염증성 장질환에서 내시경의 역할

Sung Noh Hong, M.D., Ph.D.

Department of Medicine, Samsung Medical Center,
Sungkyunkwan University School of Medicine

SAMSUNG 삼성서울병원

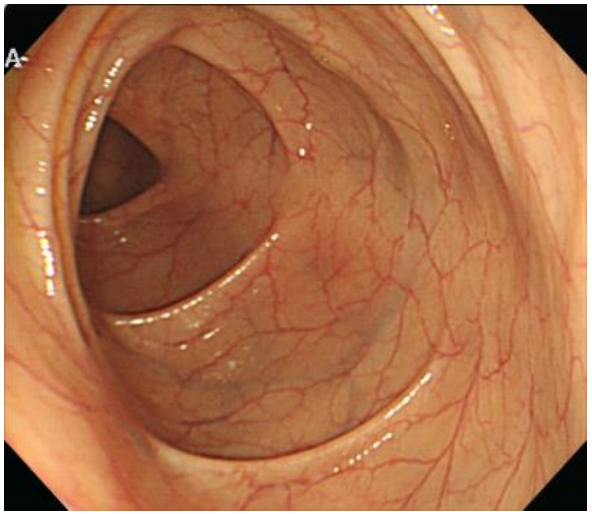
Endoscopy in patients with Inflammatory Bowel Diseases

1. Initial diagnosis of IBD
2. Differential diagnosis of IBD
3. Assess the disease extent & activity
4. Monitor response to therapy
5. Surveillance of dysplasia or neoplasia
6. Endoscopic treatment

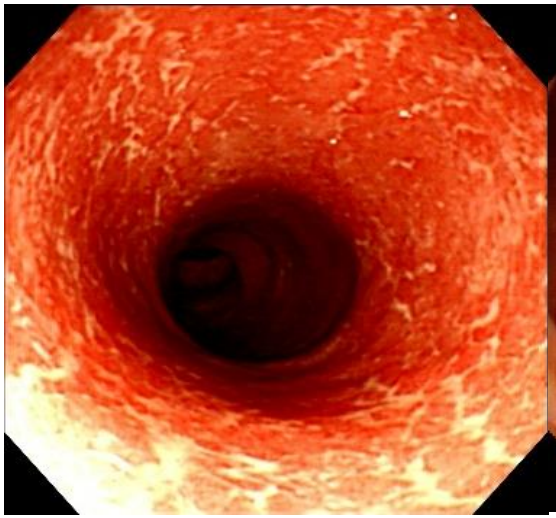
염증성 장질환이란?

Definition of inflammatory bowel disease (IBD)

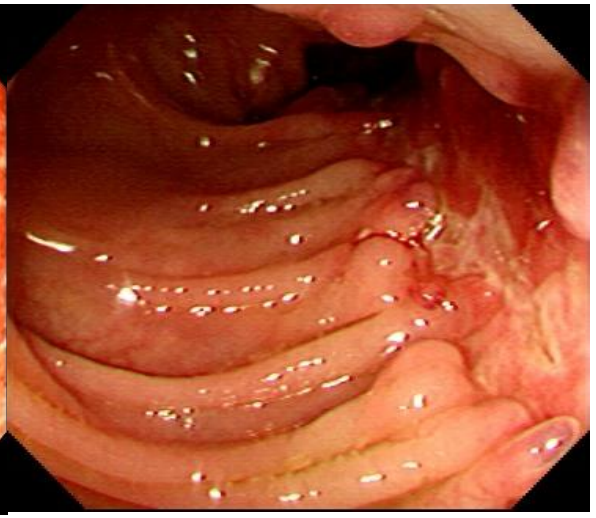
- Chronic idiopathic inflammatory diseases of the gastrointestinal tract
  - Diagnosed by a set of clinical, **endoscopic**, radiologic and histologic characteristics



Normal colon



Ulcerative colitis



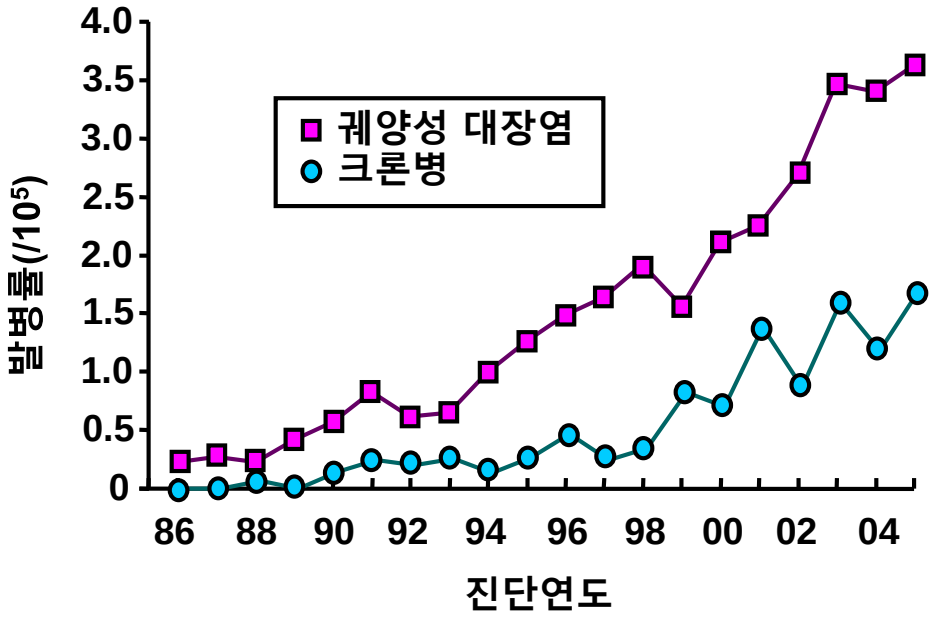
Crohn's disease

Epidemiology

	Ulcerative colitis	Crohn's Disease
Incidence (US)	11/100,000	7/100,000
Age of onset	15-30 & 60–80	15-30 & 60–80
Ethnicity	Jewish > Non-Jewish Caucasian > African American > Hispanic > Asian	
Male:female ratio	1:1	1.1-1.8:1
Smoking	May prevent disease	May cause disease
Oral contraceptives	No increased risk	Relative risk 1.9
Appendectomy	Protective	Not protective
Monozygotic twins	10% concordance	40-50% concordance
Dizygotic twins	0% concordance	20% concordance

Incidence and prevalence of IBD in Korea

- 송파-강동구 인구기반 역학연구 (1986-2005)



1986~1990: 0.34/10^5

2001~2005: 3.08/10^5

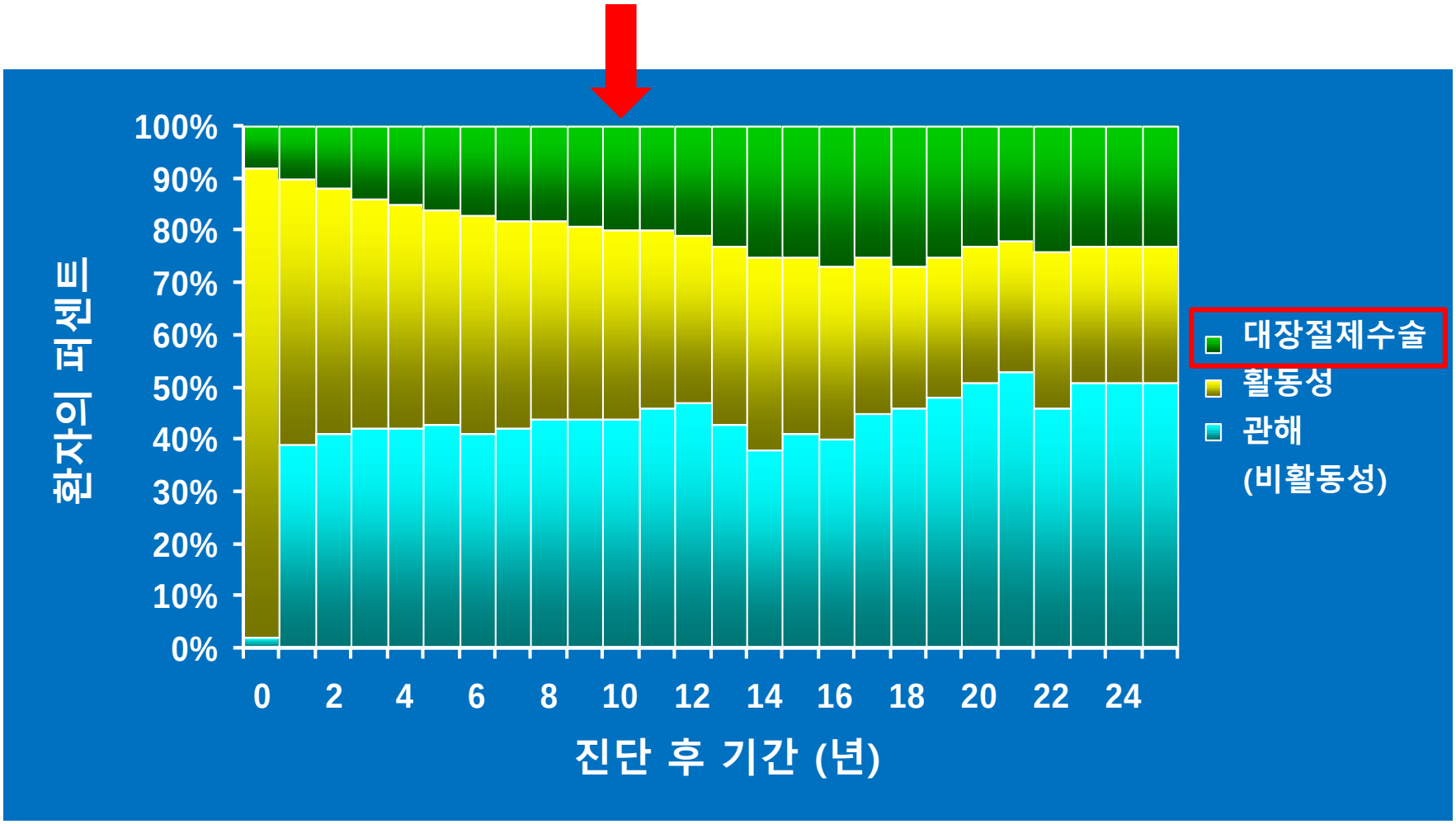
1986~1990: 0.05/10^5

2001~2005: 1.34/10^5

- 국민건강보험공단 자료 (2015)

