

ENDOSCOPIC TREATMENT OF EGC INCLUDING OUTCOME AT SMC

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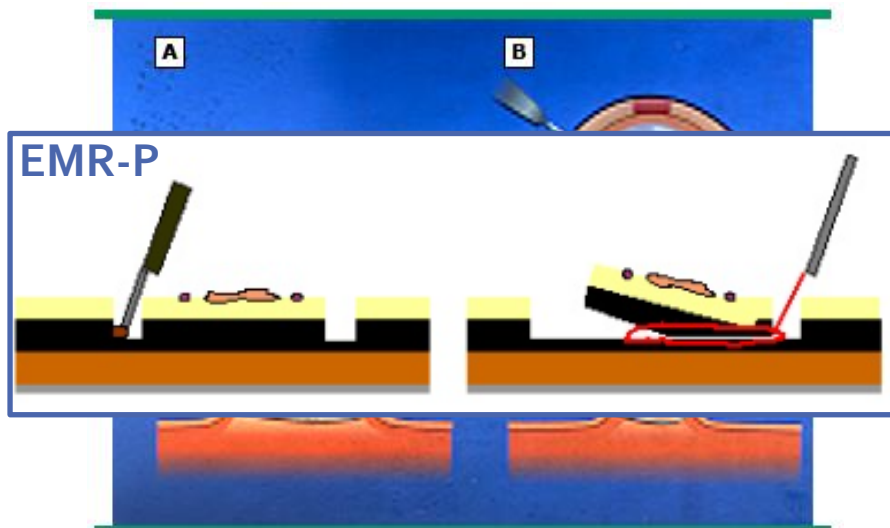
Introduction

- Standard treatment of gastric cancer is surgery.
- However, Endoscopic resection(ER) is an option for selected patients with EGC without known lymph node involvement who meet specific criteria.
- Endoscopic resection is associated with less treatment-related morbidity than gastrectomy and the available data suggest similar outcomes for appropriately selected patients with EGC.

Endoscopic resection

- ER includes endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD).

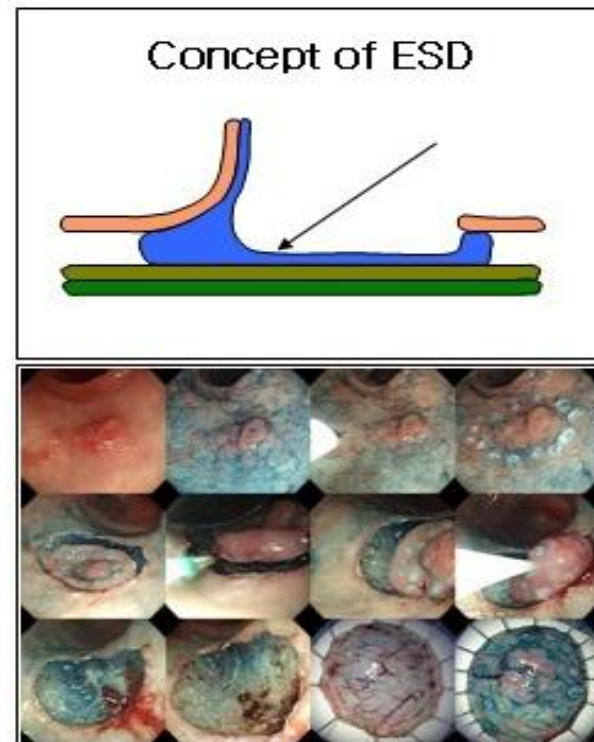
* EMR



- (A) Simulated dysplastic lesion (red mark depicts dysplasia).
(B) Isolation of the lesion with submucosal fluid injection.
(C, D) Snare excision of isolated dysplastic lesion.

Courtesy of Christopher Gostout, MD.

* ESD



EMR vs ESD

- ESD, compared with EMR, had higher en bloc and curative resection rates (OR 13.9 and 3.5, respectively), as well as lower rates of local recurrence (OR 0.09).

