



Considerations in Expanding Indications for Endoscopic Treatment of EGCs

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확대 적응증의 이득

- 삶의 질 향상에 기여한다. 내시경 시술 후 재발이 매우 적음을 고려한다면, 내시경 시술의 기회를 놓치지 않도록 하는 것도 바람직한 일이다.
- 국가 경쟁에 도움이 된다. 치료에 소요되는 경비가 절감됨은 물론이고, 치료 후 직장에 복귀하는데 소요되는 시간이 절대적으로 적다.

정훈용, 2009. 제 40회 대한소화기내시경학회 세미나

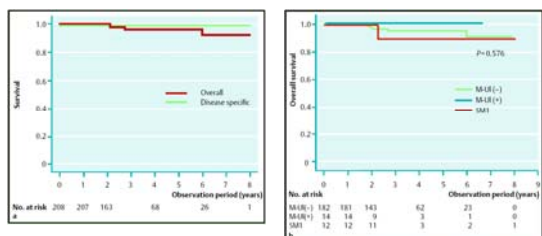
확대 적응증의 손실

- 매우 적은 부분이기기는 하나, 림프절 전이를 완벽히 예측할 수 없기 때문에 재발에 대한 염려가 있다.
- 시술을 완료하지 못하고 수술을 시행하여야 하는 상황이나, 시술시 합병증으로 인하여 긴급 수술을 시행하여야 할 확률이 더 높다.
- 추적 관리가 잘 되지 않는 상황에서 재발하여 수술을 기회를 놓칠 수 있다.

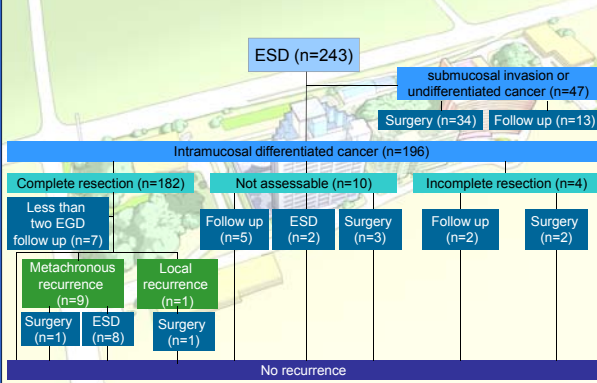
정훈용, 2009. 제 40회 대한소화기내시경학회 세미나

Outcome of ESD for EGC (standard 1x)

- 5 year overall and disease-specific survival rates were 96.2% and 100%



Goto, Fujishiro (U Tokyo). Endoscopy 2009;41:118-122



Median follow-up: 17 months (range: 4-37 months)

Min. Dig Liver Dis. 2009 Mar;41:201-9

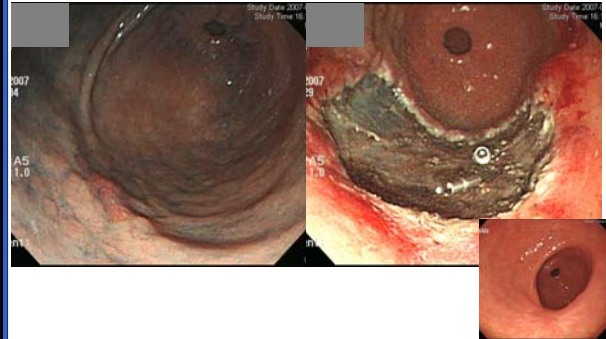
Proposed expanded criteria for EMR

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	B	B	D	B	D
Undifferentiated	C	D	D	D	D	D

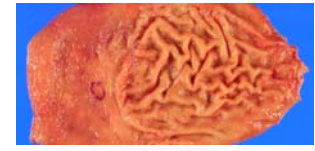
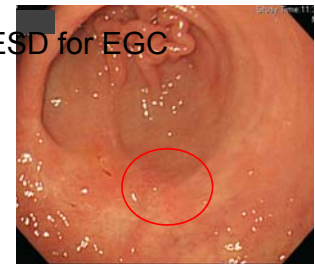
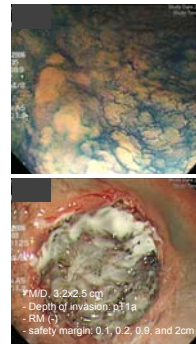
- A guideline criteria for EMR
- B expanded criteria for EMR
- C consider surgery
- D surgery (gastrectomy + lymph node dissection)