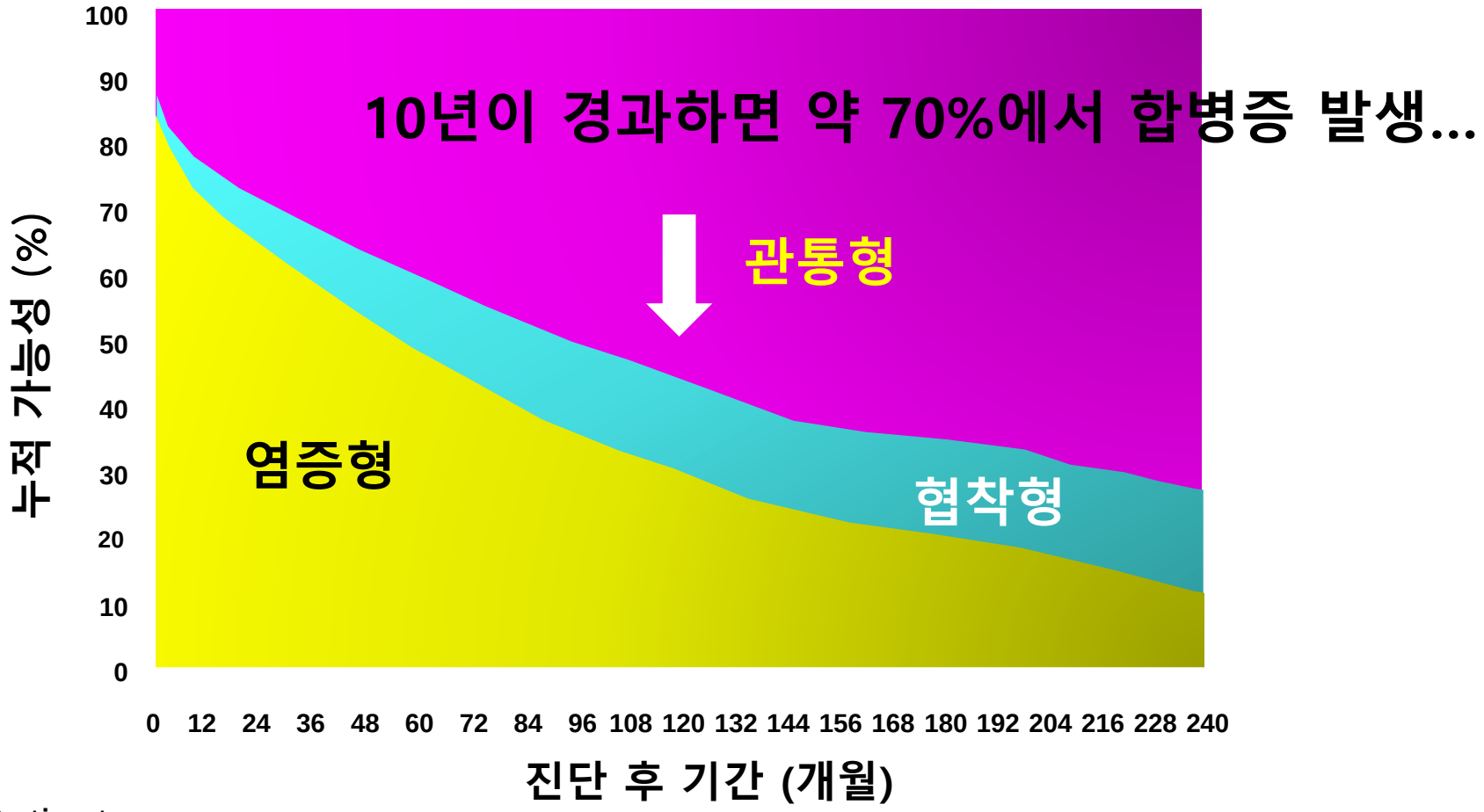
  : 궤양성 대장염: 35,623명, 크론병: 17,651명

궤양성 대장염의 자연경과



10년이 경과하면 약 20%의 환자에서 수술(대장절제술)이 필요함...

크론병의 자연경과



Patients:

N = 2002 552 229 95 37

염증성 장질환이 삶의 질에 미치는 영향

Table 2. Overall Impact of IBD on Daily Life

	CD (n=387)	UC (n=212)	*P*-value
Felt tired, weak, and worn out in daily life during flare-ups	311 (80)	174 (81)	0.664
Felt tired, weak, and worn out in daily life during remission	238 (61)	127 (60)	0.727
Felt stressed and psychologically affected during remission	270 (69)	137 (64)	0.201
Having felt like committing suicide	158 (41)	64 (30)	0.010
Having felt anxiety about the future	302 (78)	141 (67)	0.003

Values are presented as number (%).

Table 3. Overall Impact of IBD on Work

	CD (n=387)	UC (n=212)	*P*-value
Cancelled or rescheduled an appointment	238 (62)	121 (57)	0.297
Left office or school early	220 (57)	80 (38)	<0.001
Absence from work or school	228 (59)	83 (39)	<0.001
Felt stress about taking time off work or school	271 (70)	112 (53)	<0.001
Received unfair comments at work or school	155 (40)	52 (25)	<0.001
Suffered discrimination or were ostracized	52 (14)	14 (7)	0.010
Decline in income or academic ability	200 (52)	80 (38)	0.010
Unable to perform to their full potential	252 (66)	119 (56)	0.035

Values are presented as number (%).

Endoscopy in patients with Inflammatory Bowel Diseases

1. Initial diagnosis of IBD
2. Differential diagnosis of IBD
3. Assess the disease extent & activity
4. Monitor response to therapy
5. Surveillance of dysplasia or neoplasia
6. Endoscopic treatment

대장내시경에서 염증으로 인해 보일 수 있는 소견

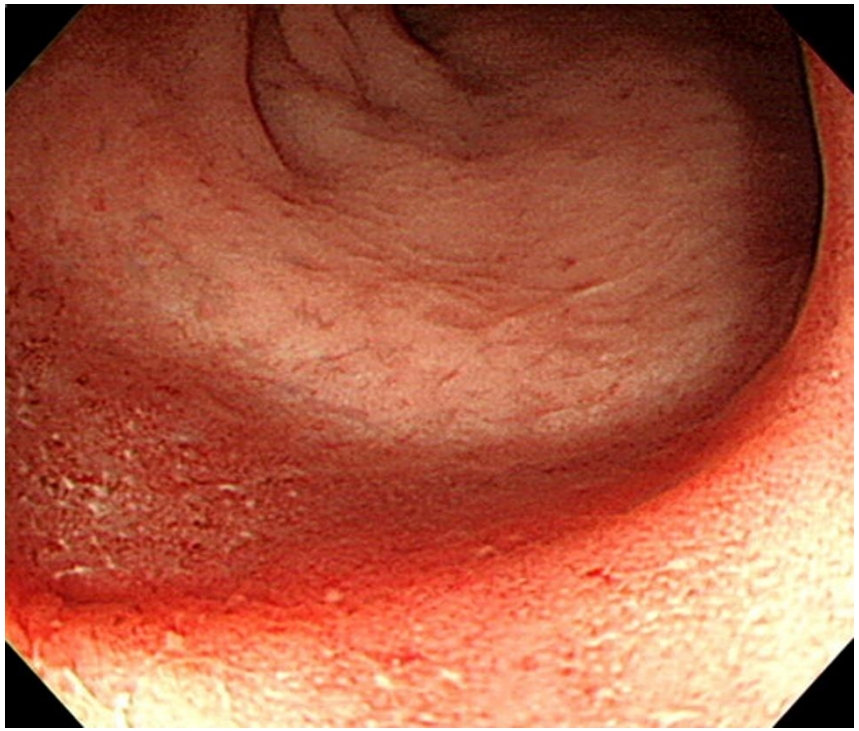
- Hyperemia
- Edema
- Granularity
- Mucosal friability
- Erosion
- Ulcer
- Inflammatory polyp and Cicatricial change