Surg Endosc. 2011 Aug;25(8):2666-77. Epub 2011 Mar 18.
Gastrointest Endosc. 2012 Oct;76(4):763-70. Epub 2012 Aug 9.

- Patients who underwent ESD had lower recurrence rates than patients who underwent EMR (4 versus 18 percent)

Surg Endosc. 2010;24(11):2842.

Absolute indication of ER

- I. Well and/or moderately differentiated adenocarcinoma confined to the mucosa.
- II. Less than 20 mm in diameter, without ulceration.
- III. Absence of venous or lymphatic invasion.

심평원 ESD 인정기준 (시행일자 2012.4.1)

"점막에 국한된 궤양이 없는 2cm이하의 분화형 조기암"

Expanded indication of ER

Histology	Depth					
	M cancer				SM cancer	
	No ulceration		Ulcerated		SM1	SM2
	≤ 20 mm	> 20 mm	≤ 30 mm	> 30 mm	≤ 30 mm	Any size
Differentiated	A	B1	B2	D	B3	D
Undifferentiated	C	D	D	D	D	D

- A guideline indication for EMR/ESD
- B expanded indications for EMR/ESD
- C consider surgery
- D surgery (gastrectomy + lymph node dissection)

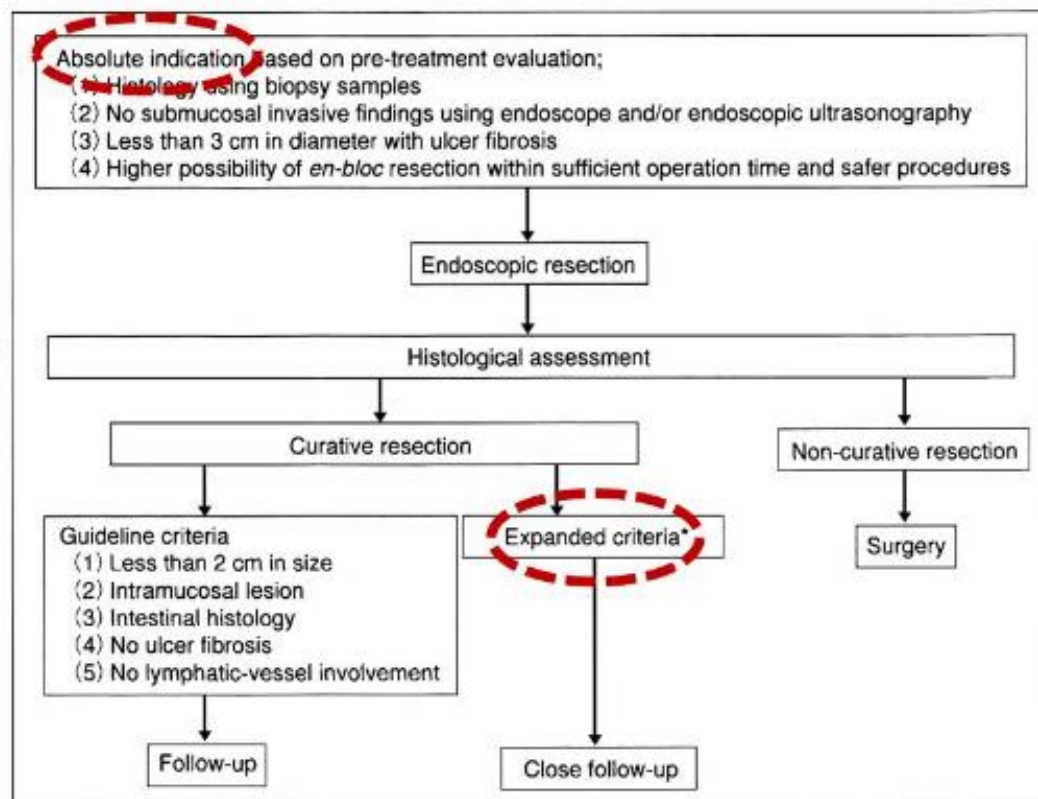


Fig. 2 Flowchart of clinical procedure for patients with early gastric cancer. *: In patients with early gastric cancer consisting of intestinal-type histology: (1) intramucosal cancer more than 2cm in size without ulcer finding, (2) intramucosal cancer less than 3cm in size with ulcer finding, (3) minute submucosal invasive cancer($\leq 500\mu\text{m}$) less than 3cm in size, In patients with early gastric cancer consisting of diffuse-type histology, (4) intramucosal cancer less than 2cm in size without ulcer finding.

