# A case of ESD for EGC

## - clinical decision making

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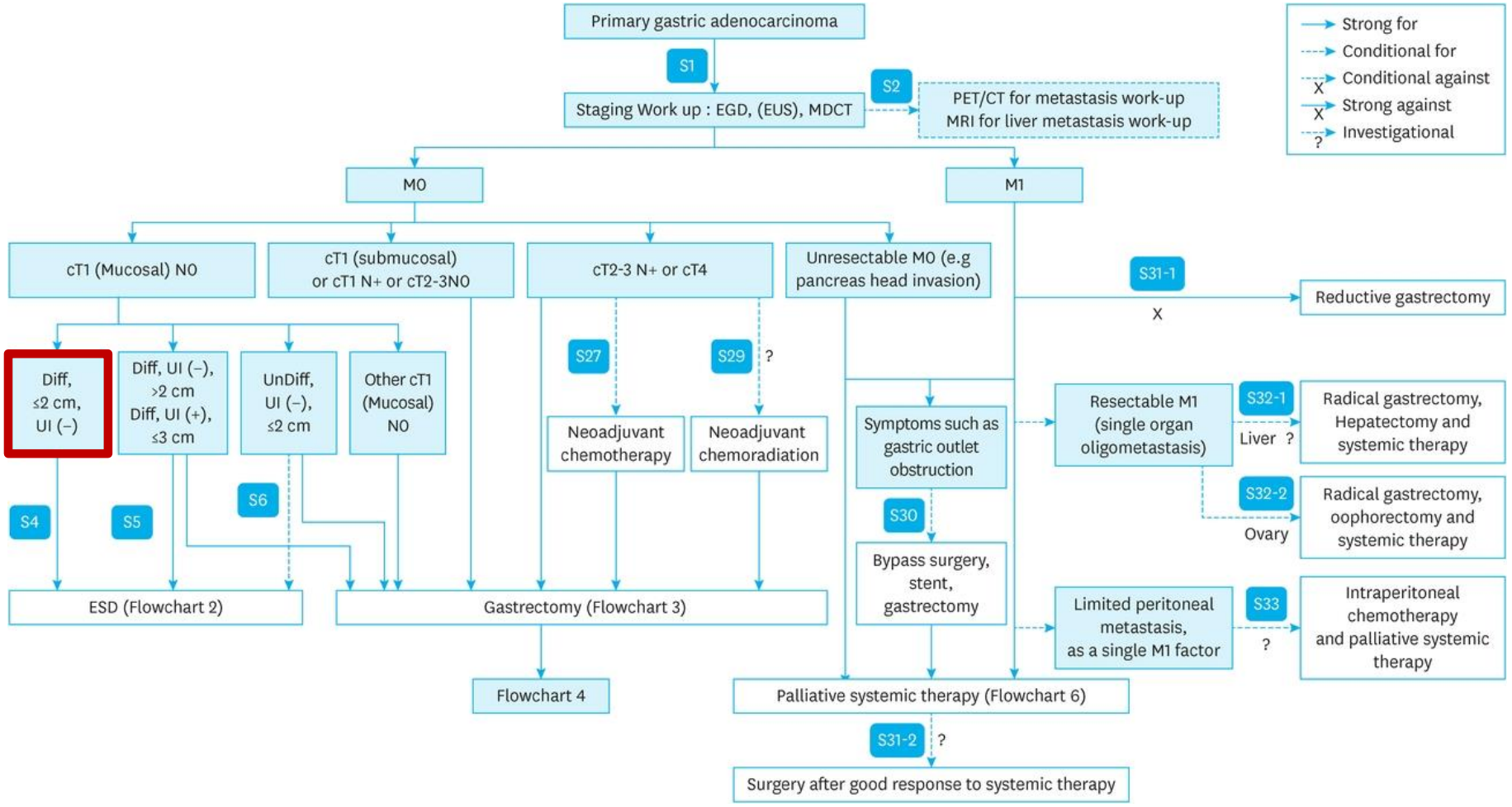
# What would you recommend?

- 조직검사: M/D adenocarcinoma

# 2022 KGCA guideline



# 질문. ESD 전 수술이 필요할 확률을 어떻게 설명하시겠습니까?

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jgc Journal of Gastric Cancer

Original Article

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# Risk-Scoring System for Prediction of Non-Curative Endoscopic Submucosal Dissection Requiring Additional Gastrectomy in Patients with Early Gastric Cancer

Tae-Se Kim [1,*], Byung-Hoon Min [1,*], Kyoung-Mee Kim [2], Heejin Yoo [3], Kyunga Kim [3,4], Yang Won Min [1], Hyuk Lee [1], Poong-Lyul Rhee [1], Jae J. Kim [1], Jun Haeng Lee [1]

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- Data from 2,997 patients undergoing ESD for 3,127 forceps biopsy-proven differentiated-type EGCs (2,345 and 782 in training and validation sets, respectively) were reviewed.

Kim TS. J Gastric Cancer 2021;21:368

# Six factors and scores for non-curative ESD requiring gastrectomy

**Table 3.** Derivation of the risk-scoring system for non-curative endoscopic submucosal dissection requiring gastrectomy

| Variables | Multivariate odds ratio (95% CI) | Beta | Standard error | Scores | P-value |
|---|---|---|---|---|---|
| Pathology on forceps biopsy | | | | | |
| Well-differentiated | Ref | | | 0 | |
| Moderately differentiated | 2.365 (1.785–3.134) | 0.861 | 0.144 | 2 | <0.001 |
| Papillary adenocarcinoma | 9.492 (3.378–26.670) | 2.250 | 0.527 | 5 | <0.001 |
| EWDA | 1.898 (0.739–4.875) | 0.641 | 0.481 | 0 | 0.183 |
| Size on endoscopy | | | | | |
| ≤2 cm | Ref | | | 0 | |
| >2 cm | 2.136 (1.576–2.894) | 0.759 | 0.155 | 2 | <0.001 |
| Axial location | | | | | |
| Antrum/angle | Ref | | | 0 | |
| Low-body/mid-body | 1.635 (1.246–2.147) | 0.492 | 0.139 | 1 | <0.001 |
| High body/fundus/cardia | 2.727 (1.937–3.842) | 1.003 | 0.175 | 2 | <0.001 |
| Circumferential location | | | | | |
| Lesser curvature | Ref | | | 0 | |
| Anterior wall | 1.271 (0.913–1.769) | 0.240 | 0.169 | 0 | 0.155 |
| Posterior wall | 1.056 (0.773–1.444) | 0.055 | 0.160 | 0 | 0.731 |
| Greater curvature | 1.572 (1.181–2.092) | 0.452 | 0.146 | 1 | 0.002 |
| Macroscopic morphology | | | | | |
| Flat | Ref | | | 0 | |
| Elevated | 2.446 (1.538–3.890) | 0.895 | 0.237 | 2 | <0.001 |
| Depressed | 1.733 (1.076–2.790) | 0.550 | 0.243 | 1 | 0.024 |
| Ulcer | | | | | |
| Absent | Ref | | | 0 | |
| Present | 3.689 (1.197–11.371) | 1.305 | 0.574 | 3 | 0.023 |

CI = confidence interval; EWDA = extremely well-differentiated intestinal-type adenocarcinoma.

Kim TS. J Gastric Cancer 2021;21:368

# Risk of non-curative ESD requiring gastrectomy

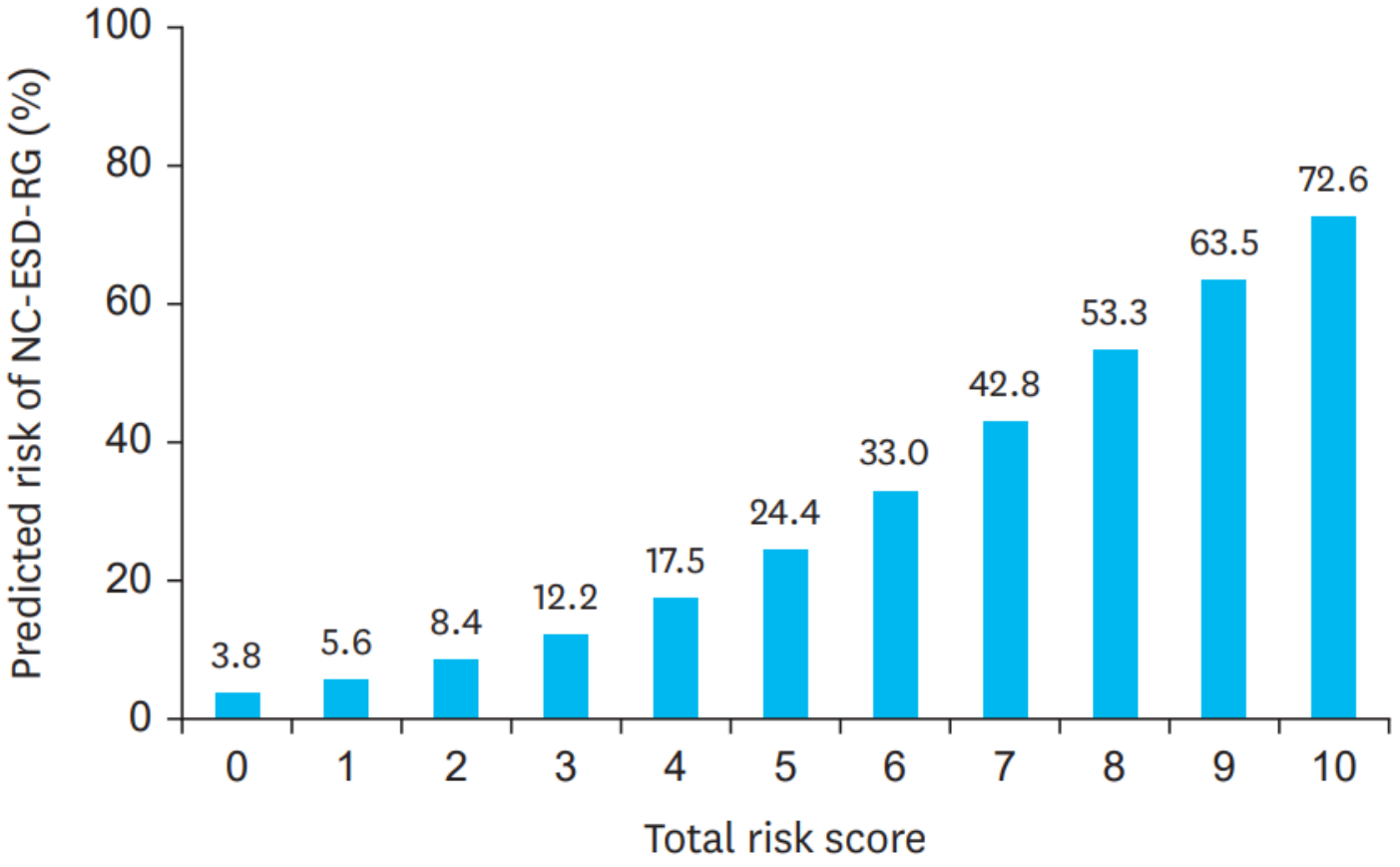
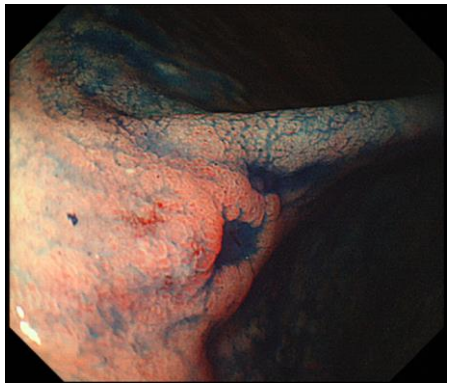



**Fig. 1.** Predicted risk for NC-ESD-RG according to the total risk score.
NC-ESD-RG = non-curative endoscopic submucosal dissection requiring gastrectomy.