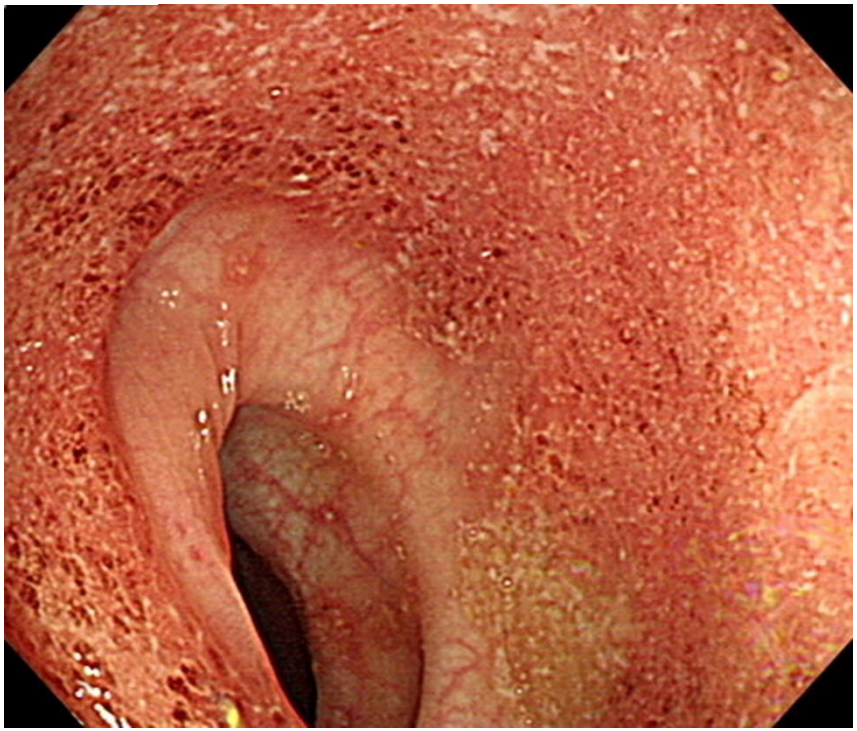
Endoscopic Diagnosis of Ulcerative Colitis

(2) 내시경검사 소견

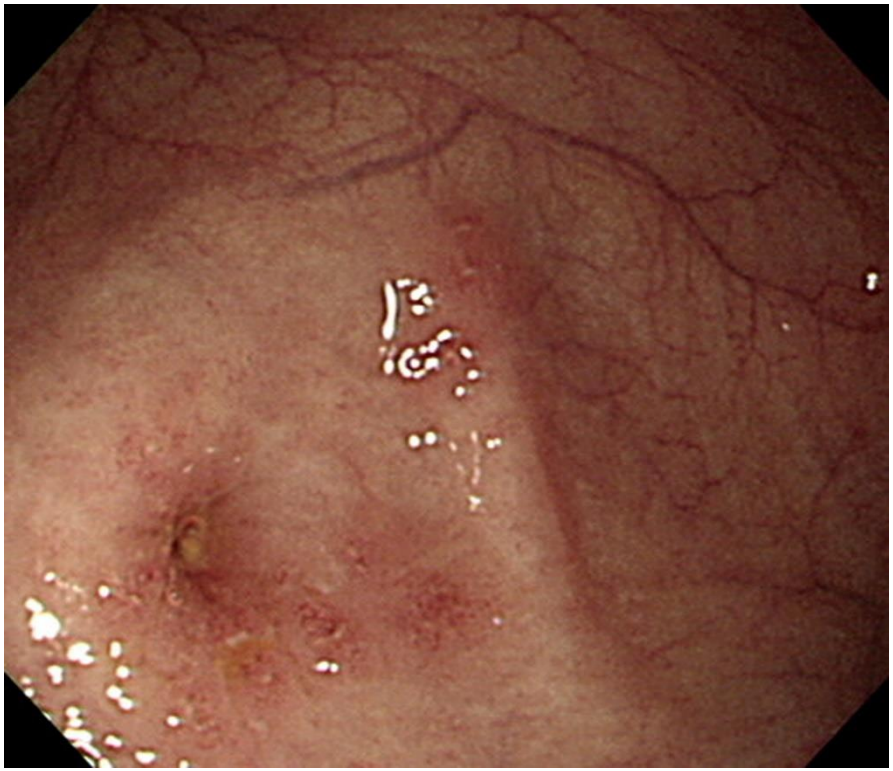
궤양성 대장염에 특이적인 내시경검사 소견은 없다. 가장 유용한 내시경검사 소견은 정상 부위와 경계를 명확하게 구분할 수 있는 연속적이고 대칭적인 염증 병변과 직장 침범이다[EL 2b, RG B].

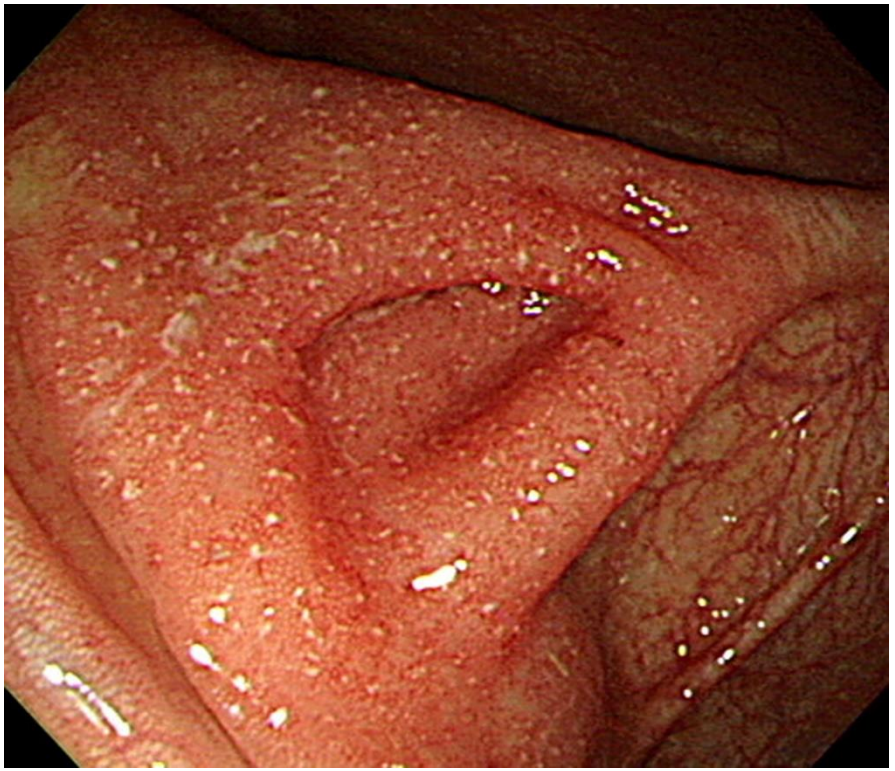
궤양성대장염 진단 가이드라인
대한소화기학회지 2009





Appendiceal orifice inflammation (AOI), Peri-appendiceal red patch (PARP)





Endoscopic Diagnosis of Crohn's disease

(1) 대장내시경

대장내시경은 크론병 진단에 일차적으로 추천되는 검사로, 말단회장부를 포함한 전체 대장을 관찰하고, 이상 병변에 대한 생검을 시행한다. 크론병에 특징적인 대장내시경 소견은 종주 궤양(longitudinal ulcer), 조약돌 점막 모양(cobblestone mucosal appearance) 또는 종주로 배열된 아프타 궤양(aphthous ulcer)이 비연속적으로 나타나는 것이다 [EL5, RG D].