Soetikno, Kaltenbach, Yeh, Gotoda. JCO 2005;23:4490-4498

ESD for signet ring cell carcinoma



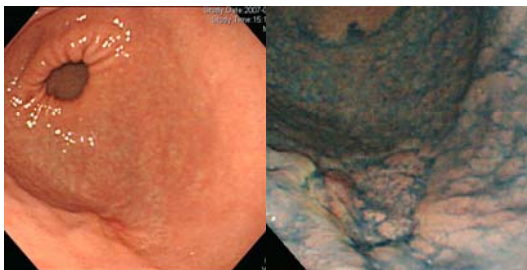
Local recur after ESD for EGC



Subtotal gastrectomy: M/D, 0.8x0.4cm, pT1a, RM (-), LN (-)

Would you try ESD for this lesion?

- detected in screening endoscopy (F/60)



Forcep biopsy: Tubular adenocarcinoma, poorly differentiated

Would you try ESD for this lesion?

- detected in screening endoscopy (F/60)

1. Location : middle third center at body and greater curvature
2. Gross type : EGC type IIc
3. Histologic type : tubular adenocarcinoma, poorly differentiated
4. Histologic type by Lauren : diffuse
5. Size : 2x1.7x0.1 cm
6. Depth of invasion : extension to mucosa (muscularis mucosa)
7. Resection margin: free from carcinoma
safety margin: distal 7.2 cm, proximal 6.8 cm
8. Lymph node : metastasis to 3 out of 52 regional LNs (pN1)
9. Lymphatic invasion : not identified
10. Venous invasion : not identified
11. Perineural invasion : not identified
12. Stage by AJCC : IB (T1a, N1, MX)



A Survey on the Indication for Endoscopic Submucosal Dissection in Early Gastric Cancer

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Department of Internal Medicine, Soonchunhyang University College of Medicine, Cheonan, *Sungkyunkwan University School of Medicine, †Korea University College of Medicine, Seoul, ‡Changnam National University College of Medicine, Daejeon, §Inje University College of Medicine, Busan, Korea

Background/Aims: Endoscopic submucosal dissection (ESD) has become a widely accepted method for treating early gastric cancer (EGC) in Korea. However, there is not an established guideline for indications of ESD. The objective of this study was to assess the current status and practice patterns regarding indications for ESD in Korea.

Methods: A 17-item questionnaire about indications for ESD in EGC was presented to the participants of the 2nd joint symposium of the Gastrointestinal Pathology Study Group of the Korean Society of pathologists. Key-phrase-based anonymous voting was carried out and the entire process was recorded.

Results: Endoscopic submucosal dissection for EGC fulfilling the classical indications was widely accepted as an effective therapeutic strategy comparable to surgery (114/115, agreement 99.5%). In our survey, Japanese extended criteria for ESD was still debated (70/111, 63.6%), but most respondents had performed ESD selectively in EGC corresponding to the extended criteria (105/109, 96.3%). They agreed that the current criteria for ESD would possibly require a revision considering various clinical indicators.

Conclusions: Our survey shows that there is still no consensus about indications for ESD in EGC. Therefore, more clinical outcome data with a long-term follow-up are needed to establish evidence-based consensus and guidelines for ESD indications in Korea. (Korean J Gastrointest Endosc 2009;39:78-84)

Lee CK. Korean J Gastrointest Endosc 2009;39:78-84

Contents

- Terminology issues
- How dangerous is the gastrectomy?
- Inter-observer variation issues
- EGCs in expanded criteria have higher rate of lymph node metastasis than expected before
- Do we have enough outcome data?
- Case volume issues

The problem of the definition

- It is a recurring theme throughout cancer research that definitions resulting from early discoveries are useful but, because of many etiologies of cancers, those definitions become too restrictive.