Kim TS. J Gastric Cancer 2021;21:368

# SMC score는 몇 점?

**- Based on pathology, size, axial location, circumferential location, macroscopic morphology, and ulcer**

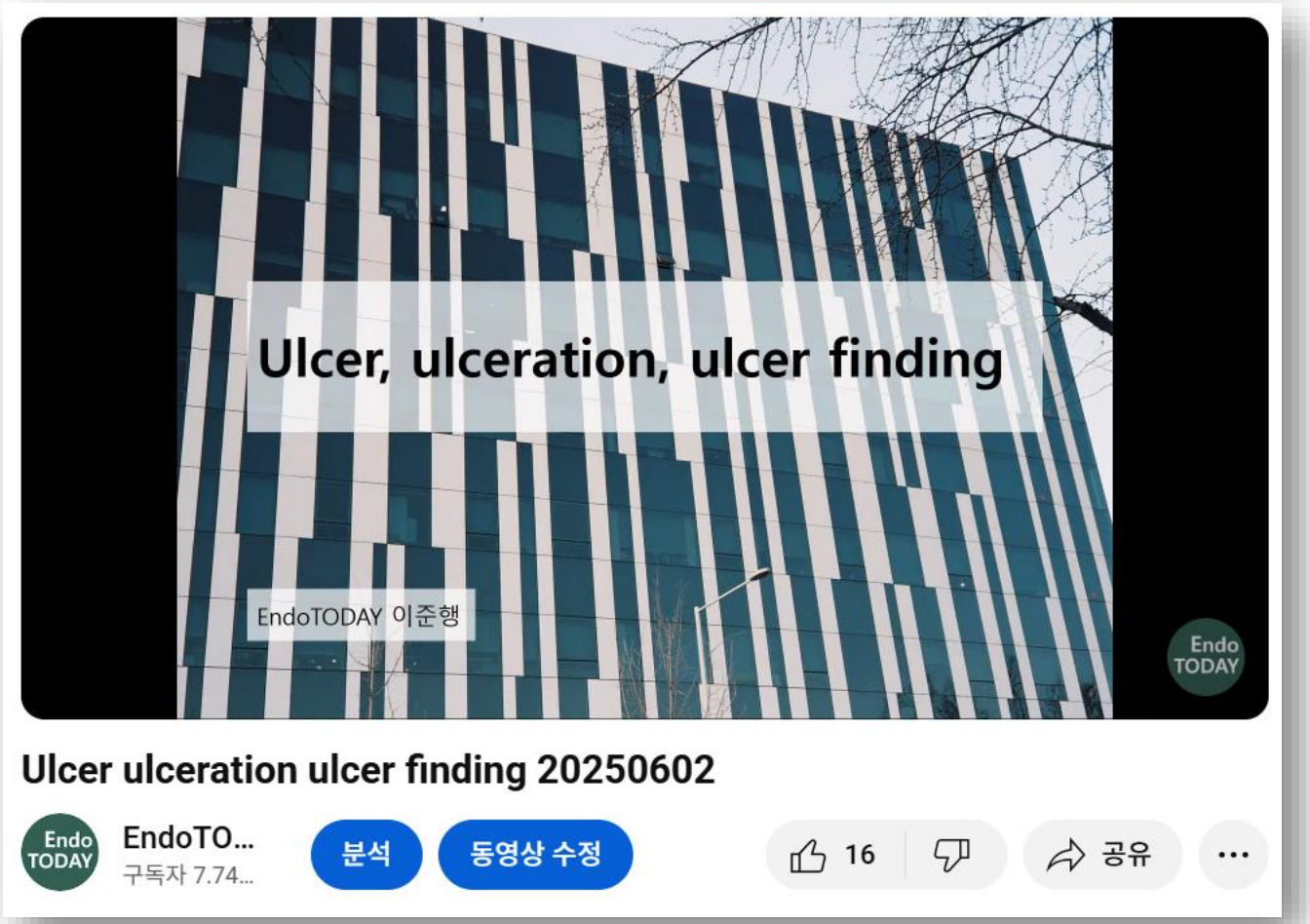


- Pathology: 2 (M/D)
- Size: 0 (=< 2)
- Axial location: 0 (antrum/angle)
- Circumferential location: 0 (AW or LC)
- Morphology: 2 (elevated)
- **Ulcer: 0 (absent) or 3 (present)**
- Total: 4 (ulcer -) or 7 (ulcer +)
- Risk: 17.5% (score 4) or 42.8% (score 7)

# Ulcer에 대한 눈높이는 너무 다릅니다.

| [LNM rate] | Choi 2016 | Chung 2011 | Lee 2015 | Gotoda 2000 |
|---|---|---|---|---|
| Ulcer absent | 85/3790 (2.2%) | 36/1591 (2.3%) | 3/564 (0.5%) | 6/1284 (0.5%) |
| Ulcer present | 16/161 (9.9%) | 9/131 (6.9%) | 11/215 (5.1%) | 59/1732 (3.4%) |
| % of ulcer | 161/3951 (4%) | 131/1722 (7.6%) | 215/779 (27.6%) | 1732/3016 (57.4%) |

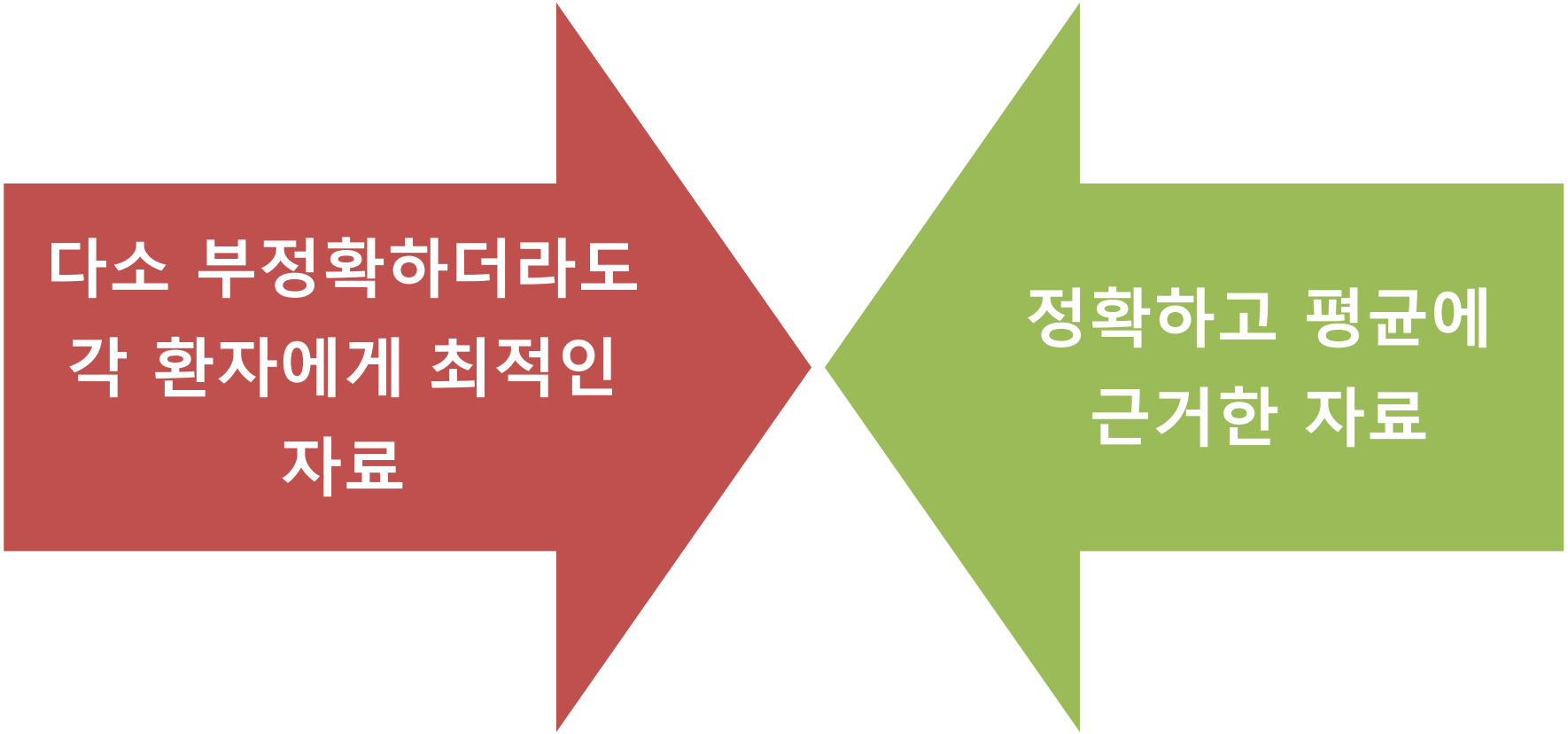
# 저의 YouTube 강의를 참고하십시오.



# Ulcer in ESD candidate (개인 의견)

- 깊고 뚜렷한 ulcer는 점막하암의 가능성이 높으므로 절대적응증에서 제외하고 수술을 추천한다.
- 얕은 ulcer는 점막암일 가능성이 있으므로 ESD를 시도한다.
- Single converging fold는 점막암일 가능성이 높으므로 ESD를 시도한다.
- 여러 검사의 소견이 다를 때는 가장 나쁜 것을 기준으로 삼는다.

# 어떠한 자료를 제시하며 설명하시겠습니까?



# EndoTODAY ESD 환자 설명서 (2025)

- 내시경 시술 후 최종 병리결과는 1주일 후 외래에서 보실 수 있습니다. 전체적으로 7명 중 6명, 즉 85% 정도는 추가 치료가 필요없는 것으로 나옵니다. 그런데 7명 중 1명, 즉 **15% 정도**는 병리결과에서 세포형, 깊이, 범위, 림프관 침윤 등에 문제가 있다고 나와 외과적 수술(위절제술)이 필요합니다. 간혹 암이라는 진단으로 내시경치료를 하였으나 단순 염증 혹은 암 전단계(= 선종 혹은 이형성)으로만 나오는 분도 있으나 그 빈도는 5% 전후입니다.

# 외부 슬라이드 재판독 (no DP)

Stomach, lower body, anterior wall, "1", biopsy :

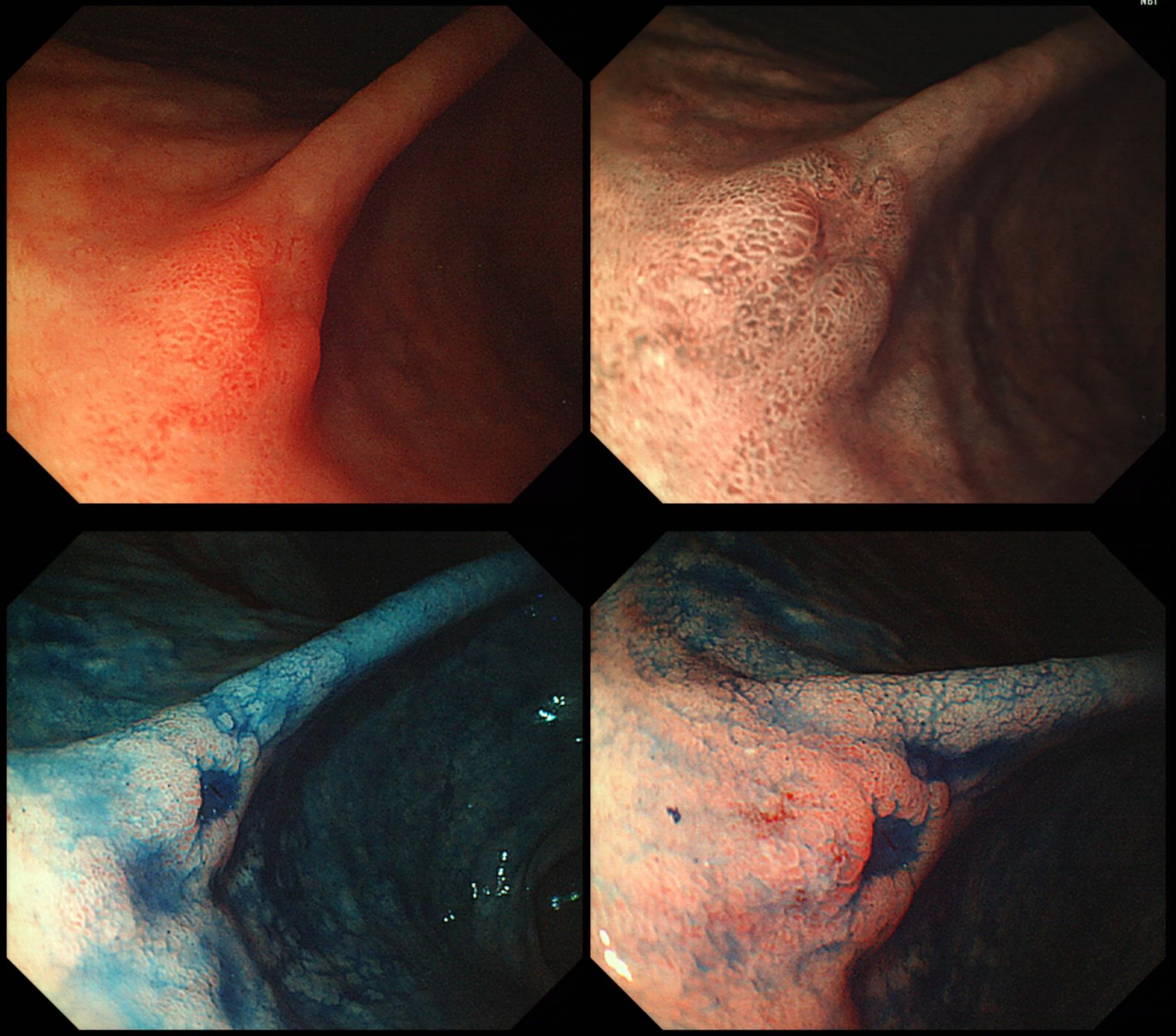
. Chronic active gastritis with intestinal metaplasia