크론병 진단 가이드라인, 대한소화기학회지 2009

- **종주 궤양 (longitudinal ulcer)**

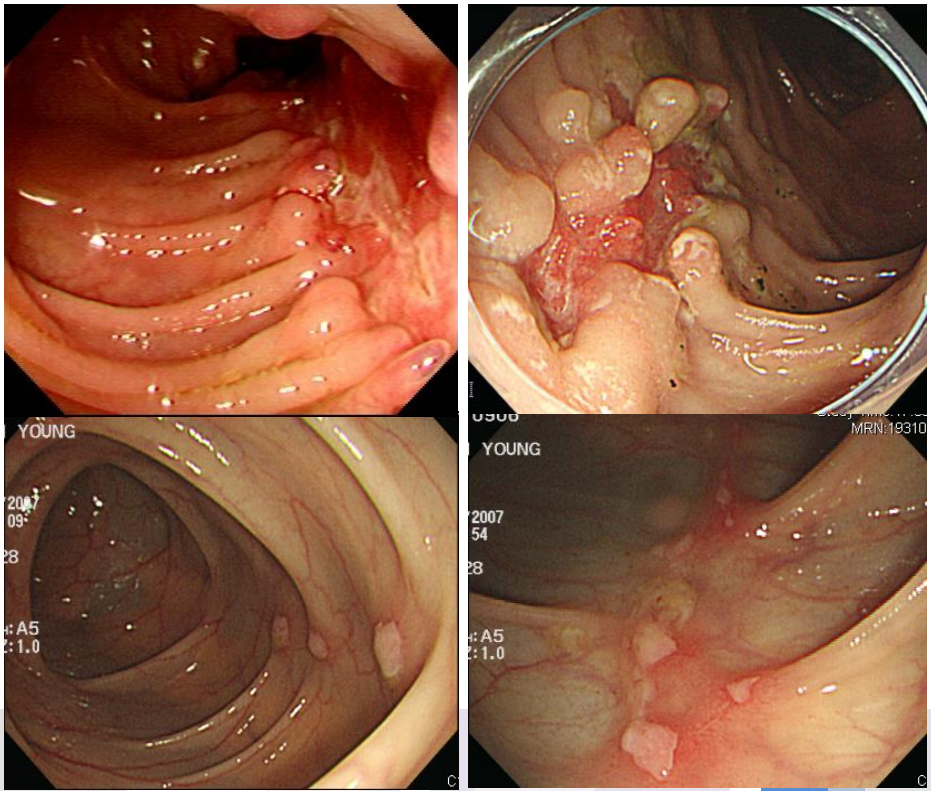
: 경계는 뚜렷 / 궤양의 주변 점막은 비교적 정상 소견

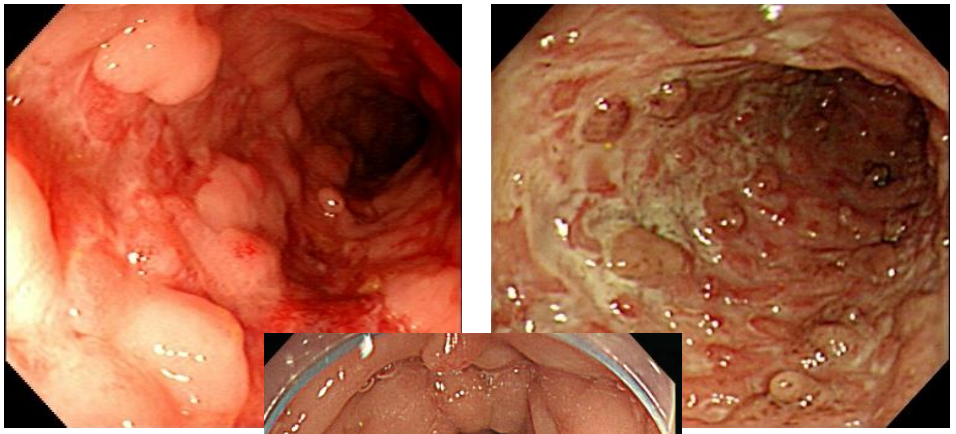
- **조약돌 점막 모양 (cobblestone appearance)**

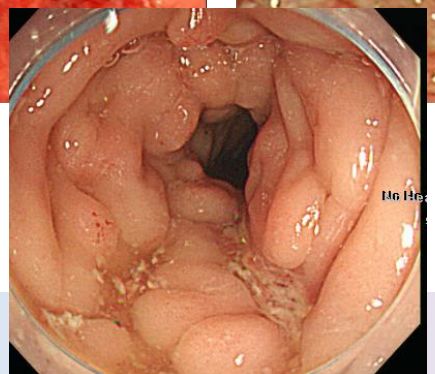
: 크론병 궤양들이 연결되면, 심한 궤양들 사이 사이에 남은 점막들이 과형성 및 부종 변화로 인해 돌출되어 보임

- **아프타 궤양 (aphthous ulcer)**

: 5 mm 이하 편평하거나 약간 함몰된 표재 궤양
바닥 - 회백색 또는 황색 삼출물
경계 - 융기되어 있지 않으며 발적을 보임







Endoscopy in patients with Inflammatory Bowel Diseases

1. Initial diagnosis of IBD
2. Differential diagnosis of IBD
3. Assess the disease extent & activity
4. Monitor response to therapy
5. Surveillance of dysplasia or neoplasia
6. Endoscopic treatment

Endoscopic Diagnosis of Intestinal Tb

3) 대장내시경검사 소견

다른 질환, 특히 크론병과의 감별을 위해 대장내시경은 필수적이고 가장 중요한 검사법이다. 장결핵은 회맹부, 상행 결장에서 호발한다. 장결핵에 특징적인 대장내시경 소견 4가지는 4분절 이하의 침범, 횡행 궤양, 가성용종 및 궤양 반흔, 열려있는 회맹판 등이다. 장결핵과 크론병의 특징적인 내시경 소견을 취합하여 분석할 경우, 대장내시경을 통한 감별 진단율은 약 90% 정도로 매우 높다.

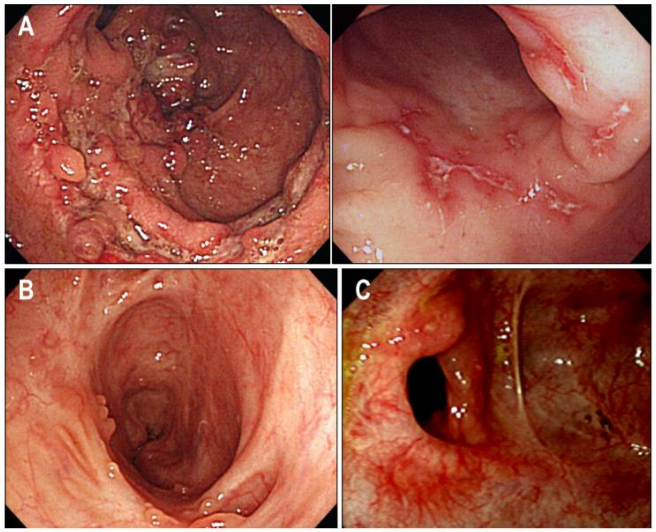


Table 1. Diagnosis of Intestinal Tuberculosis

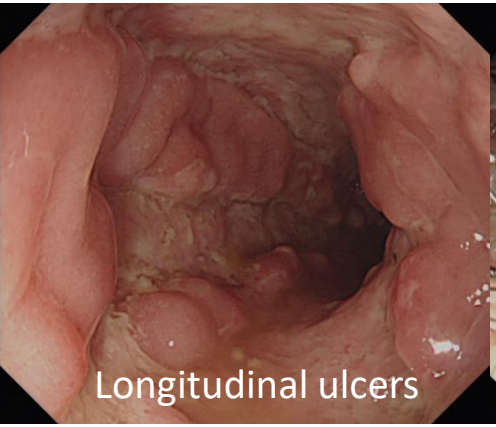
Definite diagnosis (one of three)
Caseating granuloma on mucosal biopsy
Tissue acid-fast bacilli staining
Tissue culture positive for *M. tuberculosis*
Probable diagnosis
Clinical & endoscopic improvement after empiric anti-TB treatment with following findings
Previous TB history, TB patient contact history
Characteristic colonoscopic findings
Suspected TB histology
Tissue TB PCR positive
Abnormal chest X-ray (active or inactive TB)
Abdominal imaging with features of TB
Positive tuberculin skin test or interferon-γ assay

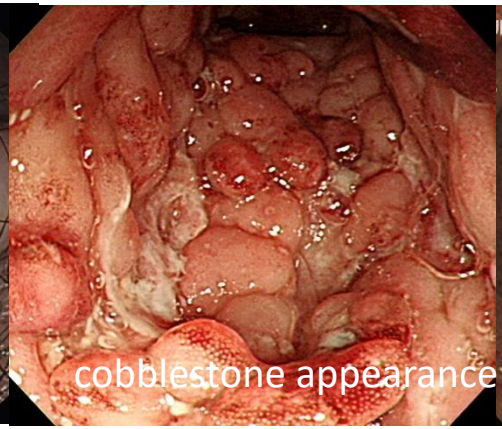
TB, tuberculosis; PCR, polymerase chain reaction.