Definition of curative resection

- **Curative resection**(When all of the following conditions were fulfilled)

- ① Grossly complete resection (by the endoscopist):
- ② En-bloc resection
- ③ Well or moderately differentiated histology
- ④ Negative resection margin
- ⑤ No lymphovascular invasion

And

- I. Tumor size ≤ 2 cm, mucosal cancer, no ulcer in tumor(AI), or
- II. Tumor size > 2 cm, mucosal cancer, no ulcer in tumor, or
- III. Tumor size ≤ 3 cm, mucosal cancer, ulcer in tumor, or
- IV. Tumor size ≤ 3 cm, sm1 cancer (submucosal invasion depth < 500 um from muscularis mucosa layer).

Overall survival of patients with EGC who received curative ESD at SMC

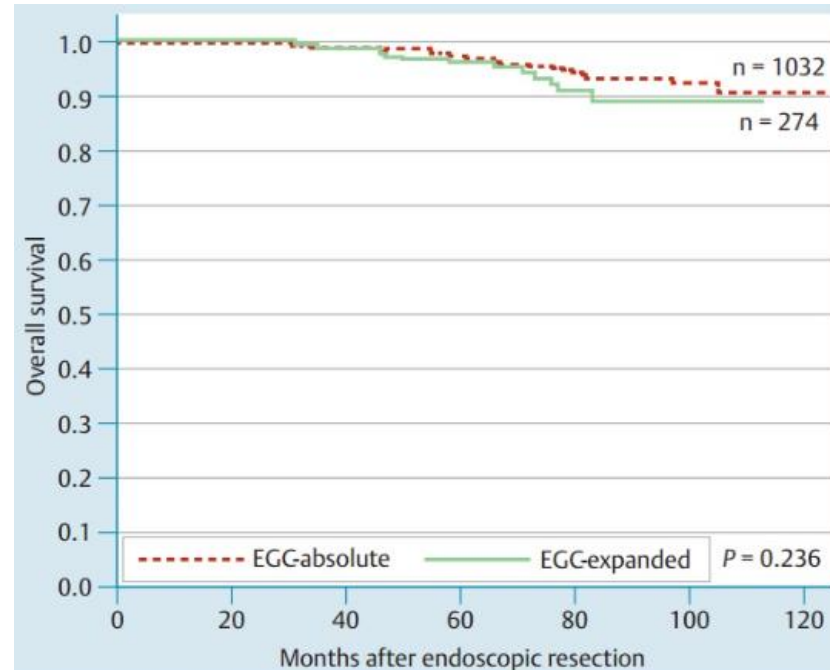


Fig.2 Kaplan–Meier overall survival curve of patients with early gastric cancers meeting absolute indication or expanded indication criteria, and treated with curative endoscopic submucosal dissection (ESD). The 5-year overall survival rates of patients with absolute-indication and expanded-indication cancers were 97.3 % and 96.4 %, respectively. Fifteen Patients (n = 15) with both absolute-indication and expanded-indication early gastric cancers were included in the expanded-indication group.