Stomach, angle, anterior aspect, "2", biopsy :

TUBULAR ADENOCARCINOMA, MODERATELY DIFFERENTIATED,
with submucosal invasion

Stomach, lower body, posterior wall, "3", biopsy :

. Chronic active gastritis with intestinal metaplasia and gastritis cystica profunda


NBI

# 의뢰 후 재검 조직검사 (no DP)

1. Stomach, #1x2 : low body, biopsy :

  . Chronic gastritis, inactive, with atrophy and intestinal metaplasia
  . No H. pylori identified.

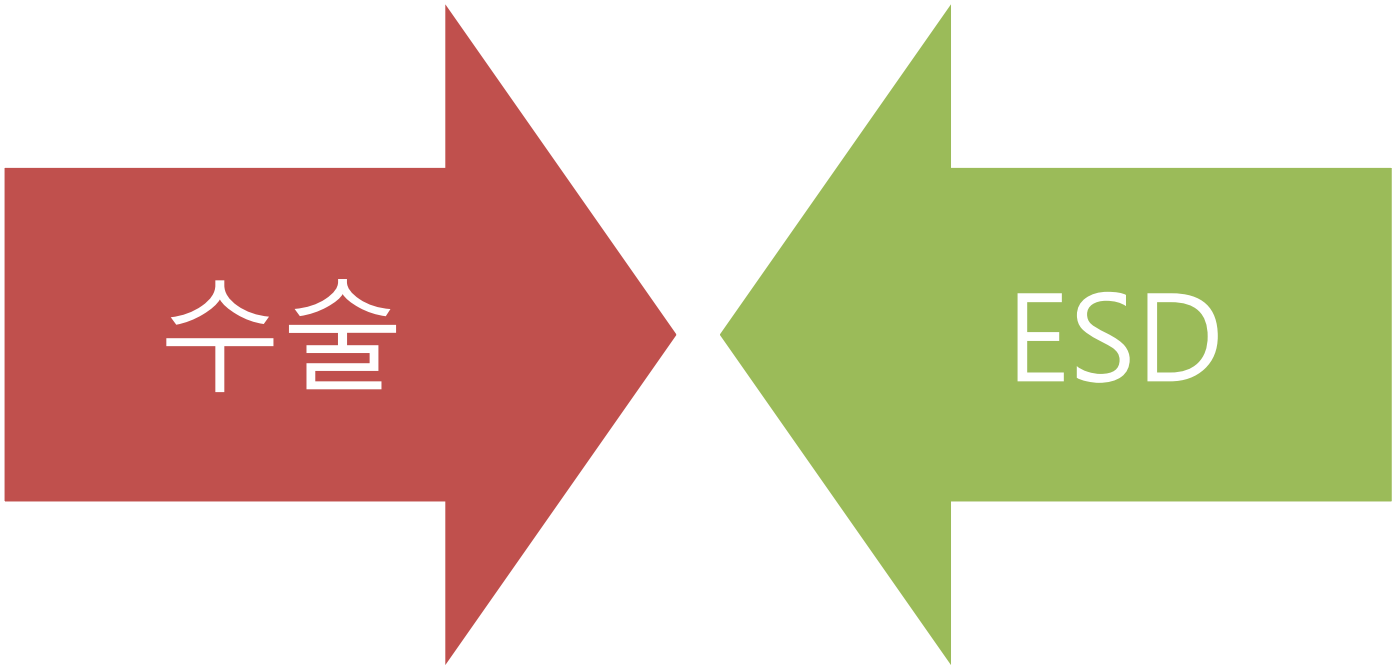
2. Stomach, #2x3 : Posterior wall of low body, biopsy :

  . Chronic gastritis, inactive, with atrophy and intestinal metaplasia
  . No H. pylori identified.

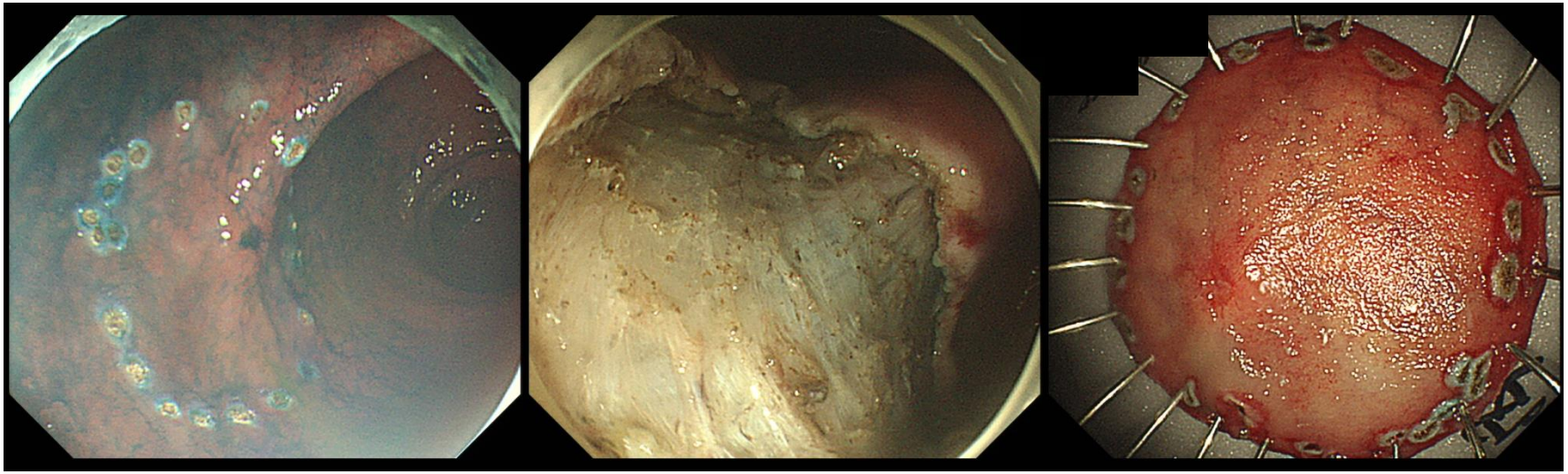
3. Stomach, #3x4 : Anterior wall of angle, biopsy :

  . TUBULAR ADENOCARCINOMA, MODERATELY DIFFERENTIATED

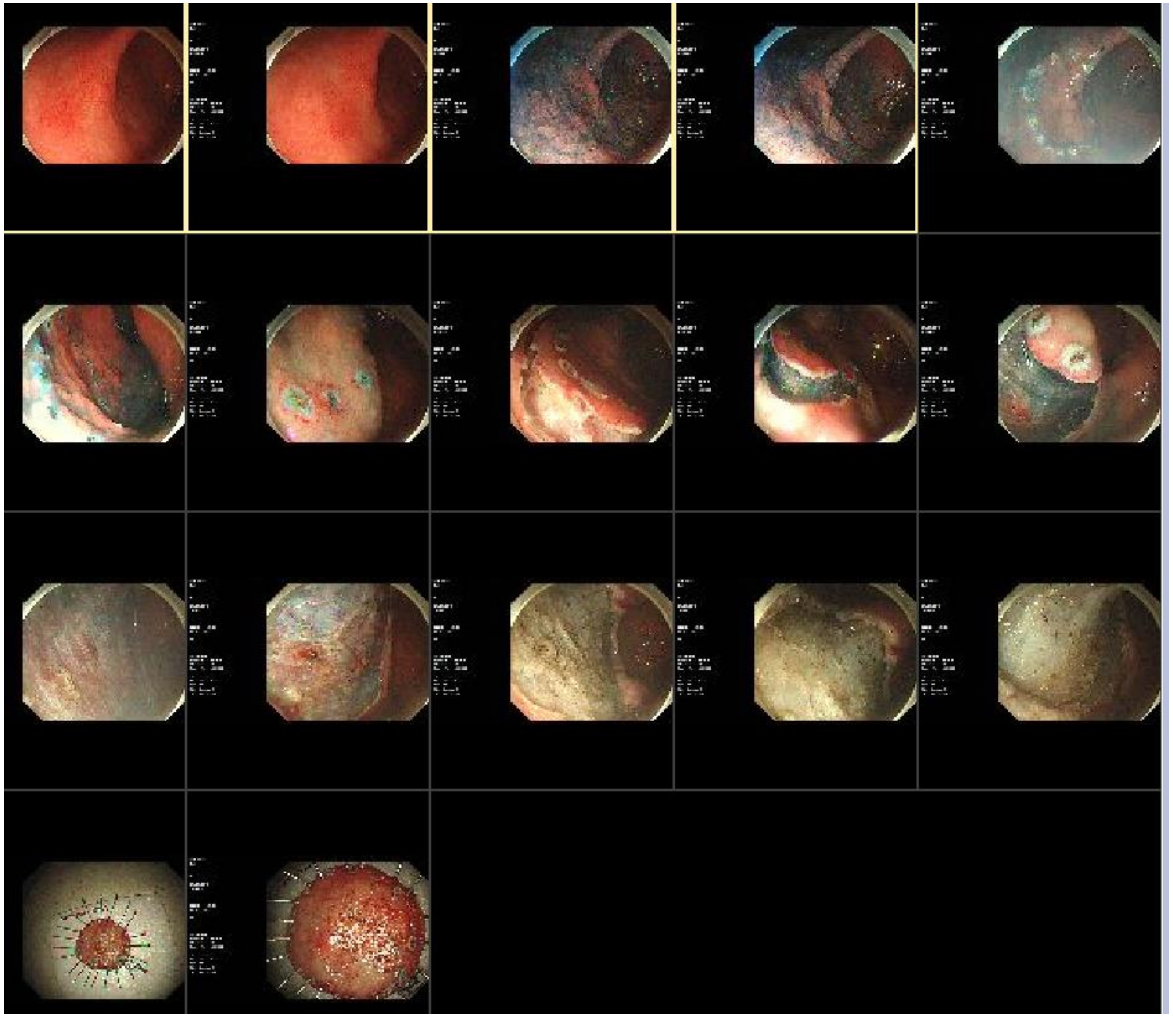
# 질문. 어떻게 하시겠습니까?