King RJB. Cancer Bioloty, 2nd eds. Page 13

LN status of SM cancer

		LN (-)	LN (+)	p-value
Differentiation	Well/moderate	45	6	0.000
	Poor/signet ring cell	35	34	
Lauren classification	Intestinal	45	7	0.000
	Diffuse	34	32	
	mixed	1	1	
Presence of ulceration		25	19	0.082
Increased vascularity		65	38	0.042
Depth of invasion	Free	16	4	0.043
	Attached	30	13	
	Superficially invasive	27	12	
	Deeply invasive	7	11	
Breakdown of MM		36	26	0.039

Song et al. Histopathology 2004;44:437-444

Endoscopic vs histological ulceration

Ono, Kondo, Gotoda, et al	
<p><i>Table 1 Indication criteria for endoscopic mucosal resection</i></p> <p>Early gastric cancer meeting all of the following:</p> <ol style="list-style-type: none"> Well or moderately differentiated type adenocarcinoma Superficial, elevated, or depressed macroscopic appearance (types I, IIa, IIc) <u>No ulceration</u> Tumour < 20 mm No apparent invasive findings 	<p><i>Table 2 Evaluation of resected specimens by endoscopic mucosal resection</i></p> <p>The following must be confirmed histologically for "complete resection":</p> <ol style="list-style-type: none"> Intramucosal cancer Well or moderately differentiated type adenocarcinoma No histological ulceration No lymphatic or venous invasion No tumour invasion to the lateral margin

Ono. Gut 2001;48:225-229

Ulcer finding

Table 1. Relationship between clinicopathological factors and lymph node (LN) metastasis in intramucosal cancer; univariate analysis results

	Total	Status of LN metastasis			P value
		Negative	Positive	Percent	
Sex					
M	1676	1638	38	2.3	0.4087
F	894	869	25	2.8	
Tumor location					0.7974
U	248	243	5	2.0	
M	1492	1453	39	2.6	
L	830	811	19	2.3	
Macroscopic type					0.0083
Elevated	390	388	2	0.5	
Depressed	2048	1992	56	2.7	
Tumor size					<0.0001
≤10mm	357	353	4	1.1	
≤20mm	767	763	4	0.5	
≤30mm	927	917	10	1.1	
>31mm	965	918	47	4.9	
Histological type					<0.0001
Differentiated	1647	1640	7	0.4	
Undifferentiated	1369	1311	58	4.2	
Ulcer findings					<0.0001
Absence	1284	1278	6	0.5	
Presence	1732	1673	59	3.4	
Lymphatic-vascular involvement					<0.0001
Absence	2997	2937	60	2.0	
Presence	19	14	5	26.3	

Differentiated type includes papillary and tubular adenocarcinoma. Poorly differentiated adenocarcinoma and signet-ring cell carcinoma are classified as undifferentiated type.
U, Upper-third of stomach; M, middle-third of stomach; L, lower-third of stomach

Gotoda. Gastric Cancer 2000;3:219-225

Ulcerated lesion ?

Lesions with ulceration or scarring from previous ulceration (converging folds or deformity of the muscularis propria, or fibrosis in the submucosal or deeper layer) within them were regarded as "ulcerated lesions". The depth of submucosal invasion was measured from the muscularis mucosa to the point of deepest penetration.

♣ **Ulcerated lesions = ulcer + ulcer scar ?**

Gotoda. Gastric Cancer 2000;3:219-225

Suggestion for terminology (2)

- There is a great confusion in the selection of the best terms for describing ulcer / ulceration/ ulcer finding / ulcerated lesion / endoscopic ulcer / histological ulcer.
- '**Ulceration**' may be the best terminology.
 - Not shallow depressed lesion
 - Not including ulcer scar
- Do not use the term 'ulcerated lesion' and 'ulcer finding' and 'UL' in Korea.


Decision making depending on the endoscopic ulceration may be confusing
 - natural history of an early gastric cancer



EGD at outside hospital (Jan 3)



EGD after referral (Jan 29)



How Dangerous is the Gastrectomy?

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Gastrectomy **was** dangerous in western countries

- a prospective randomized trial in UK

Treatment	Minor complication	Serious complication	Postoperative mortality
D1 dissection	15%	6%	6.5%
D2 dissection	22.5%	10.5%	13%

Cuschieri A. Lancet 1996;347:995-999

Perioperative morbidity and mortality in gastric cancer surgery (SNUH)

- 719 consecutive patients who underwent operations for gastric cancer at Seoul National University Hospital between January and December 2002
- **Overall mortality: 0.6 % (four patients)**
- Overall morbidity: 17.4 % (125 patients)
- Surgical and non-surgical complications were 14.7 per cent (106 patients) and 3.3 per cent (24 patients)
- Only three patients (2.8 per cent) with a surgical complication underwent reoperation, two for adhesive obstruction and one for intra-abdominal bleeding.