Metachronous recurrence after curative ESD at SMC

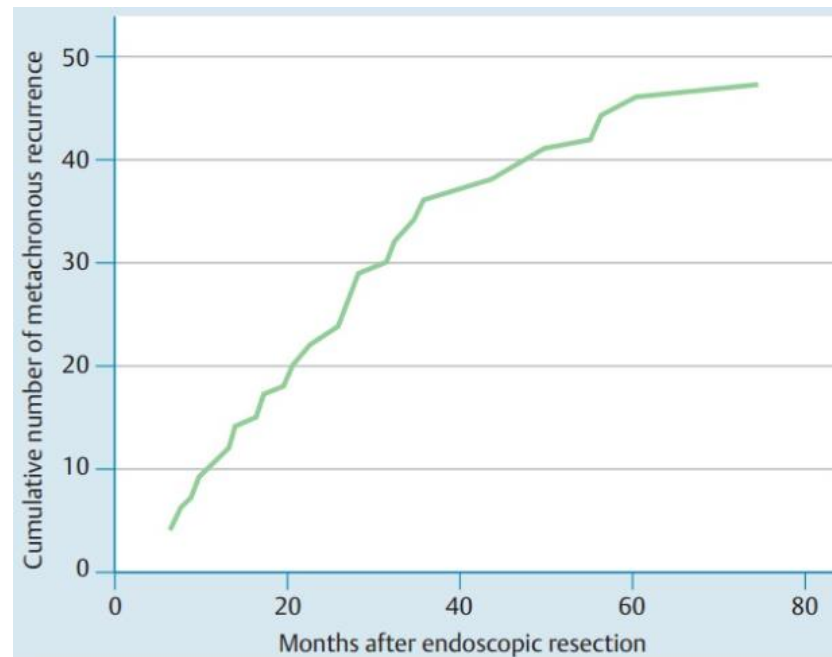
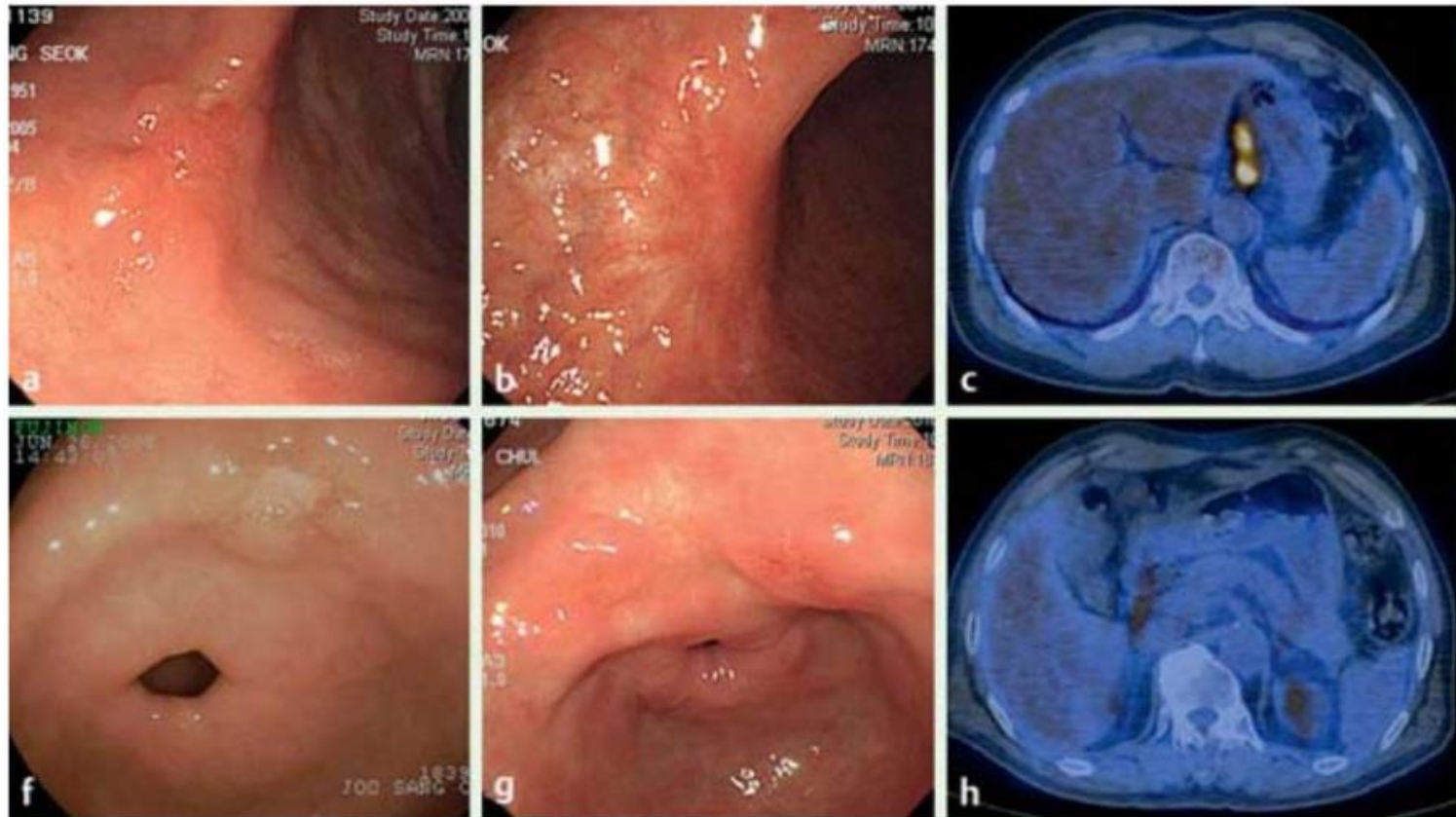