# ESD as uaual



# Procedure time은 얼마였을까요?



첫 사진: 9:45

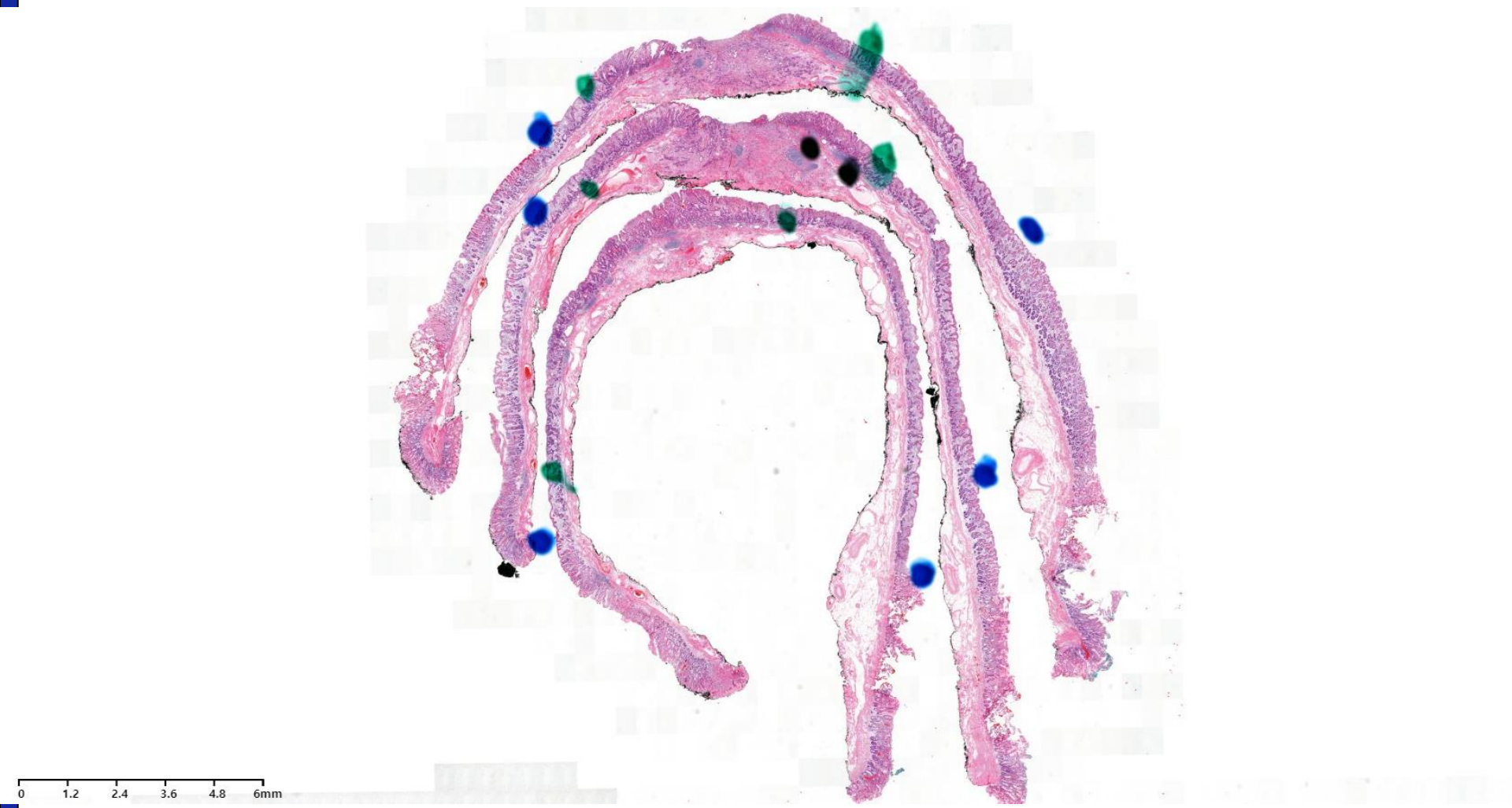
마지막 사진: 10:05

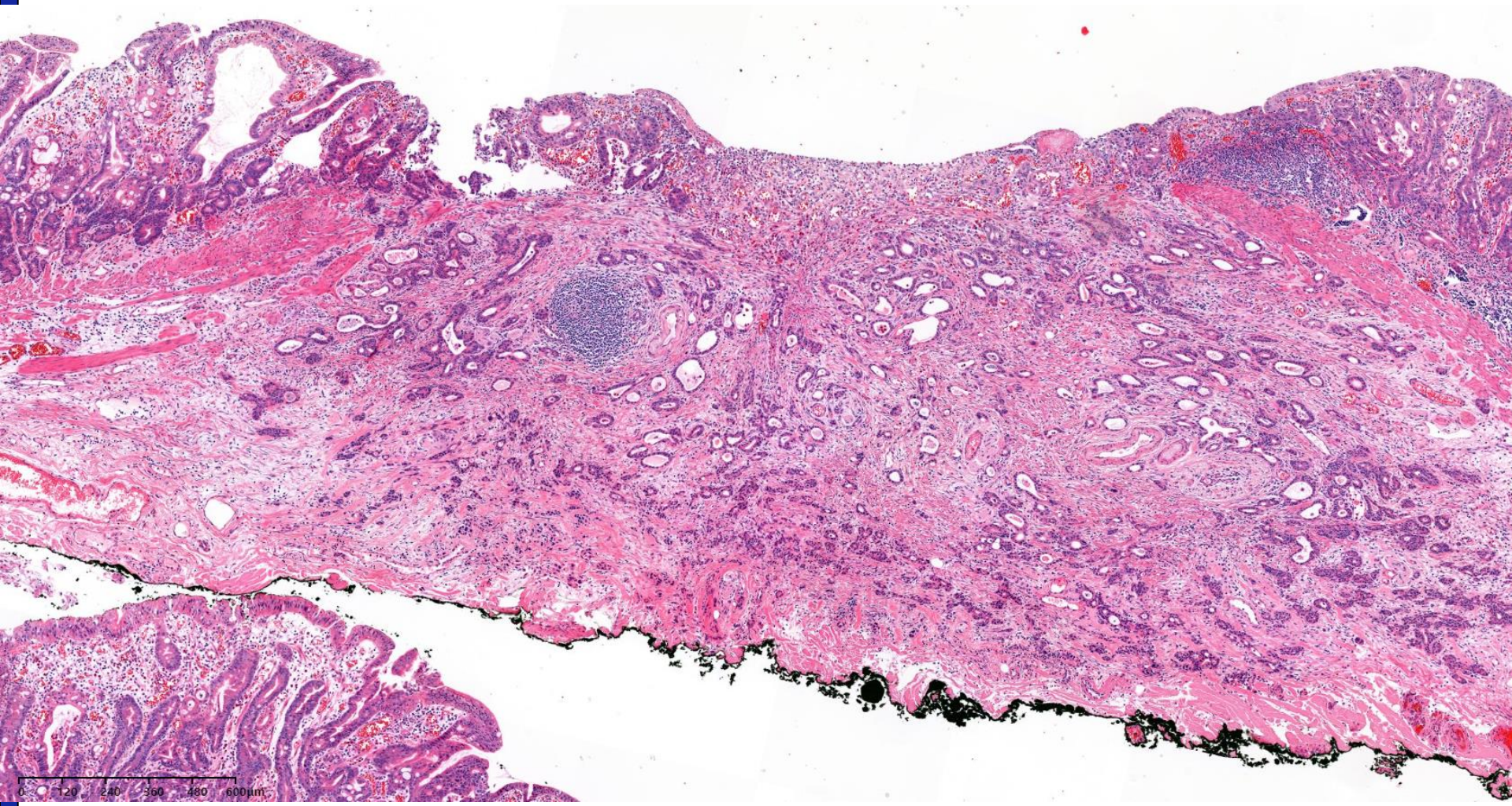
총 20분

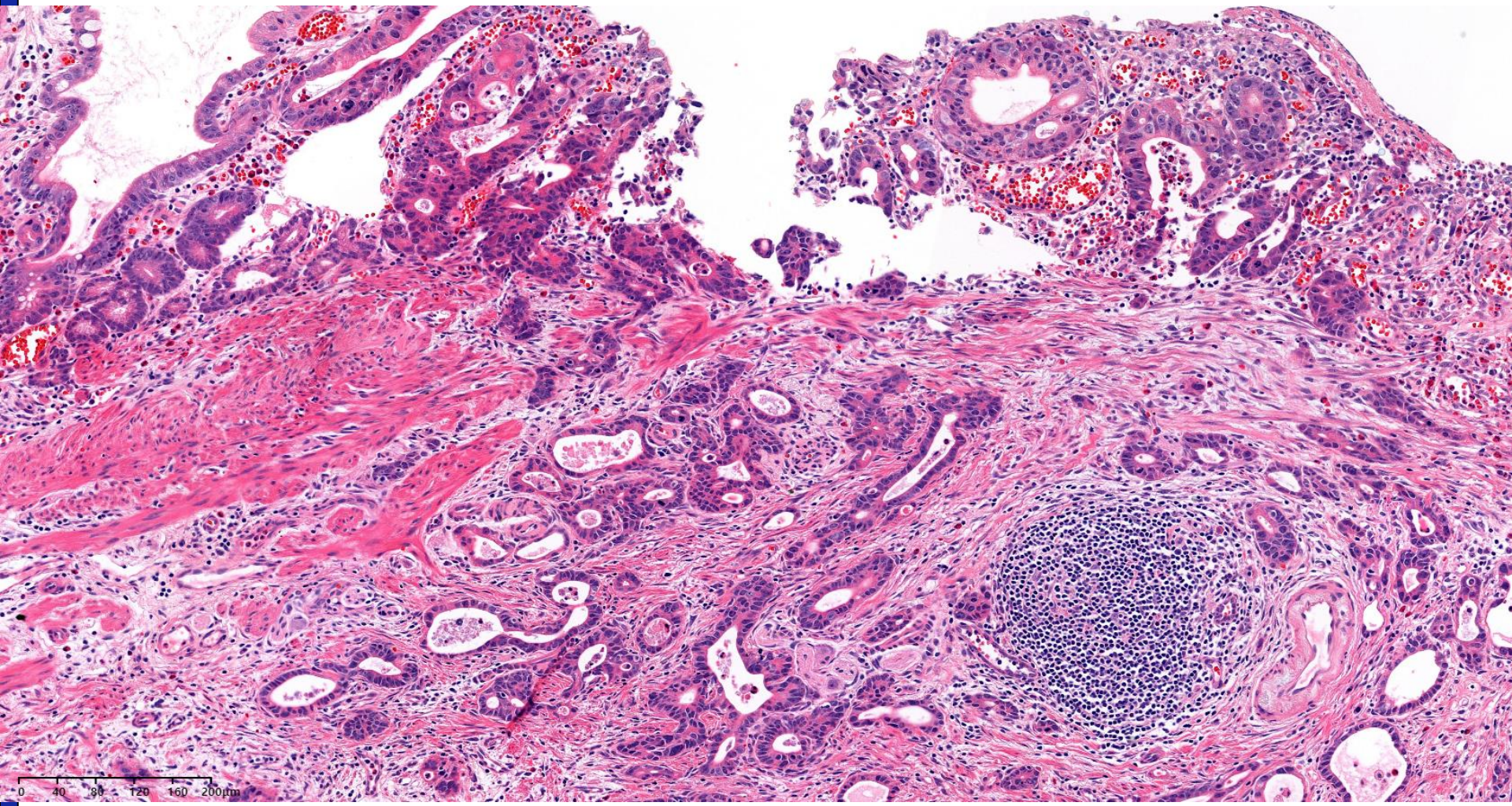
Stomach, #1x1 : Anterior wall of angle, biopsy(ESD) :

. Early gastric carcinoma

1. Location : angle, anterior wall
2. Gross type : EGC type IIa+IIc
3. Histologic type : tubular adenocarcinoma, moderately differentiated
   >> tubular adenocarcinoma, poorly differentiated (2-3%)
4. Histologic type by Lauren : intestinal
5. Size of carcinoma : (1) longest diameter, 30 mm (2) vertical diameter, 25 mm
6. Depth of invasion : invades submucosa, (depth of sm invasion : 1200 ㎛) (pT1b)
7. Resection margin :
   - involved deep, proximal and anterior resection margins by carcinoma
   - negative other resection margins
   safety margin : distal 1 mm, proximal 0 mm, anterior 0 mm,
   posterior 8 mm, deep 0 ㎛
8. Lymphatic invasion : present
9. Venous invasion : not identified(N)
10. Perineural invasion : not identified(N)
11. Pre-existing adenoma : none
12. Microscopic ulcer : absent
13. Histologic heterogeneity: present
14. Associated finding: Gastritis cystica superficialis