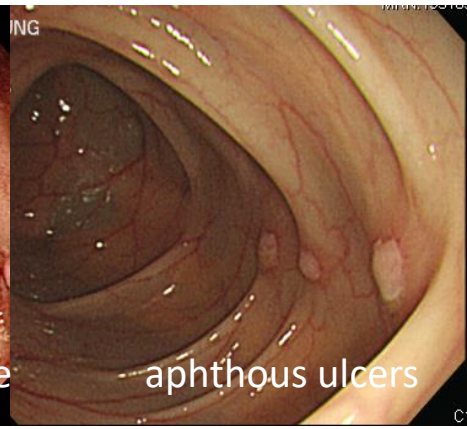
장결핵염 진단 가이드라인, 대한소화기학회지 2009

Crohn’s disease vs. Tuberculosis

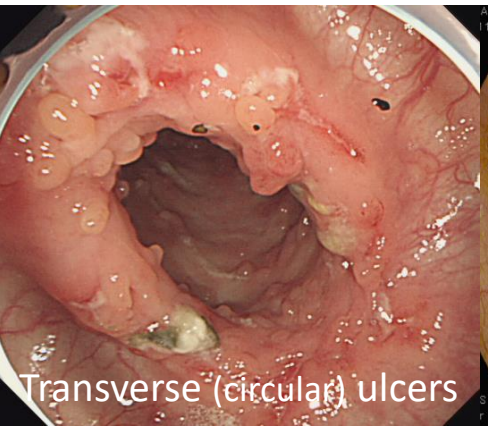
- **Crohn’s disease**

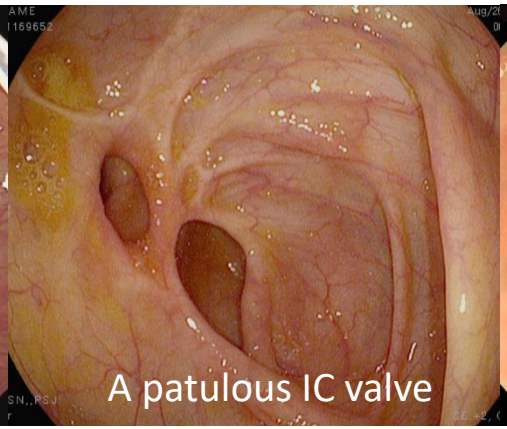


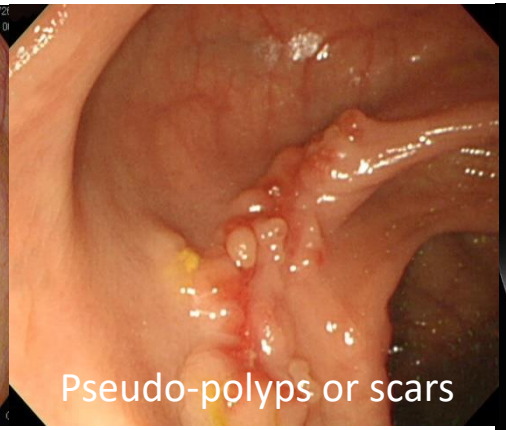


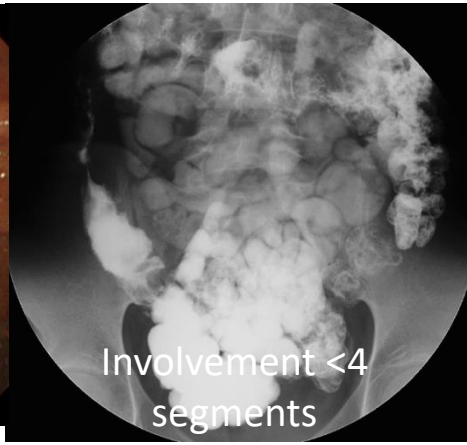


- **Intestinal tuberculosis**









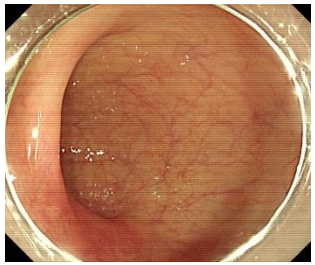
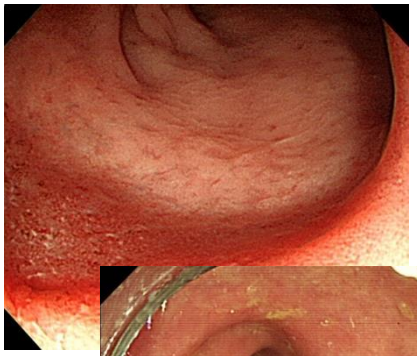
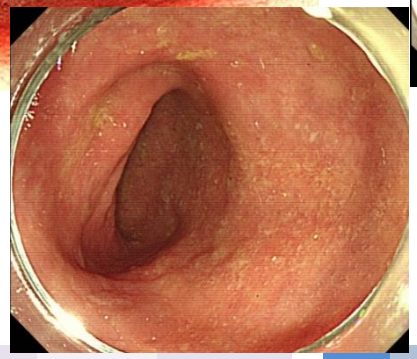
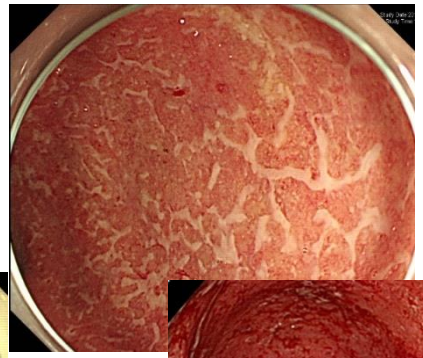
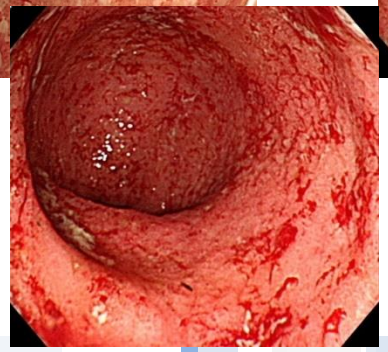
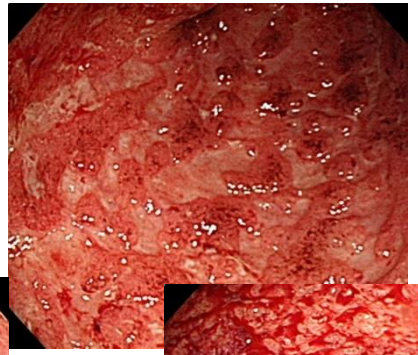
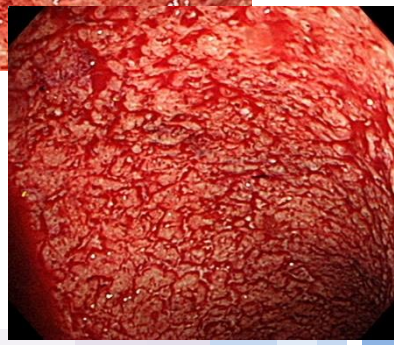
Endoscopy in patients with Inflammatory Bowel Diseases

1. Initial diagnosis of IBD
2. Differential diagnosis of IBD
3. Assess the disease extent & activity
4. Monitor response to therapy
5. Surveillance of dysplasia or neoplasia
6. Endoscopic treatment

Endoscopic Severity of ulcerative colitis

- **Mayo endoscopic core**

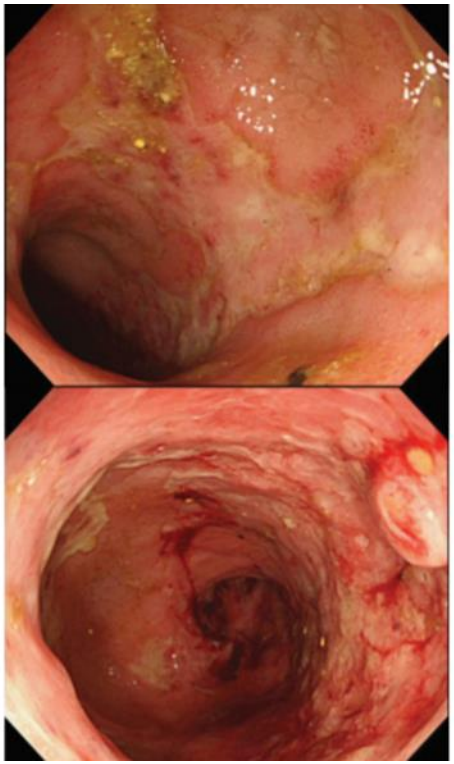
Normal or inactive mucosa (0)	Mild disease (+1) : erythema, decreased vascular pattern, mild friability	Moderate disease (+2) : marked erythema, absent vascular pattern, friability, erosions	Severe disease (+3) : spontaneous bleeding, ulceration

Same disease activity ?

S/C

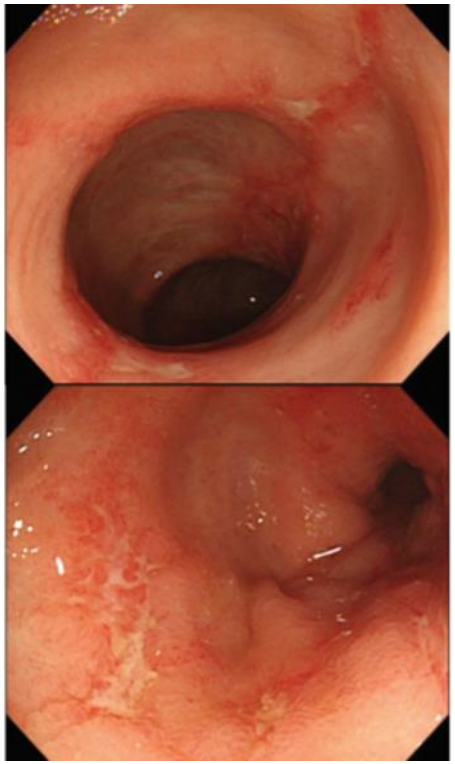
Rectum



- Mayo score : 3

S/C

Rectum



- Mayo score : 3

Ikeya et al. JCC 2016

Endoscopic Diagnosis of ulcerative colitis

- **Mayo endoscopic core**
  - Normal or inactive disease (0)
  - Mild disease (1)

    : erythema, decreased vascular pattern, mild friability
  - Moderate disease (2)

    : marked erythema, absent vascular pattern, friability, erosions
  - Severe disease (3)

    : spontaneous bleeding, ulceration

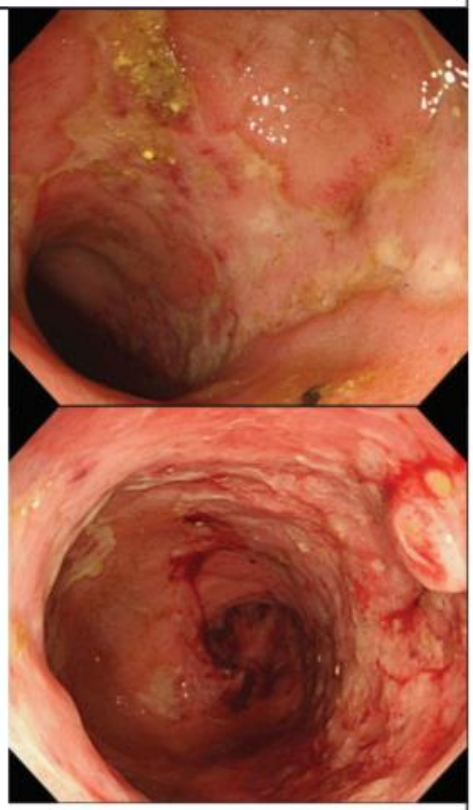
- **Ulcerative colitis endoscopic index of severity (UCEIS)**