Park, Lee, Kim et al. Br J Surg 2005

Gastrectomy **is not** so dangerous

- Perioperative mortality after gastrectomy is less than 1.0% in most hospitals in Korea and Japan.
- It is less than 0.1% or 0.01% in some centers.
- Quality of life after surgery has been improved.
- Most of EGCs in expanded indications for EMR can be completely cured by surgery.
- Improvement made by surgeons should be considered before expanding criteria for EMR.



Inter-observer Variation Issues

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Global world?

- There is a big language (or cultural) barrier between eastern and western medical societies.
- Interpretation of eastern terms into English has great limitations in conveying the exact meaning (e.g. EGC IIc, differentiated histology).
- There is a big language (or cultural) difference between Korea and Japan.

Western vs. Japanese view

- pathologic diagnosis of 35 cases

Table 1. Distribution of diagnoses by individual pathologists

Diagnosis	Western viewpoint				Japanese viewpoint					Total
	K.L.	R.R.	P.S.	Total	M.S.	M.I.	Y.K.	T.S.	H.W.	
Reactive epithelium	2	2	1*	4 (9%)	1	2	3	3	2	11 (9%)
LGD[adenoma]	3	8	9	20 (59%)	1	1	1	1	1	5 (9%)
HGD[adenoma]	14	8	17	39 (57%)	1	1	2	2	1	7 (4%)
Suspected CA	7	7	5	19 (55%)	0	4	5	3	0	12 (7%)
Definite CA	9	9	3	21 (59%)	32	27	24	26	31	140 (80%)
Total	35	35	35	105 (100%)	35	35	35	35	35	175 (100%)

CA, Carcinoma.

*Including indefinite for dysplasia.

LGD: Low grade dysplasia, used in the West; adenoma with slight or moderate atypia, used in Japan.

HGD: High grade dysplasia, used in the West; adenoma with severe atypia used in Japan.

Reprinted with permission from Elsevier Science (The Lancet 1997;349:1725).

♣ It is very unclear whether the problem of inter-observer variation has been solved or decreased in the last decade.

Schlemper RJ. Lancet 1997;349:1725-1729
Willis & Riddell. Gastrointest Endosc 2003;57:369-376

Small differences make a big difference

	<i>Korea</i>	<i>Japan</i>
Differentiation	Predominant type	Worst type
Depth of invasion	Not including lymphatic/venous invasion	Including lymphatic/venous invasion
Carcinoma in situ	Accepted	Not accepted
Degree of investigation	Standard examination	More meticulous examination

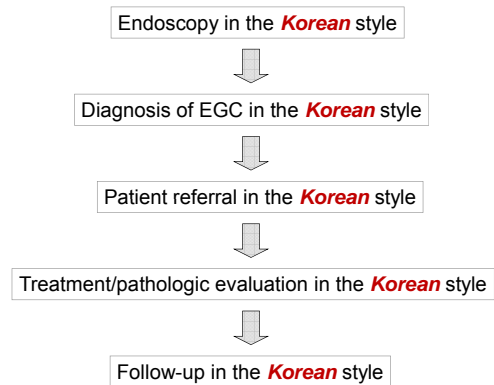
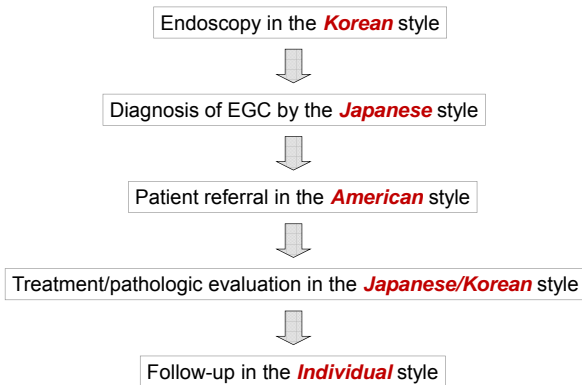
▲ Patients may have different pathological stages in Japan and Korea.
→ In patients with same pathological stage, it is likely that Japanese patients may have better prognosis.