0
1.2
2.4
3.6
4.8
6mm


0 120 240 360 480 600µm


0 40 80 120 160 200µm

# 질문. ESD 병리 결과 후 plan은?

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pISSN 2093-582X·eISSN 2093-5641

jgc Journal of Gastric Cancer

Special Article

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# Korean Practice Guidelines for Gastric Cancer 2024: An Evidence-based, Multidisciplinary Approach (Update of 2022 Guideline)

In-Ho Kim [1,*], Seung Joo Kang [2,*], Wonyoung Choi [3,*], An Na Seo [4], Bang Wool Eom [3], Beodeul Kang [5], Bum Jun Kim [6], Byung-Hoon Min [7], Chung Hyun Tae [8], Chang In Choi [9], Choong-kun Lee [10], Ho Jung An [11], Hwa Kyung Byun [12], Hyeon-Su Im [13], Hyung-Don Kim [14], Jang Ho Cho [15], Kyoungjune Pak [16], Jae-Joon Kim [17], Jae Seok Bae [18], Jeong Il Yu [19], Jeong Won Lee [20], Jungyoon Choi [21], Jwa Hoon Kim [22], Miyoung Choi [23], Mi Ran Jung [24], Nieun Seo [25], Sang Soo Eom [26], Soomin Ahn [27], Soo Jin Kim [28], Sung Hak Lee [29], Sung Hee Lim [30], Tae-Han Kim [31], Hye Sook Han [32], on behalf of The Development Working Group for the Korean Practice Guideline for Gastric Cancer 2024 Task Force Team

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*S7. Additional surgery after noncurative endoscopic resection for EGC*

**KQ 7: When the results of endoscopic resection for EGC do not meet the criteria for curative resection, can additional surgery improve survival outcome compared to observation?**

Statement 7: Additional surgery is recommended when the results of endoscopic resection for EGC do not meet the criteria for curative resection or when lymphovascular invasion or positive vertical margin is present (evidence: low, recommendation: strong for).

Endoscopic resection of EGC could be revealed pathologic characteristics that do not meet the criteria for curative resection. Resected tumor characteristics that do not meet the following criteria are considered noncurative: 1) differentiated type (well or moderately differentiated tubular or papillary adenocarcinoma mucosal cancer of any size without ulcer), 2) differentiated type mucosal cancer measuring ≤3 cm with ulcer, 3) differentiated type cancer with minute submucosal invasion (invasion depth ≤500 μm) measuring ≤3 cm, or 4) undifferentiated type (poorly differentiated tubular adenocarcinoma or PCC) mucosal cancer measuring ≤2 cm without ulcer. Lymphovascular invasion and positive vertical margins are also important factors indicating the need for further surgical treatment.

Kim. J Gastric Cancer 2025;25:5-114

# Risk of LN metastasis based on 6th JGCA guideline (2021)

**Table 3** Incidence of nodal metastasis observed from the specimens of patients who underwent additional gastrectomy with lymphadenectomy after initial treatment with endoscopic resection

| Total points | Number of patients ($n=1101$) | Number of patients with lymph node metastasis ($n=94$) | Incidence of nodal metastasis (%) | (95% confidence interval) |
|---|---|---|---|---|
| 0 | 62 | 1 | 1.6 | (0.0–8.7) |
| 1 | 341 | 9 | 2.6 | (1.2–5.0) |
| 2 | 185 | 9 | 4.9 | (2.3–9.0) |
| 3 | 148 | 11 | 7.4 | (3.8–12.9) |
| 4 | 132 | 11 | 8.3 | (4.2–14.4) |
| 5 | 141 | 28 | 19.9 | (13.6–27.4) |
| 6 | 77 | 21 | 27.3 | (17.7–38.6) |
| 7 | 15 | 4 | 26.7 | (7.8–55.1) |

Total points refer to the total of following scoring scheme: one point added to each of the following findings: diameter ≥ 3 cm, positive vertical margin, venous invasion, depth ≥ SM2. Three points added to a histopathological finding of lymphatic invasion [35]

**6th JGCA guideline (2021)**

Gotoda. Evaluation of the necessity for gastrectomy with lymph node dissection for patients with submucosal invasive gastric cancer. Br J Surg 2001;88;449 **(Wrong reference)**

# Evaluation of the necessity for gastrectomy with lymph node dissection for patients with submucosal invasive gastric cancer

JGCA guideline (2021) 참고문헌 35 로 잘 못 들어간 논문

T. Gotoda, M. Sasako*, H. Ono, H. Katai*, T. Sano* and T. Shimoda†

**Table 1** Relationship between clinicopathological factors and lymph node metastasis of submucosal invasive cancer, and results of univariate analysis

| | No. of patients | Lymph node metastasis | | *P* |
|---|---|---|---|---|
| | | No | Yes | |
| Sex | | | | 0·221 |
| Male | 761 | 613 | 148 (19·4) | |
| Female | 330 | 256 | 74 (22·4) | |
| Age (years) | | | | 0·198 |
| < 59 | 484 | 377 | 107 (22·1) | |
| ⩾ 59 | 607 | 492 | 115 (18·9) | |
| Location in stomach | | | | 0·100 |
| Upper third | 159 | 136 | 23 (14·5) | |
| Middle third | 575 | 457 | 118 (20·5) | |
| Lower third | 357 | 276 | 81 (22·7) | |
| Macroscopic type | | | | 0·091 |
| Raised | 285 | 216 | 69 (24·2) | |
| Depressed | 806 | 653 | 153 (19·0) | |
| Tumour size (mm) | | | | < 0·001 |
| ⩽ 30 | 602 | 510 | 92 (15·3) | |
| > 30 | 489 | 359 | 130 (26·6) | |
| Ulcer findings | | | | 0·797 |
| No | 523 | 418 | 105 (20·1) | |
| Yes | 568 | 451 | 117 (20·6) | |
| Histological type* | | | | 0·002 |
| Differentiated | 683 | 563 | 120 (17·6) | |
| Undifferentiated | 408 | 306 | 102 (25·0) | |
| Lymphatic–vascular involvement | | | | < 0·001 |
| No | 703 | 641 | 62 (8·8) | |
| Yes | 388 | 228 | 160 (41·2) | |
| Degree of submucosal penetration | | | | < 0·001 |
| SM1 | 296 | 267 | 29 (9·8) | |
| SM2 | 795 | 602 | 193 (24·3) | |

Values in parentheses are percentages. *Differentiated type includes papillary and tubular adenocarcinoma; poorly differentiated adenocarcinoma and signet-ring cell carcinoma are classified as undifferentiated type

Gotoda. Br J Surg 2001:88:444

# Landmark study of ER for EGC

*Gut* 2001;**48**:225–229



## Endoscopic mucosal resection for treatment of early gastric cancer

H Ono, H Kondo, T Gotoda, K Shirao, H Yamaguchi, D Saito, K Hosokawa, T Shimoda, S Yoshida

**Abstract**

***Background*—In Japan, endoscopic mucosal resection (EMR) is accepted as a treatment option for cases of early gastric cancer (EGC) where the probability of lymph node metastasis is low. The results of EMR for EGC at the National Cancer Center Hospital, Tokyo, over a 11 year period are presented.**

***Methods*—EMR was applied to patients with early cancers up to 30 mm in diameter that were of a well or moderately histologically differentiated type, and were superficially elevated and/or depressed (types I, IIa, and IIc) but without ulceration or definite signs of submucosal**

all resected cases in our institution. In Japan, the five year survival rate of patients with EGC is more than 90% after gastrectomy with complete removal of primary and secondary lymph nodes.[2 3] The incidence of nodal metastasis of intramucosal and submucosal EGC has been reported as 3% and 20%, respectively,[4] and therefore major surgery may be inappropriate in many of these patients. It has been shown that lymphatic vessel invasion, histological ulceration of the tumour, and tumour diameter (>30 mm) are independent risk factors for regional lymph node metastasis, and in the absence of these risk factors the incidence of lymph node involvement in patients with intramucosal EGC is 0.36%.[5] These patients may

Ono. Gut 2001:48:225

# NCC (2004)

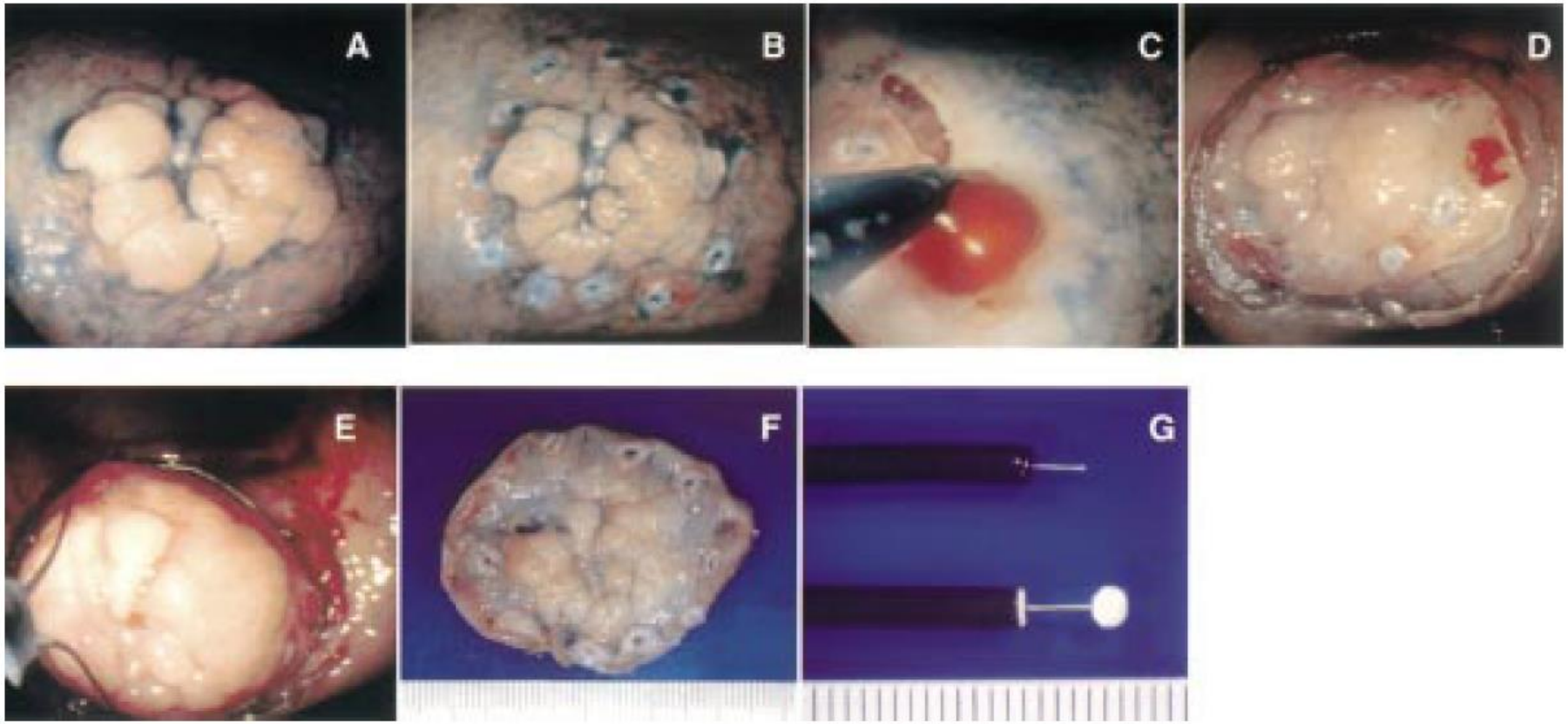


*Figure 1 Endoscopic mucosal resection procedure using an IT knife. (A) Superficial elevated (IIa type) early gastric cancer (EGC) located on the lesser curvature of the lower body after spraying with indigo carmine dye. (B) Marking dots were made using a precut knife on the circumference of the target lesion to clarify the margin. (C) After injection of saline with epinephrine (0.025 mg/ml) into the submucosal layer, an initial cut was made with a conventional needle knife outside of the dots. The IT knife was inserted into this cut and operated to cut around the lesion. (D) The tumour marked by dots was separated from the surrounding normal mucosa. (E) The tumour was removed by standard polypectomy with a combination of cutting and coagulation current in a single fragment. (F) The resected specimen showed well differentiated adenocarcinoma (20×25 mm) with a clear lateral margin. (G) The specifications of the insulation tipped diathermic knife, which was developed by Dr Hosokawa in 1994. The knife consists of a conventional diathermic needle knife (KD-1L; Olympus, Japan) with a ceramic ball at the top to minimise the risk of perforation.*