Descriptor (Score most severe lesions)	Likert Scale anchor points	Definition
Vascular pattern	Normal (1)	Normal vascular pattern with arborisation of capillaries clearly defined, or with blurring or patchy loss of capillary margins
	Patchy obliteration (2)	Patchy obliteration of vascular pattern
	Obliterated (3)	Complete obliteration of vascular pattern
Bleeding	None (1)	No visible blood
	Mucosal (2)	Some spots or streaks of coagulated blood on the surface of the mucosa ahead of the scope, which can be washed away
	Luminal mild (3)	Some free liquid blood in the lumen
	Luminal moderate or severe (4)	Frank blood in the lumen ahead of endoscope or visible oozing from mucosa after washing intra-luminal blood, or visible oozing from a haemorrhagic mucosa
Erosions & Ulcers	None (1)	Normal mucosa, no visible erosions or ulcers
	Erosions (2)	Tiny (≤5mm) defects in the mucosa, of a white or yellow colour with a flat edge
	Superficial ulcer (3)	Larger (>5mm) defects in the mucosa, which are discrete fibrin-covered ulcers when compared to erosions, but remain superficial
	Deep ulcer (4)	Deeper excavated defects in the mucosa, with a slightly raised edge

Before Tacrolimus administration CAI: 9

S/C

Rectum

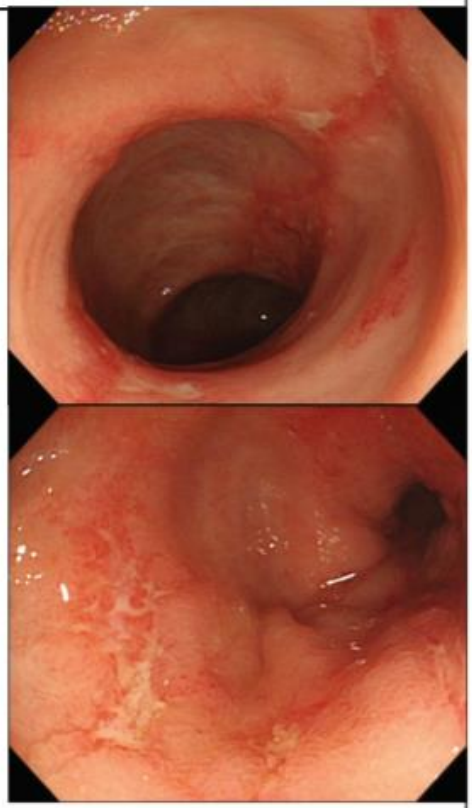


UCEIS: 7 Vascular patterns: 2
Bleeding: 2
Erosion & Ulcers: 3
Mayo ES: 3

After 3 months CAI: 3

S/C

Rectum



UCEIS: 4 Vascular pattern: 2
Bleeding: 0
Erosion & Ulcers: 2
Mayo ES: 3

Ikeya et al. JCC 2016

Crohn's Disease Endoscopic Index of Severity

CDEIS						
	Ileum	**Right colon**	**Transverse**	**Left and Sigmoid colon**	**Rectum**	**Sum**
Deep ulceration (0 for none, 12 points if present)	0	0	0	0	0	0
Superficial ulceration (0 for none, 6 points if present)	0	0	0	0	0	0
Surface involved by disease (cm on a 10 cm VAS *)	10	0	0	0	0	10
Surface involved by ulceration (cm on a 10 cm VAS *)	0	0	0	0	0	0
					Total: A	10
					Number of segments explored	5
					Total A/ number of segments explored: **B**	2
					If ulcerated stenosis present: add 3: **C**	0
					If non ulcerated stenosis present: add 3: **D**	0
					Total CDEIS score = B + C + D	**2**

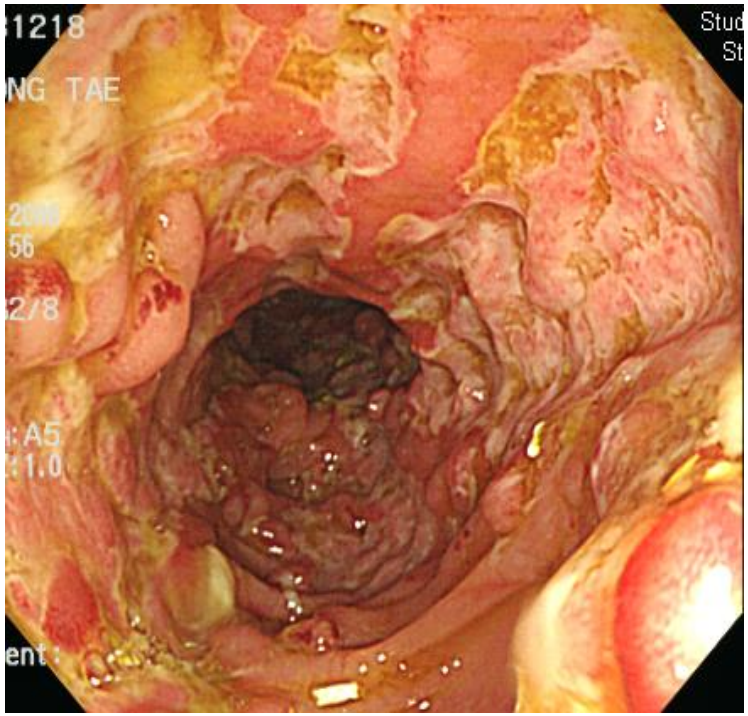
*: range 0 – 10 (as the VAS is 10 cm long)

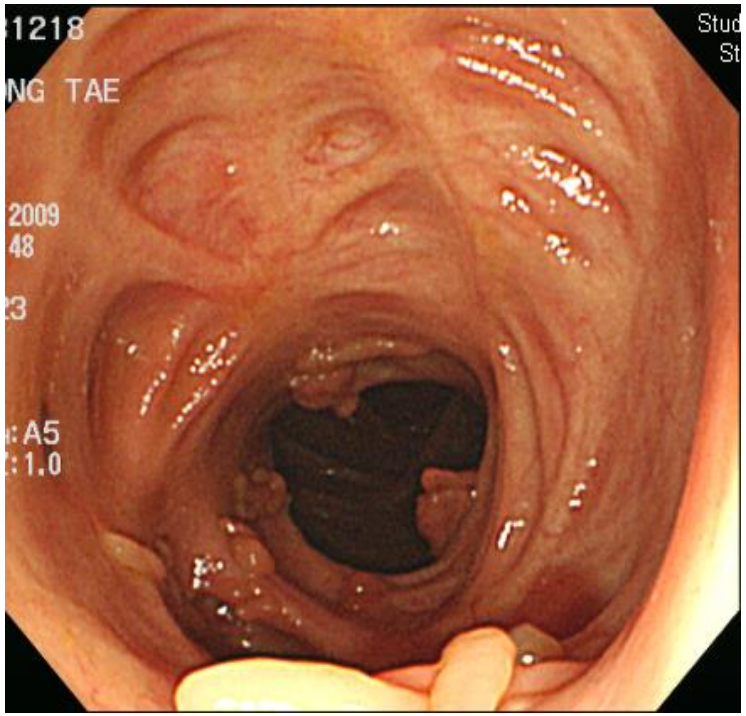
Endoscopy in patients with Inflammatory Bowel Diseases

1. Initial diagnosis of IBD
2. Differential diagnosis of IBD
3. Assess the disease extent & activity
4. Monitor response to therapy
5. Surveillance of dysplasia or neoplasia
6. Endoscopic treatment

Goal of Treatment

- Symptomatic remission ?
- Histologic remission ?