Fig. 3 Metachronous recurrence after curative endoscopic submucosal dissection (ESD) for early gastric cancer: cumulative incidence curve. During the 60-month surveillance period after curative ESD, the cumulative incidence curve showed a nearly linear increase, implying a constant incidence rate for metachronous recurrence.

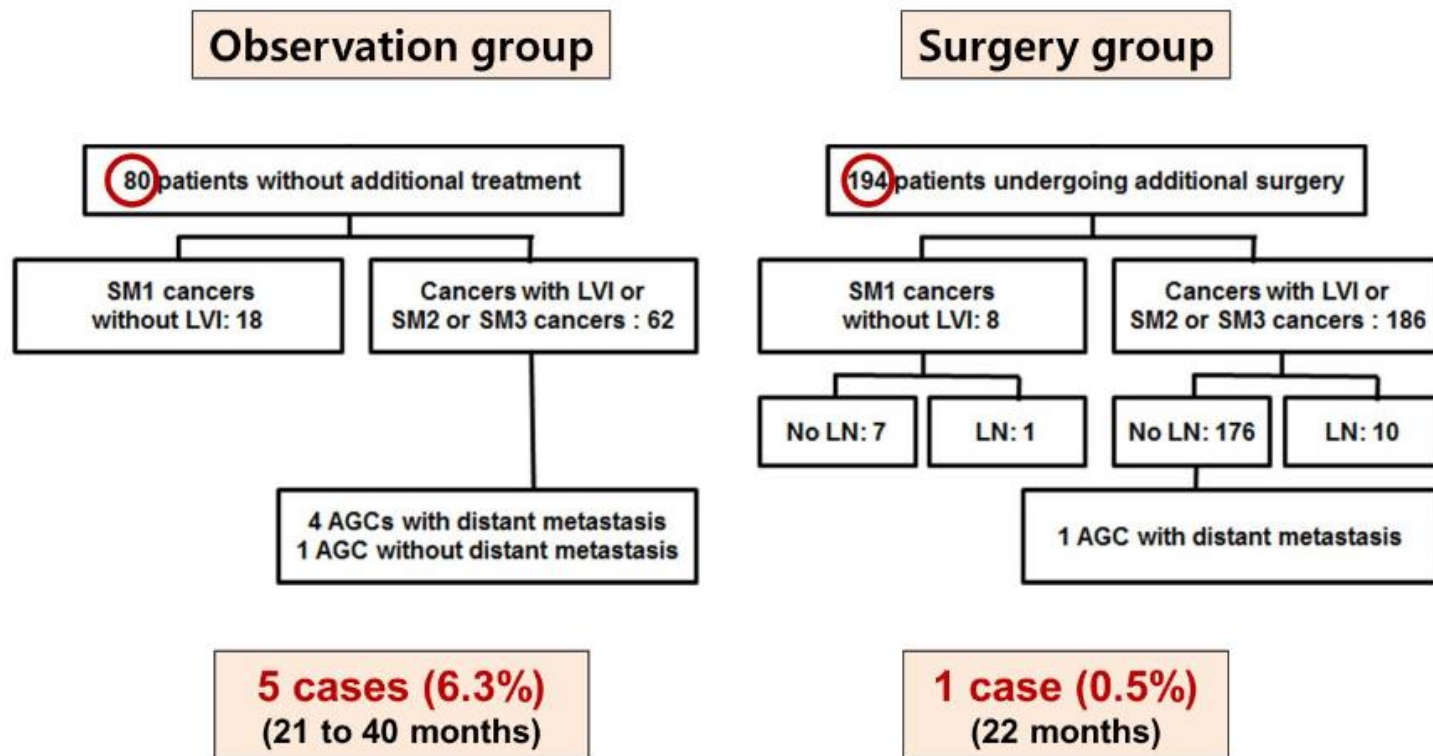
Table 2 Univariate and multivariate analysis of factors associated with metachronous recurrence after curative endoscopic submucosal dissection (ESD) for differentiated-type early gastric cancer.