Ono. Gut 2001:48:225

*Table 1 Indication criteria for endoscopic mucosal resection*

| *Early gastric cancer meeting all of the following:* |
|---|
| (1) Well or moderately differentiated type adenocarcinoma |
| (2) Superficial, elevated, or depressed macroscopic appearance (types I, IIa, IIc) |
| (3) No ulceration |
| (4) Diameter <30 mm |
| (5) No apparent invasive findings |

*Table 2 Evaluation of resected specimens by endoscopic mucosal resection*

| *The following must be confirmed histologically for "complete resection":* |
|---|
| (1) Intramucosal cancer |
| (2) Well or moderately differentiated type adenocarcinoma |
| (3) No histological ulceration |
| (4) No lymphatic or venous invasion |
| (5) No tumour invasion to the lateral margin |

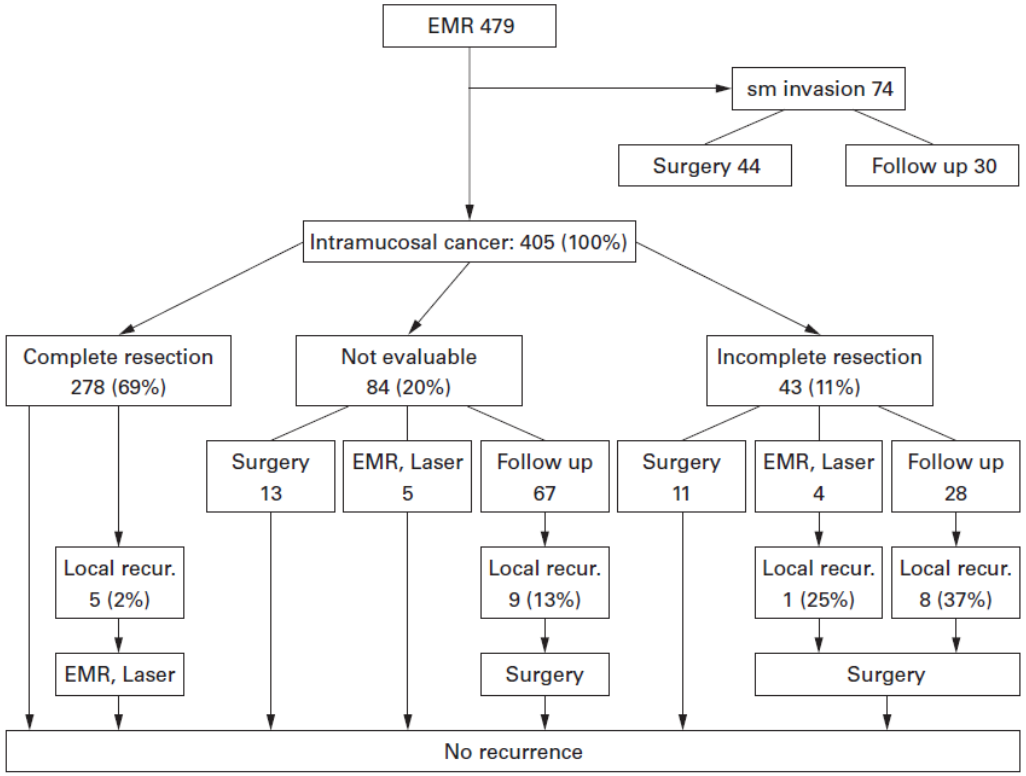


*Figure 2 Clinical courses after endoscopic mucosal resection (EMR) for early gastric cancer.*

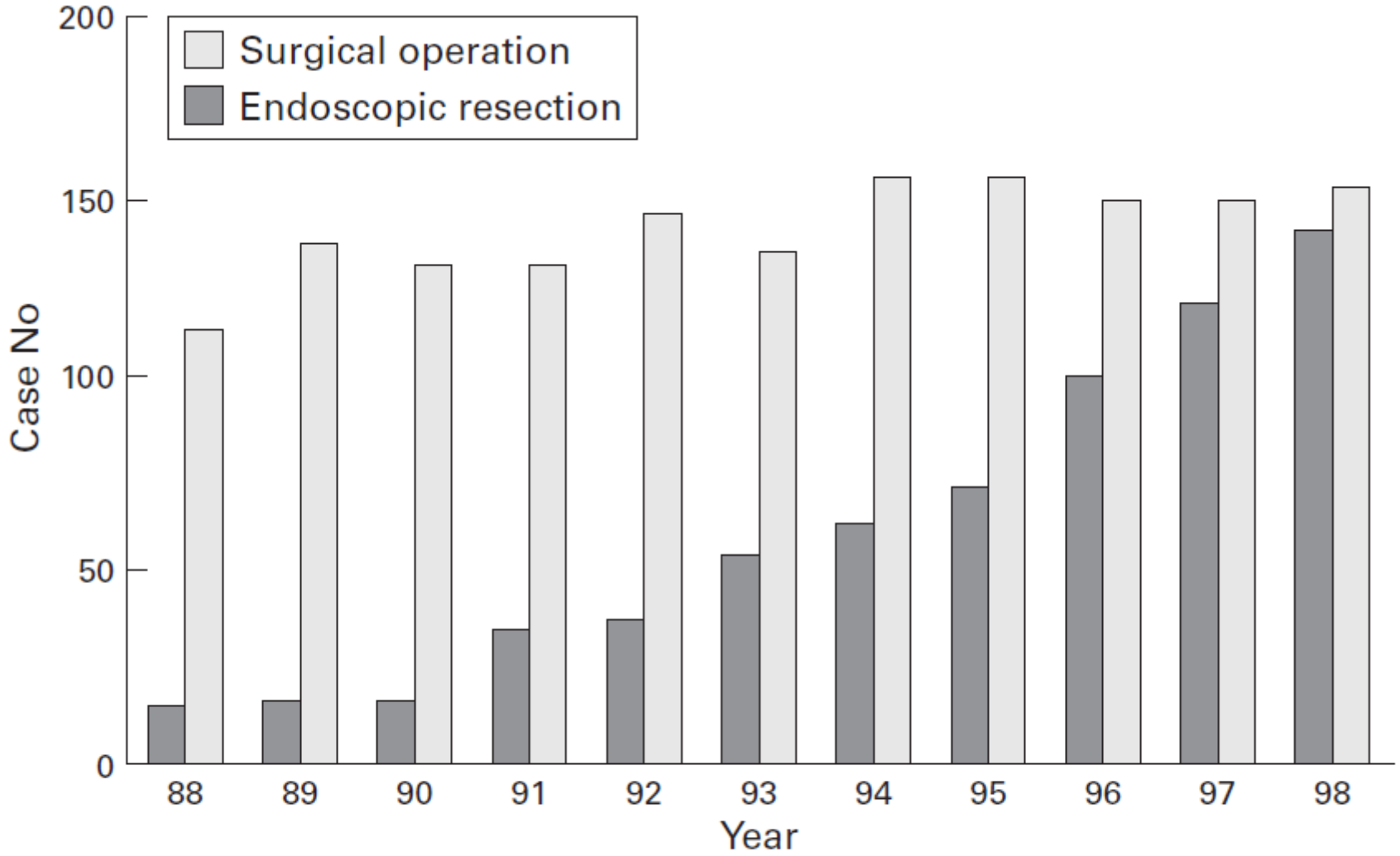


*Figure 3 Trends in treatment for early gastric cancer at the National Cancer Center Hospital.*

Ono. Gut 2001:48:225

Gastric Cancer (2000) 3:219–225

*Original article*



Gotoda 선생께서
처음 유명해진 논문

# Incidence of lymph node metastasis from early gastric cancer: estimation with a large number of cases at two large centers

Takuji Gotoda[1], Akio Yanagisawa[2], Mitsuru Sasako[3], Hiroyuki Ono[1], Yukihiro Nakanishi[4], Tadakazu Shimoda[5], and Yo Kato[2]

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

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

# The first report on EMR for EGC in Korea

大韓消化器內視鏡學會誌 : 第 16 卷 第 6 號

## 조기위암의 근치적 치료로서의 내시경적 점막절제술

서울대학교 의과대학 내과학교실, 간연구소 및 병리학교실*, 보라매병원 내과**

이준행 · 윤정환 · 김병관 · 황진혁 · 정준오
임영석 · 이대희 · 정운태 · 이국래** · 이동호**
정현채 · 김 우 호* · 송인성 · 최규완 · 김정룡

=Abstract=

**Endoscopic Mucosal Resection(EMR) as a Curative Treatment of Early Gastric Cancer**

**Jun Haeng Lee**, M.D., **Jung-Hwan Yoon**, M.D., **Byeong Gwan Kim**, M.D.
**Jin Hyok Hwang**, M.D., **Jun Oh Jeong**, M.D., **Young Seok Lim**, M.D.
**Dae Hee Lee**, M.D., **Woon Tae Jeong**, M.D., **Kook Lae Lee**, M.D.**
**Dong Ho Lee**, M.D.**, **Hyun Chae Jung**, M.D., **Woo Ho Kim**, M.D.*
**In Sung Song**, M.D., **Kyoo Wan Choi**, M.D. and **Chung Yong Kim**, M.D.