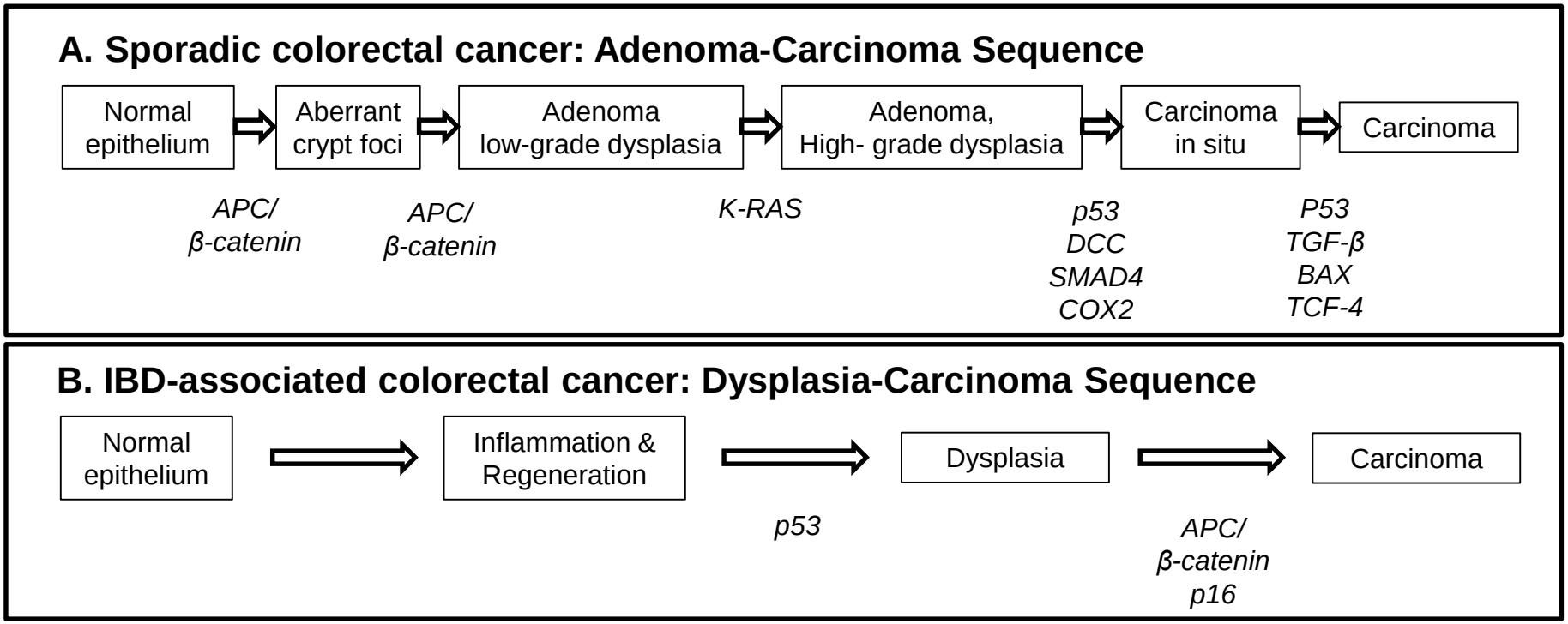




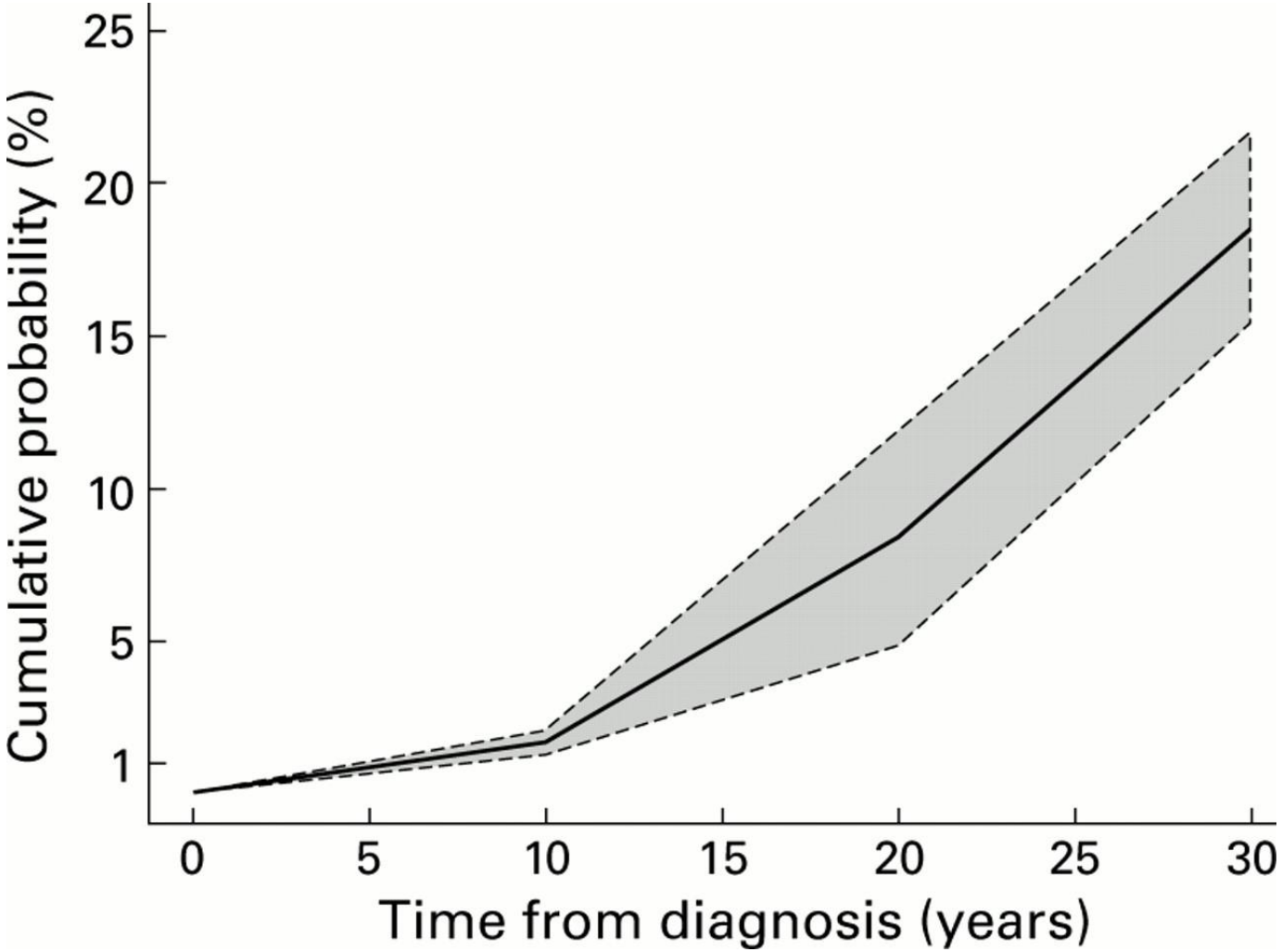
Endoscopy in patients with Inflammatory Bowel Diseases

1. Initial diagnosis of IBD
2. Differential diagnosis of IBD
3. Assess the disease extent & activity
4. Monitor response to therapy
5. Surveillance of dysplasia or neoplasia
6. Endoscopic treatment