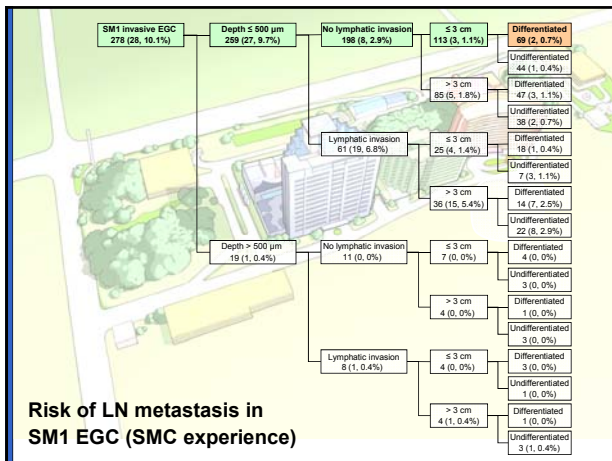
All doctors are not created equal



There are some doctors with extreme opinion.

If the pathologists in one institution has a very low threshold to make the diagnosis of gastric cancer, the treatment results in that institution should be great.





Two cases of LN (+) SM1 cancer

Sex/Age	Histology	Type	Ulcer	Depth (μm)	Size (cm)	LVI	Lymph nodes
M / 55	Differentiated	Ib+Ic	-	150	2.0	-	1/55
M / 61	Differentiated	Ic	+	300	2.1	-	1/64

Safety of extended endoscopic mucosal resection and endoscopic submucosal dissection following the Japanese Gastric Cancer Association treatment guidelines

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¹Departments of Surgery, ²Seoul National University Bundang Hospital and ³Seoul National University College of Medicine, Seoul, and ⁴Tan Tock Seng Hospital, Singapore

	Mucosal (n=129)	Submucosal (n=55)	P†
Age (years)*	59.6(11.7)	62.0(9.7)	0.4261
Sex ratio (M:F)	87:32	41:11	0.387
Histology			
Differentiated	96(4.4)	32(100)	—
Undifferentiated	33(12.6)	0(0)	—
Lymph nodes			
No, retrieved*	39(14.3)	33(71.0)	0.0181
No, positive*	0(0.0)	1(1.8)	0.0651
No. of patients with positive nodes	0(0.0)	2(3.6)	0.335
Ulcers present†	37(28.5)	12(22)	1.000
Tumour size (cm)*	2.5(1.54)	2.18(0.64)	0.1001

♣ Differentiated mucosal cancers without ulcer formation did not have lymph node metastasis, irrespective of size.

→ Indications in expanded criteria are not created equal.

Table 3 Summary of pathological findings in five patients with lymph node metastasis who meet the extended indications for endoscopic mucosal resection or endoscopic submucosal dissection

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5
Tumour size (cm)	1.6 × 1.0	1.7 × 1.6	1.3 × 1.3	1.3 × 0.9	3.0 × 2.5
Depth of invasion	Mucosally mucosa	Mucosally mucosa	Mucosally mucosa	Submucosa 1	Submucosa 1
Differentiation	Signet ring cell	Moderately differentiated	Poorly differentiated	Moderately differentiated	Moderately differentiated
Lymphatic invasion	No	No	No	No	No
Vascular invasion	No	No	No	No	No
Associated ulcer	No	Yes	No	No	No
Lymph node metastasis	1 of 49	1 of 29	1 of 60	2 of 34	3 of 38

Jee. Br J Surg 2009;96:1157-1161

Treatment strategy after non-curative endoscopic resection of early gastric cancer

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16.7% of 1,783 EGCs (495 EMR + 1,288 ESD), 1989-2003