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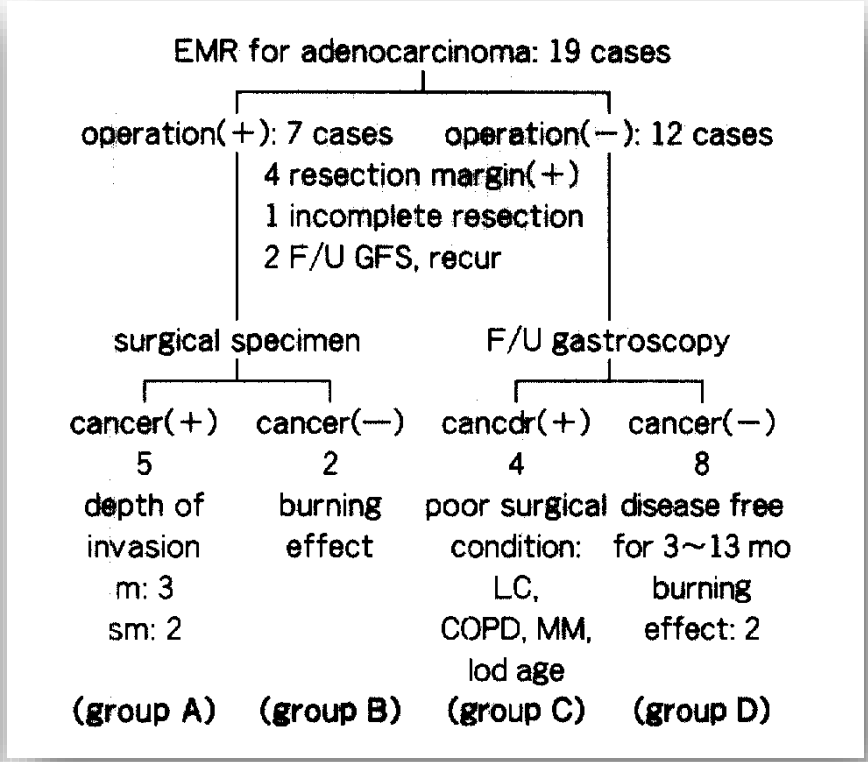
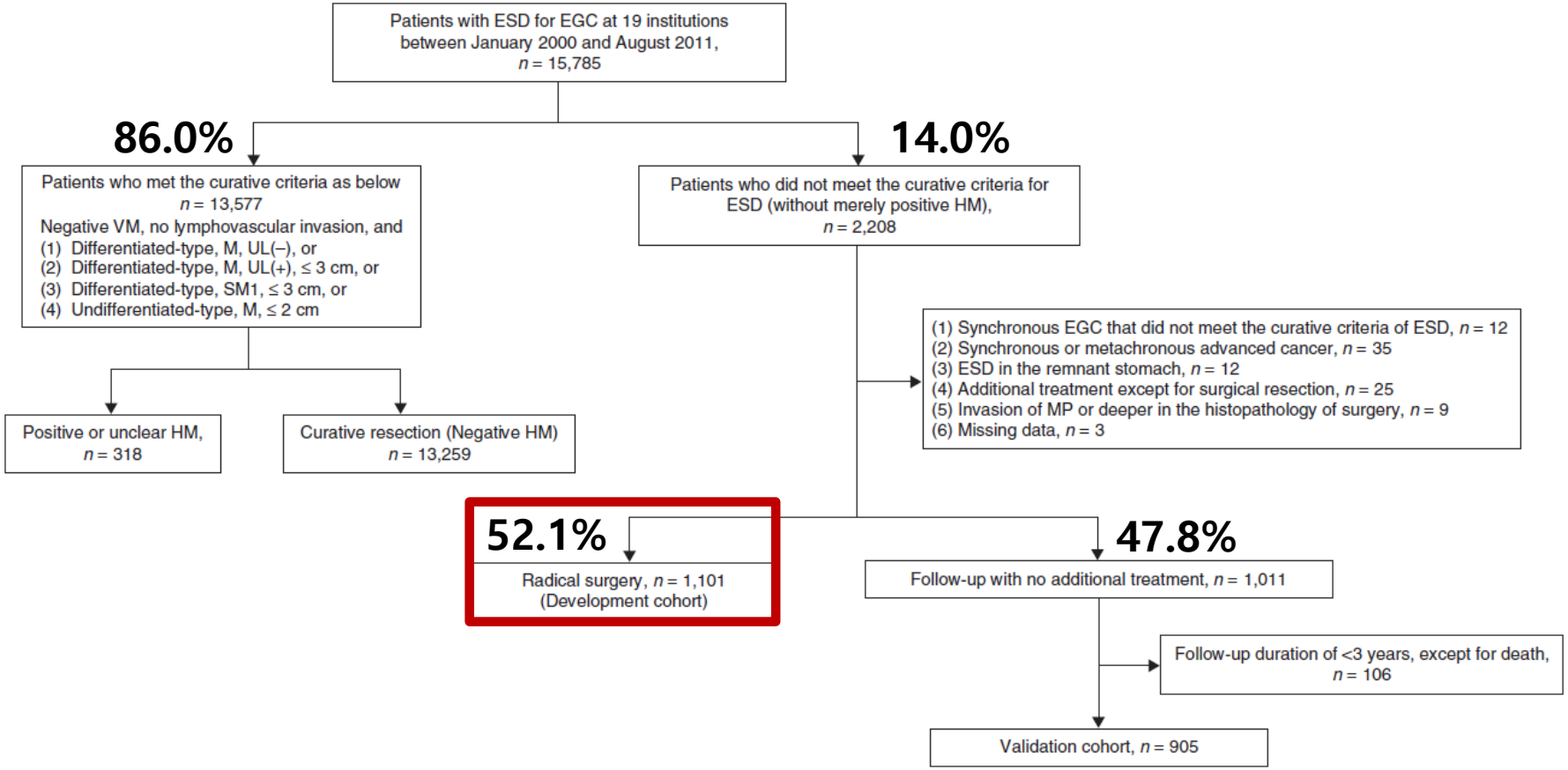



Lee JH. Korean J Gastrointest Endosc **1996**;16:928-934

# A Scoring System to Stratify Curability after Endoscopic Submucosal Dissection for Early Gastric Cancer: "eCura system"

JGCA guideline (2021) 참고문헌 35로 들어갔어야 하는 논문

Waku Hatta, MD, PhD[1], Takuji Gotoda, MD, PhD, FACG[2], Tsuneo Oyama, MD, PhD[3], Noboru Kawata, MD[4], Akiko Takahashi, MD[3], Yoshikazu Yoshifuku, MD[5], Shu Hoteya, MD, PhD[6], Masahiro Nakagawa, MD, PhD[7], Masaaki Hirano, MD, PhD[8], Mitsuru Esaki, MD[9], Mitsuru Matsuda, MD, PhD[10], Ken Ohnita, MD, PhD[11], Kohei Yamanouchi, MD, PhD[12], Motoyuki Yoshida, MD[13], Osamu Dohi, MD, PhD[14], Jun Takada, MD, PhD[15], Keiko Tanaka, MD[16], Shinya Yamada, MD, PhD[17], Tsuyotoshi Tsuji, MD, PhD[18], Hirotaka Ito, MD, PhD[19], Yoshiaki Hayashi, MD, PhD[20], Naoki Nakaya, PhD[21], Tomohiro Nakamura, PhD[21] and Tooru Shimosegawa, MD, PhD[1]




Hatta. Am J Gastroenterol 2017;112:874

**Table 2.** Multivariate logistic regression analysis[a] of risk factors for LNM in the development cohort and scoring system

| | No. of patients | No. of LNMs | OR | 95% CI | *P* value | β regression coefficient | Points[b] |
|---|---|---|---|---|---|---|---|
| *Tumor size* | | | | | | | |
| >30 mm | 479 | 53 | 2.03 | 1.28–3.14 | 0.003 | 0.70 | 1 |
| ≤30 mm | 622 | 41 | 1 | Reference | | | |
| *Tumor depth* | | | | | | | |
| SM2 | 197 | 30 | 1.68 | 0.97–2.92 | 0.065 | 0.52 | 1 |
| M/SM1 | 904 | 64 | 1 | Reference | | | |
| *Histopathological type* | | | | | | | |
| Undifferentiated | 701 | 73 | 1.22 | 0.62–2.41 | 0.56 | 0.20 | — |
| Differentiated | 400 | 21 | 1 | Reference | | | |
| *Lymphatic invasion* | | | | | | | |
| Positive | 443 | 69 | 3.99 | 2.43–6.55 | <0.001 | 1.38 | 3 |
| Negative | 658 | 25 | 1 | Reference | | | |
| *Venous invasion* | | | | | | | |
| Positive | 249 | 35 | 1.65 | 1.01–2.70 | 0.046 | 0.50 | 1 |
| Negative | 852 | 59 | 1 | Reference | | | |
| *Ulceration (scar)* | | | | | | | |
| Presence | 285 | 21 | 0.98 | 0.57–1.69 | 0.95 | –0.016 | — |
| Absence | 816 | 73 | 1 | Reference | | | |
| *Vertical margin* | | | | | | | |
| Positive | 198 | 30 | 1.81 | 1.10–3.00 | 0.020 | 0.60 | 1 |
| Otherwise | 903 | 64 | 1 | Reference | | | |

94/1101=8.5%

Hatta. Am J Gastroenterol 2017;112:874

**Table 3. Distribution of risk scores and risk classification for LNM in the development cohort**

**(A)**

| Total points | Patients (*n*=1,101) | LNM (*n*=94) | Rate of LNM (%) |
|---|---|---|---|
| 0 | 62 | 1 | 1.6 |
| 1 | 341 | 9 | 2.6 |
| 2 | 185 | 9 | 4.9 |
| 3 | 148 | 11 | 7.4 |
| 4 | 132 | 11 | 8.3 |
| 5 | 141 | 28 | 19.9 |
| 6 | 77 | 21 | 27.3 |
| 7 | 15 | 4 | 26.7 |

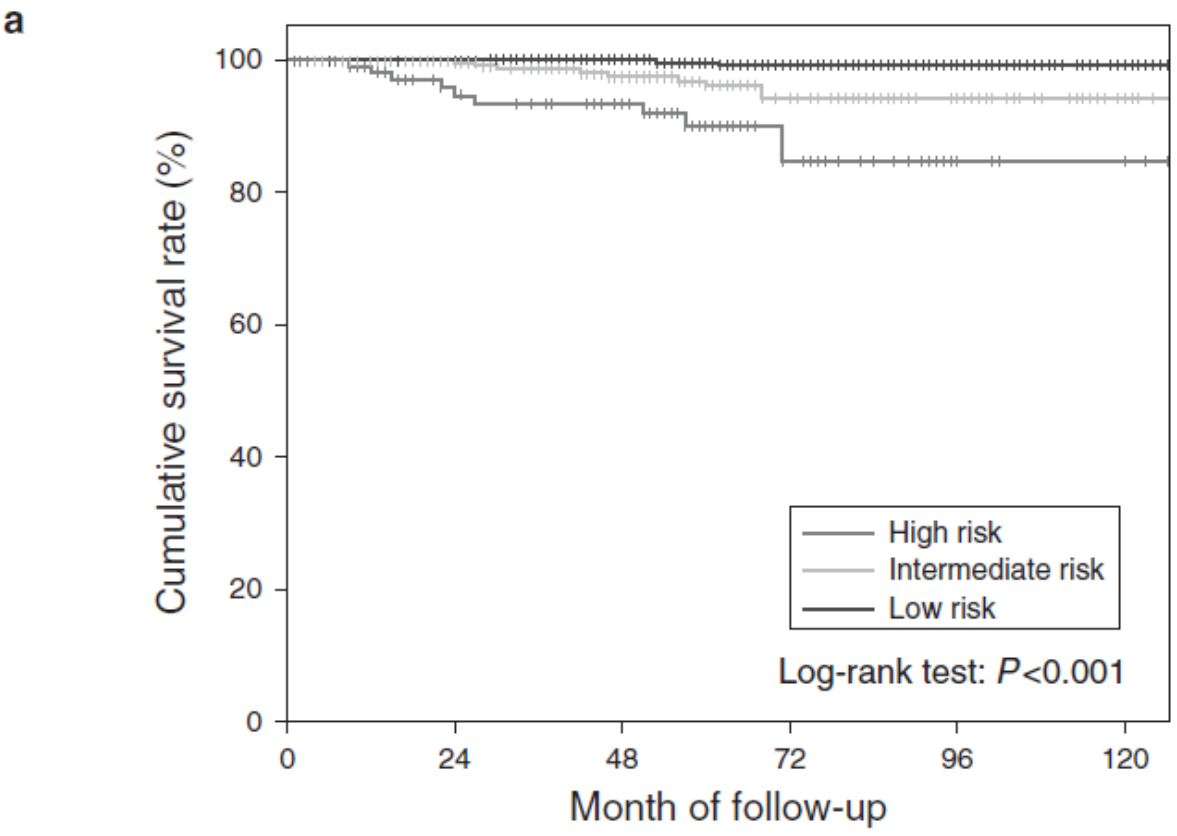
**(B)**

| Risk category | Total points | Patients (*n*=1,101) | LNM (*n*=94) | Rate of LNM (%) |
|---|---|---|---|---|
| Low | 0–1 | 403 | 10 | 2.5 |
| Intermediate | 2–4 | 465 | 31 | 6.7 |
| High | 5–7 | 233 | 53 | 22.7 |

LNM, lymph node metastasis.

