4%) patients developed post-polypectomy bleeding. Among them, 90 (2.3%) and 43 (1.1%) patients developed minor and major bleeding, respectively, and 39 (1.0%) patients developed late delayed bleeding. According to by-polyp-based multivariate analysis, young age (< 50 years; odds ratio [OR]: 2.10; 95% confidence interval [CI]: 1.18-3.68), aspirin use (OR: 2.78; 95% CI: 1.23-6.31) and polyp size > 10mm (OR: 2.45; 95% CI: 1.38-4.36) were significant risk factors for major bleeding, while young age (OR: 2.6; 95% CI: 1.35-5.12) and immediate bleeding (OR: 3.3; 95% CI: 1.49-7.30) were significant risk factors for late delayed bleeding. **Conclusions:** Young age, aspirin use, polyp size and immediate bleeding were found to be independent risk factors for delayed post-polypectomy bleeding.

	Non-bleeding patients (n=3,754)	Bleeding patients (n=133)	p value
Patient-related factor			
Age	55.8(11.9)	52.4(12.3)	0.002
Male sex	2557(68.1)	104(78.2)	0.01
Comorbidity			
HTN	874(23.3)	29(21.8)	0.69
DM	367(9.8)	8(6.0)	0.15
Chronic liver disease	37(1.0)	1(0.8)	0.78
Chronic renal disease	23(0.6)	0(0)	0.36
Current drug use			
Aspirin	139(4.0)	17(12.8)	0.002
Anticoagulants	15(0.4)	0(0)	0.46
Procedure-related factors			
Trained participants	1396(37.2)	51(38.3)	0.89
Polyp-related factor			
Polyp number > 3	1154(30.7)	53(39.9)	0.03
Size > 10 mm	1333(35.5)	67(50.4)	<0.001
Location			
Right	1371(36.4)	40(30.1)	0.04
Left	1371(36.5)	44(33.1)	
Both	1010(26.9)	49(36.8)	

Data are presented as n(%) or mean ± SD.  
DM: diabetes mellitus, HTN: hypertension

	Controls (n=8,137)	Major bleeding cases (n=90)	p value
Procedure-related factors			
Trained participants	3558(43.8)	29(30.0)	0.34
Method of polypectomy			0.40
Piecemeal	310(3.8)	1(1.1)	
En block	7807(96.2)	57(62.3)	
Immediate bleeding control	663(8.2)	5(5.6)	0.90
Polyp-related factor			
Size > 10 mm	1730(21.3)	22(23.9)	0.002
Location, right	4077(50.2)	31(33.4)	0.02
Morphology			0.04
Is	5056(62.5)	28(30.3)	
Lp	1974(24.3)	23(24.7)	
Ls	580(7.1)	5(5.4)	
LST	487(6.0)	2(2.2)	

Data are presented as n(%) or mean ± SD.  
Is: sessile, Lp: subpedunculated, Ls: pedunculated, LST: Laterally spreading tumors

	Controls (n=8,135)	Late delayed bleeding cases (n=40)	p value
Procedure-related factors			
Trained participants	3570(43.9)	17(42.5)	0.86
Method of polypectomy			
Piecemeal	311(3.8)	0	
En block	7824(96.2)	40(100)	
Immediate bleeding control	659(8.1)	9(22.5)	0.003
Polyp-related factor			
Size > 10 mm	1763(21.4)	14(35.0)	0.03
Location, right	4083(50.2)	25(62.5)	0.12
Morphology			0.17
Is	5085(62.5)	19(47.5)	
Lp	1983(24.4)	14(35.0)	
Ls	580(7.1)	5(12.5)	
LST	487(6.0)	2(5.0)	

Data are presented as n(%) or mean ± SD.  
Is: sessile, Lp: subpedunculated, Ls: pedunculated, LST: Laterally spreading tumors

	Major bleeding OR	95% CI	Late delayed bleeding OR	95% CI
Patient-related factor				
Age < 50 (vs. ≥ 50)	1.75	0.88-3.49	1.24	0.58-2.65
Diabetes mellitus (yes vs. no)	2.10	1.18-3.68	2.6	1.35-5.12
Hypertension (yes vs. no)	0.40	0.12-1.32	0.57	0.13-2.47
Chronic renal disease (yes vs. no)	0.93	0.45-1.88	0.94	0.38-2.29
Chronic liver disease (yes vs. no)	0		0	
Aspirin (yes vs. no)	3.34	0.44-25.17	3.06	0.4-23.4
Anticoagulant (yes vs. no)	2.78	1.23-6.31	0.35	0.04-2.78
Procedure-related factor				
Trained participant (vs. experienced)	1.71	0.71-3.65	0.75	0.30-1.82
Method of polypectomy, piecemeal (vs. en block)	0.31	0.04-2.33	0	
Immediate bleeding (yes vs. no)	0.86	0.33-2.23	3.3	1.49-7.30
Polyp-related factor				
Polyp size > 10 mm (vs. ≤ 10 mm)	1.14	0.50-2.59	2.27	0.95-5.39
Polyp location, right (vs. left)	2.45	1.38-4.36	1.45	0.70-2.98
Polyp morphology, Lp, Ls, and LST (vs. others)	1.21	0.71-2.04	1.81	0.95-3.47
	0.77	0.29-2.02	1.27	0.46-3.50

OR: odds ratio, CI: confidence interval, DM: diabetes mellitus, HTN: hypertension, Lp: subpedunculated, Ls: pedunculated, LST: Laterally spreading tumors

## A case of acute esophageal necrosis

한양대 서울병원 내과, 병리과

\* 강은혜, 이향락, 이강녕, 전대원, 이오영, 윤병철, 최호순

**Introduction:** Acute esophageal necrosis (AEN), also known as 'black esophagus', is a rare clinical disease characterized by black pigmentation of the distal esophageal mucosa. Gastrointestinal bleeding is the most frequent clinical manifestation. Although the etiology of AEN is unclear, it is likely multifactorial, arising from an ischemic insult, impaired local defense mucosal barrier systems and backflow injury from gastric contents. Here, we report a rare case of black esophagus. **Case report:** A 68-year-old woman undergoing chemotherapy for ovary cancer was brought to the emergency room with several episodes of hematemesis. Esophagogastroduodenoscopy (EGD) revealed typical findings of acute esophageal necrosis (AEN) with thick black stripes involving the low esophagus, with a sharp demarcation at the squamocolumnar border. Treatment with intravenous fluids and a proton pump inhibitor was initiated, and his gastrointestinal symptoms and hematemesis also resolved. On day 4 of hospitalization, black stripes were less prominent on follow-up EGD. **Key words:** acute esophageal necrosis