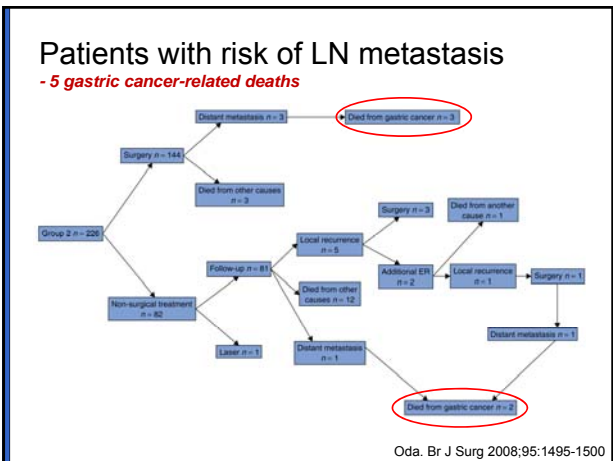
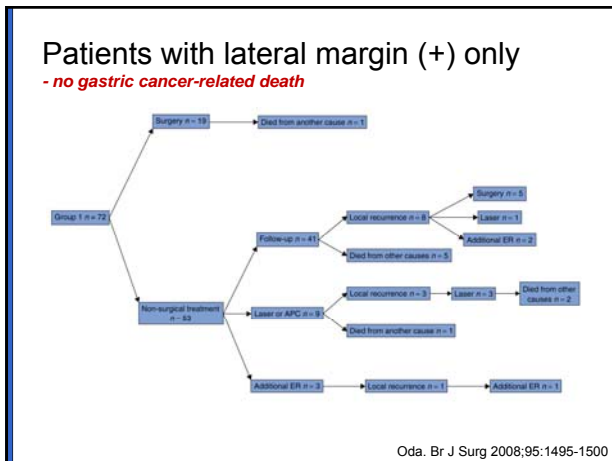
Background: Endoscopic resection (ER) is indicated for patients with early gastric cancer who have a negligible risk of lymph node metastasis (LNM). Histological examination of the resected specimen may indicate a possible risk of LNM or a positive resection margin. These patients are considered to have undergone non-curative ER. The aim of this study was to determine the appropriate treatment strategy for such patients.

Methods: A total of 298 patients who had non-curative ER were classified into those with a positive lateral margin only (group 1; 72 patients) and those with a possible risk of LNM (group 2; 226 patients).

Results: Surgery was performed within 6 months of non-curative ER in 19 patients in group 1 and 144 in group 2. In group 1, nine patients were found to have local residual tumours, all limited to the mucosal layer without LNM. In Group 2, 13 patients had residual disease, including four local tumours without LNM, two local tumours with LNM and seven cases of LNM alone. The rate of LNM after surgery was 6.3 per cent in group 2.

Conclusion: Surgery remains the standard treatment after non-curative ER in patients with a possible risk of LNM.

Oda. Br J Surg 2008;95:1495-1500




Proposed expanded criteria for EMR

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 criteria for EMR
- B expanded criteria for EMR
- C consider surgery
- D surgery (gastrectomy + lymph node dissection)

Modified from Soetikno, Kaltenbach, Yeh, Gotoda. JCO 2005;23:4490-4498



Do we have enough outcome data?

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ARTICLE IN PRESS

ORIGINAL ARTICLE

Appropriate indications for endoscopic submucosal dissection of early gastric cancer according to tumor size and histologic type

Tae Hee Lee, MD, Joo Young Cho, MD, Young Woon Chang, MD, Jin Oh Kim, MD, Joon Seong Lee, MD, Won Young Choi, MD, Hyun Goo Kim, MD, Wan Joong Kim, MD, Yoon Sun Park, MD, So Young Jia, MD
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Background: Endoscopic submucosal dissection (ESD) is increasingly being performed for early gastric cancers (EGCs) that are larger than 2 cm and those that are not nonintestinal-type (IT) cancers by Lauren's classification. The technical feasibility of ESD for these EGCs has not been fully evaluated.

Objective: To identify appropriate expanded indications for ESD of EGC.

Design and Setting: A retrospective analysis of prospectively collected data was performed on consecutive patients who underwent ESD at a single tertiary center.

Patients and Methods: In total, 487 EGCs in 481 patients treated by ESD were classified by size and histologic type: IT EGCs 2 cm or less (257 patients), IT EGCs larger than 2 cm (172 lesions in 176 patients), and non-IT EGCs (58 lesions in 56 patients).

Main Outcome Measurements: Curative resections were assessed among the 3 groups, and logistic regression analysis was used to analyze factors related to curative resection.