	Metachronous recurrence ¹		Odds ratio	95%CI	P value
	None (n = 1259)	Present (n = 47)			
Age, mean \pm SD, y	61.5 \pm 9.7	63.1 \pm 8.8	1.015	0.983 – 1.047	0.364
Gender, n (%)					0.427
Male	1004 (79.7)	40 (85.1)			
Female	255 (20.3)	7 (14.9)	0.714	0.311 – 1.640	
Number of lesions, n (%)					0.025
Single	1229 (97.6)	43 (91.5)			
Multiple	30 (2.4)	4 (8.5)	3.691	1.177 – 11.574	
Tumor site, n (%)					0.238
Antrum/angle	994 (79.0)	34 (72.3)			
Body/fundus/cardia	265 (21.0)	13 (27.7)	1.491	0.768 – 2.896	
Tumor shape, n (%)					0.683
Elevated	715 (56.8)	28 (59.6)			
Flat or depressed	544 (43.2)	19 (40.4)	0.882	0.482 – 1.613	
Tumor size, mean \pm SD, cm	1.4 \pm 0.8	1.3 \pm 0.8	0.724	0.409 – 1.280	0.267
Tumor depth (%)					0.516
Mucosa	1194 (94.8)	45 (95.7)			
sm1 ²	65 (5.2)	2 (4.3)	0.556	0.094 – 3.274	
Differentiation, n (%)					0.016
Well differentiated	506 (40.2)	28 (59.6)			
Moderately differentiated	753 (59.8)	19 (40.4)	0.477	0.262 – 0.869	
Indication, n (%)					0.595
Absolute	994 (79.0)	38 (80.9)			
Expanded	265 (21.0)	9 (19.1)	1.406	0.400 – 4.937	