Hatta. Am J Gastroenterol 2017;112:874

# Cancer-specific survival (no surgery)

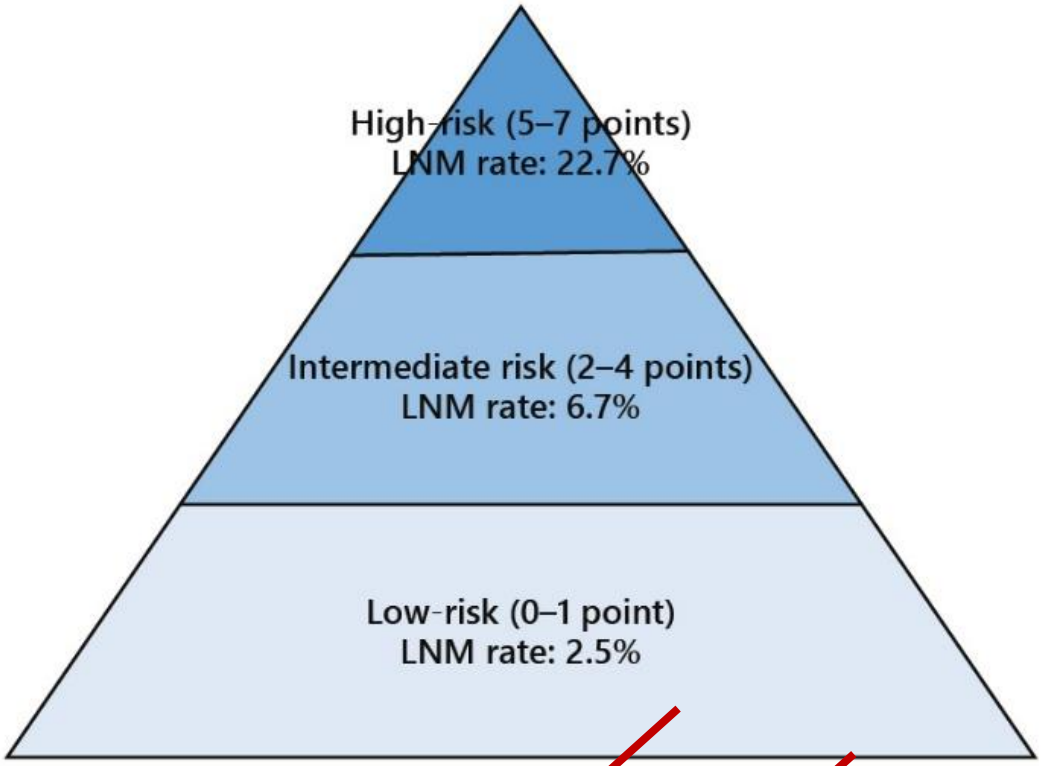



Number at risk

| | | | | | | |
|---|---|---|---|---|---|---|
| Low risk | 547 | 512 | 443 | 251 | 137 | 46 |
| Intermediate risk | 250 | 218 | 166 | 91 | 48 | 25 |
| High risk | 108 | 81 | 67 | 31 | 13 | 9 |

Hatta. Am J Gastroenterol 2017;112:874

# Risk factors of lymph node metastasis




3 points: Lymphatic invasion
1 point: Tumor size >30 mm
Positive vertical margin pT1b-SM2
Vascular invasion
0 point: Undifferentiated-type
Ulceration (scar)

Hatta, Digestion 2022;103:83

# JGCA guideline (2021) table 3의 올바른 참고문헌은 AJG 2017

**Table 3** Incidence of nodal metastasis observed from the specimens of patients who underwent additional gastrectomy with lymphadenectomy after initial treatment with endoscopic resection

| Total points | Number of patients ($n=1101$) | Number of patients with lymph node metastasis ($n=94$) | Incidence of nodal metastasis (%) | (95% confidence interval) |
|---|---|---|---|---|
| 0 | 62 | 1 | 1.6 | (0.0–8.7) |
| 1 | 341 | 9 | 2.6 | (1.2–5.0) |
| 2 | 185 | 9 | 4.9 | (2.3–9.0) |
| 3 | 148 | 11 | 7.4 | (3.8–12.9) |
| 4 | 132 | 11 | 8.3 | (4.2–14.4) |
| 5 | 141 | 28 | 19.9 | (13.6–27.4) |
| 6 | 77 | 21 | 27.3 | (17.7–38.6) |
| 7 | 15 | 4 | 26.7 | (7.8–55.1) |

Total points refer to the total of following scoring scheme: one point added to each of the following findings: diameter ≥ 3 cm, positive vertical marg[illegible]nous invasion, depth ≥ SM2. Three points added to a histopathological finding of lymphatic invasio[illegible]

6th JGCA guideline (2021)

Hatta. Am J Gastroenterol 2017;112:874

3cm 초과인데 JGCA guideline 2021에서는 3cm 이상으로 잘 못 인용됨

# 일본 자료에 근거한 risk of lymph node metastasis

- Lymphatic invasion: 3 (present)
- **Size: 0 or 1 (30mm)**
- Vertical margin: 1 (involved)
- Vascular invasion: 0 (absent)
- Undeferentiated type: 0 (2-3% present)
- Ulceration (scar): 0 (absent)
- Total score: 4 or 5
- **4, 8.3%, 5, 19.9%, intermediate risk, 6.7%, High risk 22.7%**

# Predictors of LN metastasis (5.7%)

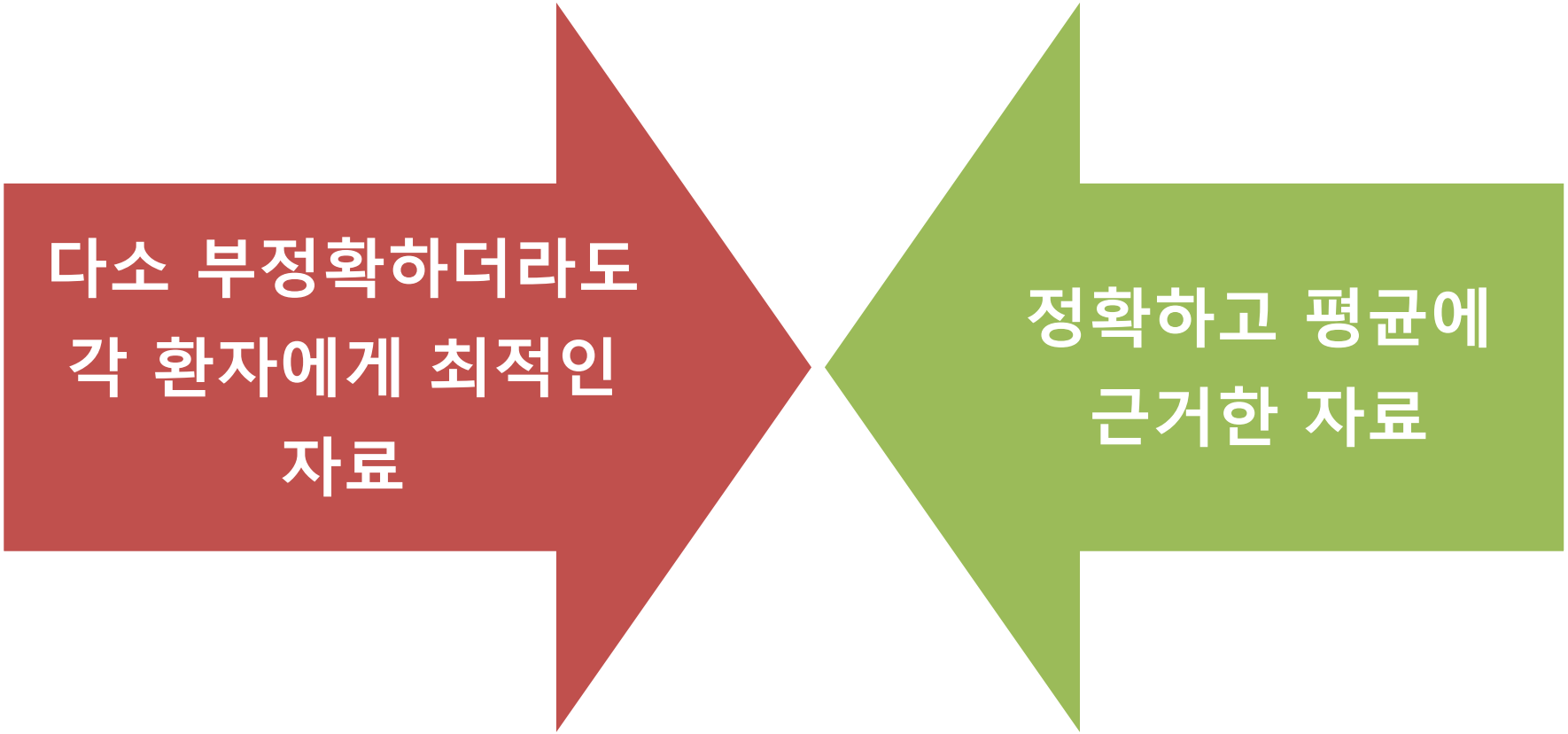
**Table 2** Comparison of clinicopathological characteristics according to the presence of lymph node metastasis among patients undergoing rescue surgery

| | No LN metastasis ($n = 183$) | LN metastasis ($n = 11$) | $P^*$ |
|---|---|---|---|
| Age (years) | | | 0·019† |
| Mean(s.d.) | 62·4(8·4) | 68·6(8·7) | |
| Median (range) | 63·0 (44–84) | 68·1 (57–80) | |
| Sex ratio (M : F) | 142 : 41 | 8 : 3 | 0·715 |
| Tumour site | | | 0·338 |
| Antrum, angle | 119 (65·0) | 9 (82) | |
| Body, fundus, cardia | 64 (35·0) | 2 (18) | |
| Mean(s.d.) tumour size (cm) | 2·1(1·1) | 2·6(1·2) | 0·113† |
| Tumour depth | | | 0·295‡ |
| Mucosa | 19 (10·4) | 0 (0) | |
| SM1 | 30 (16·4) | 1 (9) | |
| SM invasion depth ≥ 500 μm | 134 (73·2) | 10 (91) | |
| Differentiation | | | 0·128 |
| Well differentiated | 37 (20·2) | 0 (0) | |
| Moderately differentiated | 146 (79·8) | 11 (100) | |
| Lymphovascular invasion | | | 1·000 |
| No | 76 (41·5) | 5 (45) | |
| Yes | 107 (58·5) | 6 (55) | |

Values in parentheses are percentages unless indicated otherwise. LN, lymph node; SM1, submucosal invasion depth less than 500 μm from muscularis mucosa layer; SM, submucosal. *$\chi^2$ test, except †Student's *t* test. ‡Mucosa or SM1 *versus* SM invasion depth of 500 μm or more.

Kim ER. Br J Surg 2015

# 어떠한 자료를 제시하며 설명하시겠습니까?



# EndoTODAY ESD 환자 설명서 (2025)

- … 아쉽게도 그 85%에 들지 못하고 수술이 필요한 15%에 해당하는 결과가 나왔습니다.
- 병리결과에 문제가 없을 때 재발률이 5% 정도인데 반하여, 현재의 재발 위험은 10-20% 이상입니다. 만약 재발하면 절반 이상은 완치의 기회가 없습니다. 따라서 수술이 경과관찰보다 유리한 상황입니다… 현재 암이 남아있다는 증거가 있어 수술을 권하는 것은 아닙니다. 단지 재발위험이 높기 때문입니다. 수술을 해보면 눈에 보일 정도의 **암이 남아있는 경우는 10-20% 정도**입니다. 이러한 내용을 모두 종합하여 판단할 때 수술을 권하고 싶습니다.

Stomach, subtotal gastrectomy:

. Status post endoscopic submucosal dissection [redacted]
. No residual tumor
 1) Location: cannot be determined (no residual tumor)
 2) Gross type: cannot be determined (no residual tumor)
 3) Histologic type: cannot be determined (no residual tumor)
 4) Histologic type by Lauren: cannot be determined (no residual tumor)
 5) Size: cannot be determined (no residual tumor)
 6) Depth of invasion: cannot be determined (no residual tumor)
 7) Resection margin: free from carcinoma
 8) Lymph node metastasis : no metastasis in 44 regional lymph nodes (pN0)
    (0/44: "1", 0/0; "3", 0/11; "4", 0/7; "4sb", 0/1; "5", 0/2;
           "6", 0/1; "7", 0/2; "8a", 0/2; "9", 0/5; "11p", 0/0; "12a", 0/4;
           "H1", 0/1; "H2", 0/2; "H3", 0/1; "H4", 0/0; "H5", 0/2; "H6", 0/1;
           "N1", 0/0; "basin", 0/2)
 9) Lymphatic invasion: not identified
10) Venous invasion: not identified
11) Perineural invasion: not identified
12) Peritoneal cytology: negative

# 수술 5년 후