Results: The rates of curative resection significantly decreased from IT EGCs 2 cm or less (88.7%) to IT EGCs larger than 2 cm (68.7%) and non-IT EGCs (37.5%). Tumor size (17.3 cm), ulceration, histologic type (non-IT), and curative resection were independently unfavorable factors in curative resection.

Limitations: Small sample size and short-term duration of follow-up study.

Conclusions: ESD with curative intent is technically most feasible for noncurative and IT EGCs smaller than 5 cm. (Gastrointest Endosc 2010;XXXXX.)

12.7 mm

32.6 mm

Lee TH et al. GIE 2010 (in press)

Rate of curative resection by groups and the result of salvage operations

	Small IT EGC group, no. (%) (n = 257)	Large IT EGC group, no. (%) (n = 172)	Non-IT EGC group, no. (%) (n = 58)
En bloc resection	234 (91.1)	146 (84.9)	48 (82.8)
Curative resection	224 (87.2)	122 (71.3)	21 (37.5)
Free lateral margins	236 (91.8)*	134 (77.8)	42 (72.4)
Free vertical margins	250 (97.3)	162 (94.2)	44 (75.9)

IT, Intestinal-type EGC; early gastric cancer.
*P < .05 compared with large IT EGC group and non-IT EGC group.
†P < .05 compared with non-IT EGC group.
‡P < .05 compared with non-IT EGC group.

- Overall rate of curative resection = 77.2% (376/487)
- Overall rate of non-curative resection = 22.8% (111/487)
- Salvage operations (n=39) were performed in 6, 10, and 23 patients in the noncurative small IT, large IT, and non-IT EGC groups, respectively.
- Of the operated cases, 12 (30.7%) had residual cancer cells in surgical specimens, and 3 (7.6%, 1 large IT and 2 non-IT EGC cases) had lymph node metastasis.

Lee TH et al. GIE 2010 (in press)

EMR for undifferentiated EGC

Therapeutic efficacies	No. of patients (%)			P value
	Total	Poorly differentiated	Signet ring cell	
En bloc resection	49 (84.5)	14 (82.4)	35 (85.4)	.773
Complete resection	39 (67.2)	10 (58.8)	29 (70.7)	.540
Incomplete resection	19 (32.8)	7 (41.2)	12 (29.3)	
Lateral cut end (+)	10 (52.6)	0 (0)	10 (83.3)	<.001
Vertical cut end (+)	9 (47.4)	7 (100)	2 (16.7)	
Recurrence, no.(%)	4 (8.9)	0 (0)	4 (9.8)	.310
In CR	2 (5.1)	0 (0)	2 (6.9)	
In incomplete resection	2 (10.5)	0 (0)	2 (16.7)	

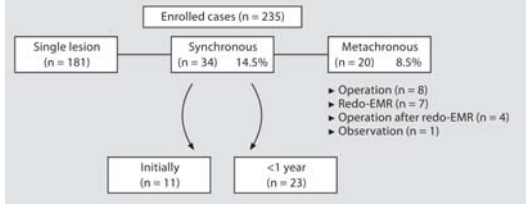
ER, Endoscopic resection; CR, histologically complete resection.

Kim. Gastrointest Endosc 2009;69

Undifferentiated Histology after Endoscopic Resection May Predict Synchronous and Metachronous Occurrence of Early Gastric Cancer

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Department of Internal Medicine, Yonsei Institute of Gastroenterology, Yonsei University College of Medicine, Seoul, Korea



Seo (Yonsei U). Digestion 2010;81:35-42

B. H. A. von Rahden, H. J. Stein:
Endoscopic mucosal resection as curative therapy for esophageal cancer is inappropriate and should be discouraged

The recent paper by Pech and colleagues [1] requires some critical comment regarding the oncologic adequacy of the proposed endoscopic therapy for early esophageal squamous cell cancer (ESCC). The Wiesbaden group around Professor Ell are known for their vigorous advocacy of their approach to esophageal neoplasms with endoscopic mucosa resection (EMR), which they now characterize as "curative." Introducing the topic, the authors state that EMR is already "...con-

of small amounts of submucosa by means of EMR.