Extragastric recurrence after curative ESD

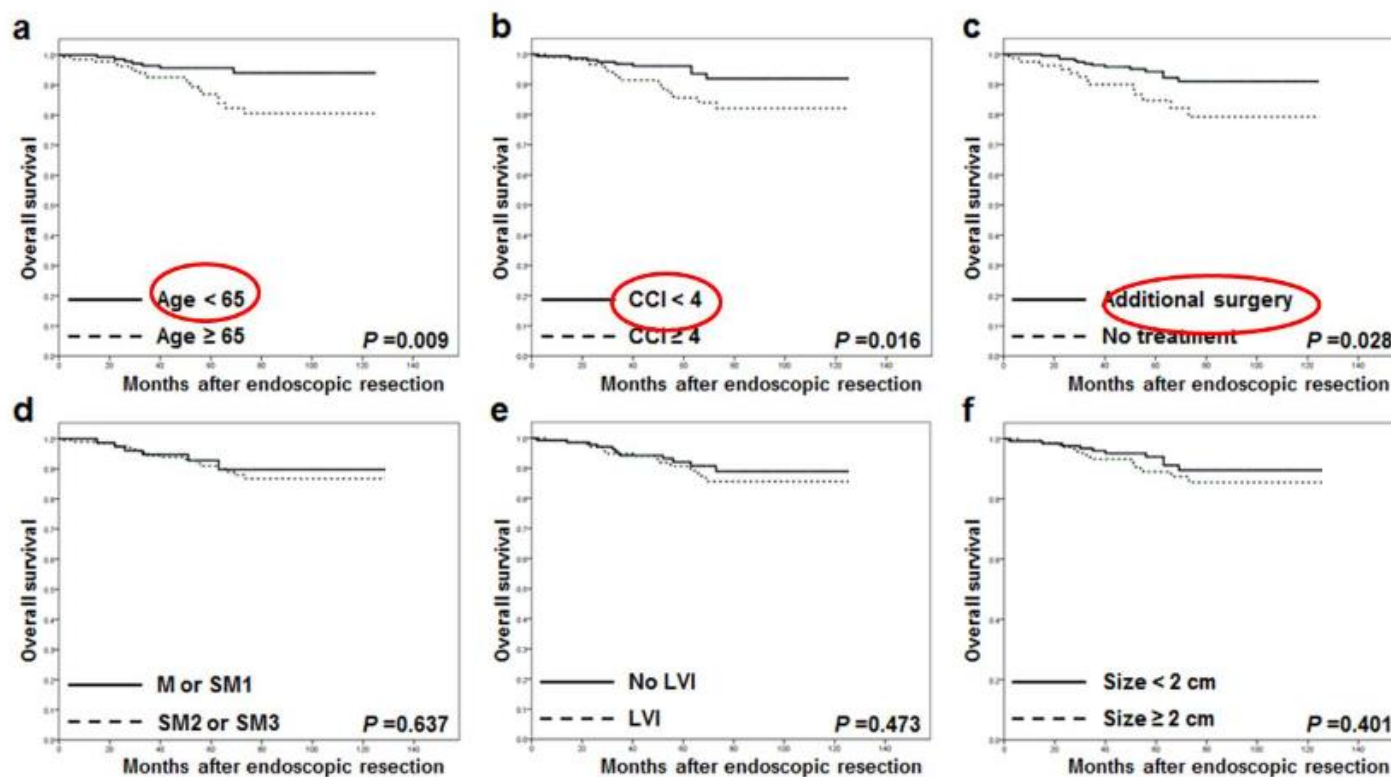


Prognosis of non-curative endoscopic resection of EGC at SMC



(P = 0.013)

Overall survival



♣ Median duration of follow-up after ER: 60.5 mo(6-141)

Results of multivariable Cox proportional hazards analysis to determine predictors of overall survival

		n	Five-year overall survival rate (%)	Hazard ratio	95% Confidence interval	P value
Age	< 65 years	140	95.6			
	≥ 65 years	134	87.0	2.048	0.717-5.849	0.181
Gender	Male	205	90.3			
	Female	69	95.0	0.428	0.144-1.273	0.127
Charlson comorbidity index	< 4	157	96.1			
	≥ 4	117	85.5	1.381	0.525-3.629	0.513
Additional surgery	No treatment	80	84.7			
	Surgery	194	94.3	0.425	0.181-0.998	0.049
Tumor depth	Mucosa or SM1*	76	92.8			
	SM2 or SM3	198	90.9	1.564	0.618-3.962	0.345
Lymphovascular invasion	Negative	138	92.1			
	Positive	136	90.7	1.718	0.763-3.871	0.191
Tumor size	< 2 cm	126	94.0			
	≥ 2 cm	148	89.0	1.018	0.457-2.270	0.965

*SM1, submucosal invasion depth < 500 µm from muscularis mucosa layer

Complications

- Perforation : 0~5%
- Bleeding : 3~10%, most bleeding occurs within 3days after ESD.
- Post ESD pain
 - There is a article that PPI can reduce moderate to severe pain after ESD (44.9% vs 62.6%)
- Stricture after ESD
 - Subclinical stricture is quite common after ESD for lesions close to the cardia or the pyloric ring

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thank you!