Another severe problem of the study is the highly selected nature of the study population, as only patients with high-grade intraepithelial neoplasia (HGIN) or T1m lesions were included. Exclusion of pT1sm patients was done a priori (i) by means of EUS, (ii) by means of diagnostic EMR, and (iii) prior to analysis. The exact numbers of patients that were excluded are only presented incompletely. Pech et al. are thereby violating the principle of intention-to-treat analysis in many ways, making judgment of oncologic adequacy entirely impossible.

A further and possibly the most severe problem, where Pech and colleagues ignore well-established data regarding early esophageal SCC, concerns the rate of

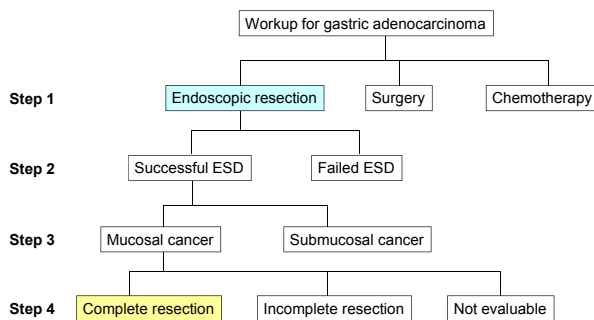
von Rahden. Endoscopy 2008;40:169

von Rahden's comment

- The approach by Pech and colleagues **neglects basic oncologic principles** related to cancer treatment.
 - Unacceptably low R0 resection rate (24.6%)
 - Highly selected nature of the study → violating the principles of intention-to-treat analysis
 - "These tumors have only a very low risk of lymph node metastasis." This false expectation may be due to...

von Rahden. Endoscopy 2008;40:169

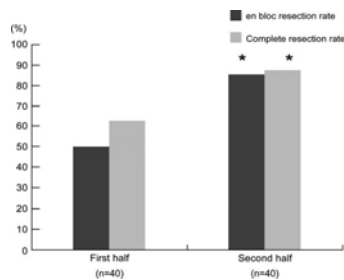
RCT is strongly necessary



Case Volume Issue

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Learning curve of EMR-P

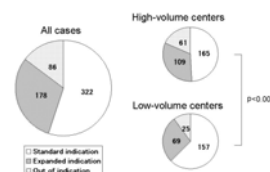


Choi. Gastrointest Endosc 2005;62:860

ORIGINAL ARTICLE

A Comparison of Outcomes of Endoscopic Submucosal Dissection (ESD) For Early Gastric Neoplasms Between High-Volume and Low-Volume Centers: Multi-Center Retrospective Questionnaire Study Conducted by the Nagano ESD Study Group

Keisichi Hotta*, Tetsuo Ogura*, Taiji Akamatsu*, Akihisa Tomori†, Osamu Hasebe*, Naoshi Nakamura†, Eiyo Kojima†, Tomoki Soga†, Hidetaru Miyahayashi† and Hiroshi Otsu*

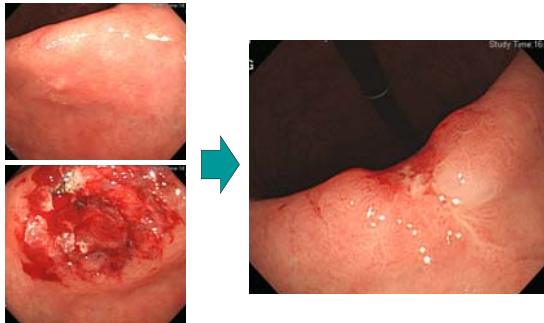


CONCLUSION: There were no significant difference in the outcomes of ESD for early gastric neoplasms between high- and low-volume centers.

MY QUESTION: 30 cases of ESD per year is large enough for high-volume cancer?

Hotta. Intern Med 2010;49:251-2

Local recurrence after EMR-C



All endoscopists are not gold medalists



Take home message

- **Never forget basic oncologic principles!**
- Expanded criteria have been proposed (not recommended).
- Based on pathological data, some concerns about lymph node metastasis have been raised.
- For expanding indications in individual patients, **full informed consent (ideally in the clinical trial setting)** is the minimum mandatory requirement.

Proposed expanded criteria for EMR

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 criteria for EMR
- B expanded criteria for EMR
- C consider surgery
- D surgery (gastrectomy + lymph node dissection)

Modified from Soetikno, Kaltenbach, Yeh, Gotoda. JCO 2005;23:4490-4498