Carcinoma sequence pathways in IBD

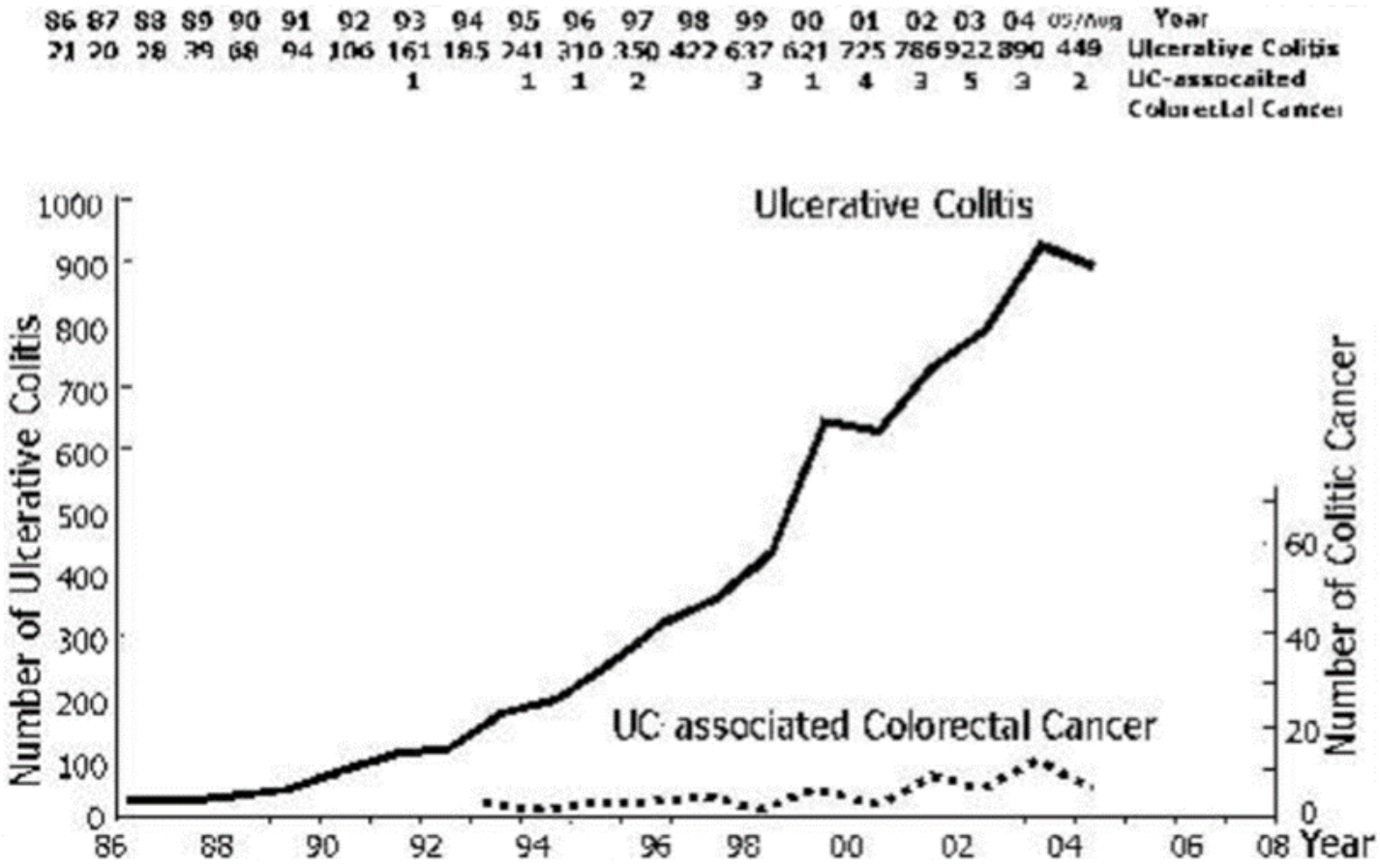


Risk of colorectal cancer in UC



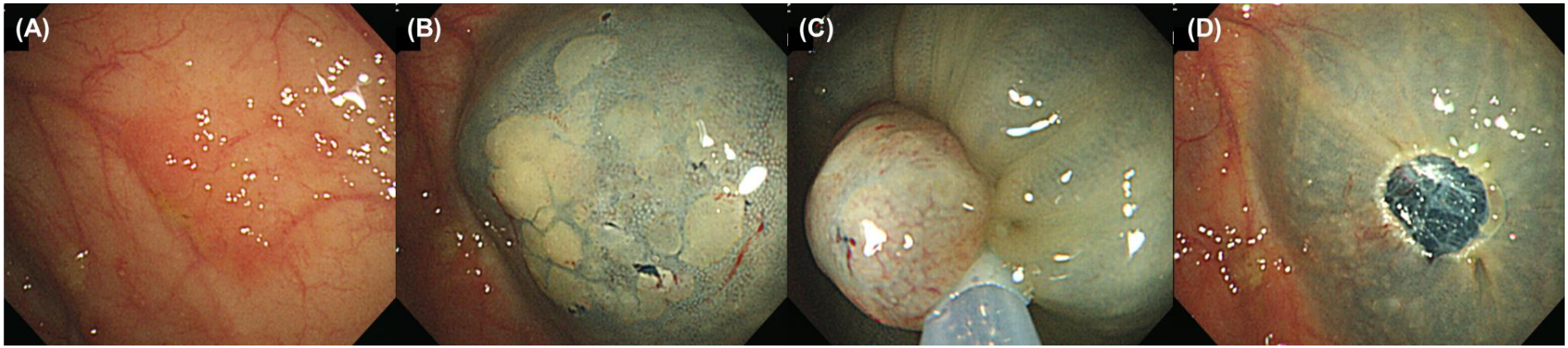
Gut 2001;48:526–535

Risk of colorectal cancer in Korean UC patients

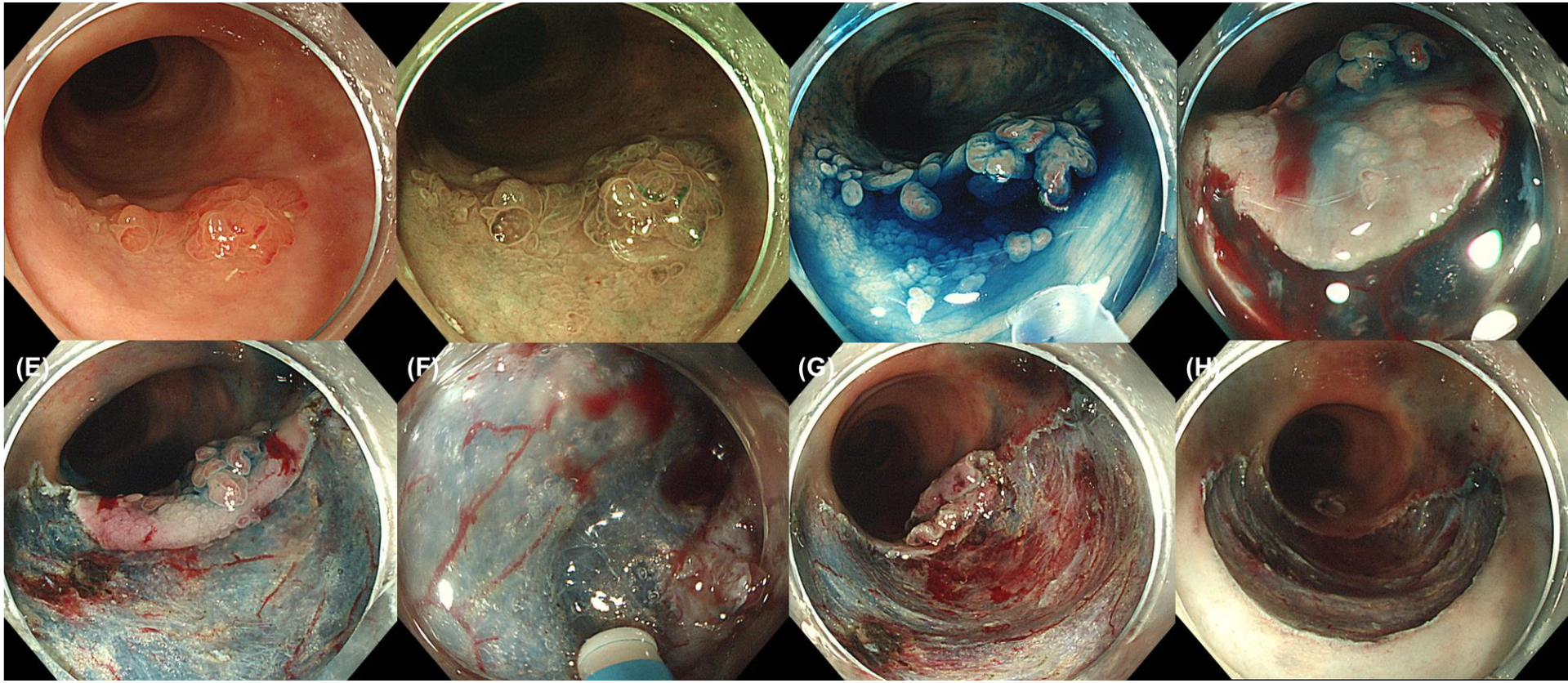


J Gastroenterol Hepatol 2009;24:667-71

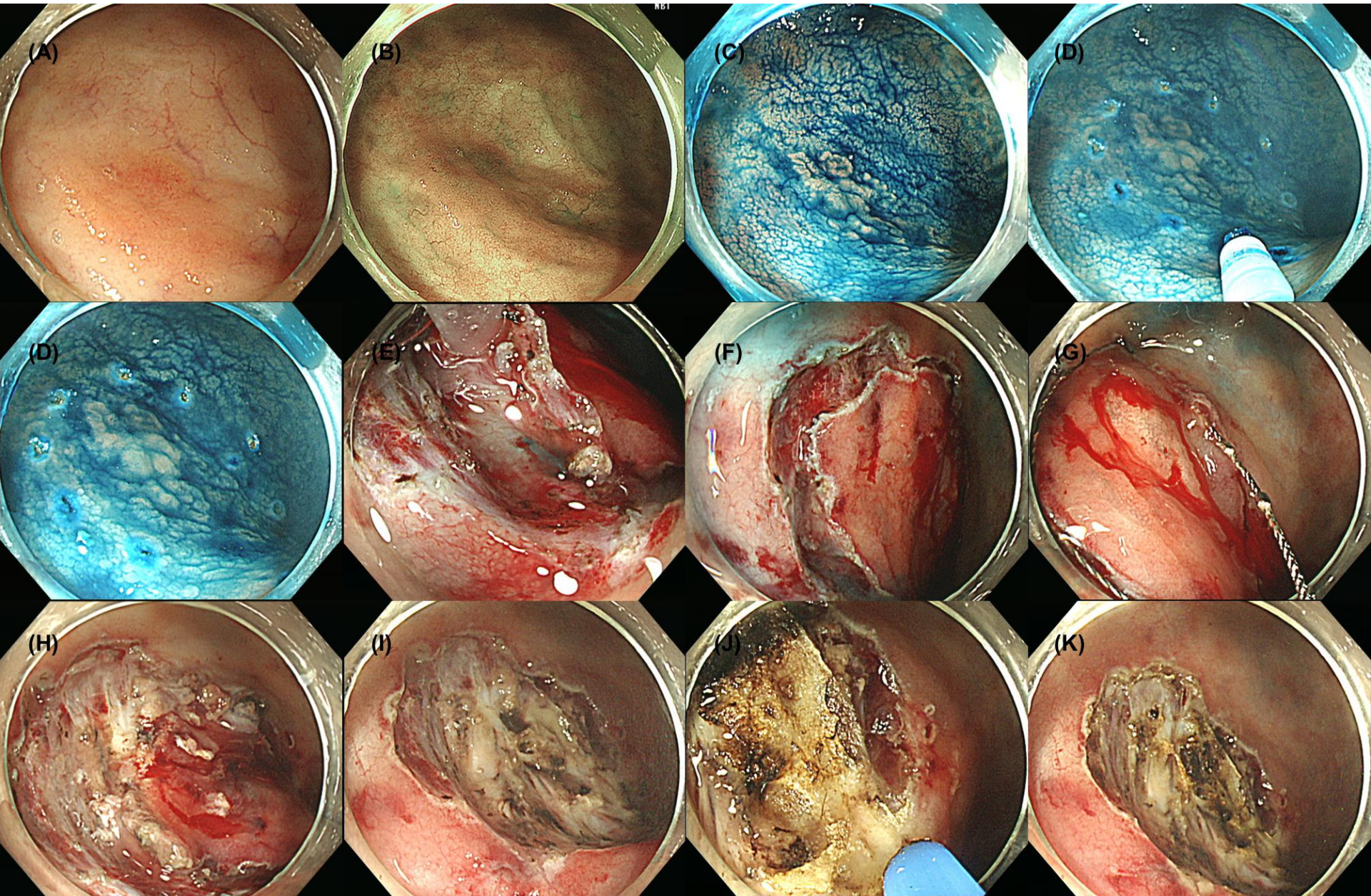
EMR for dysplasia developed in UC



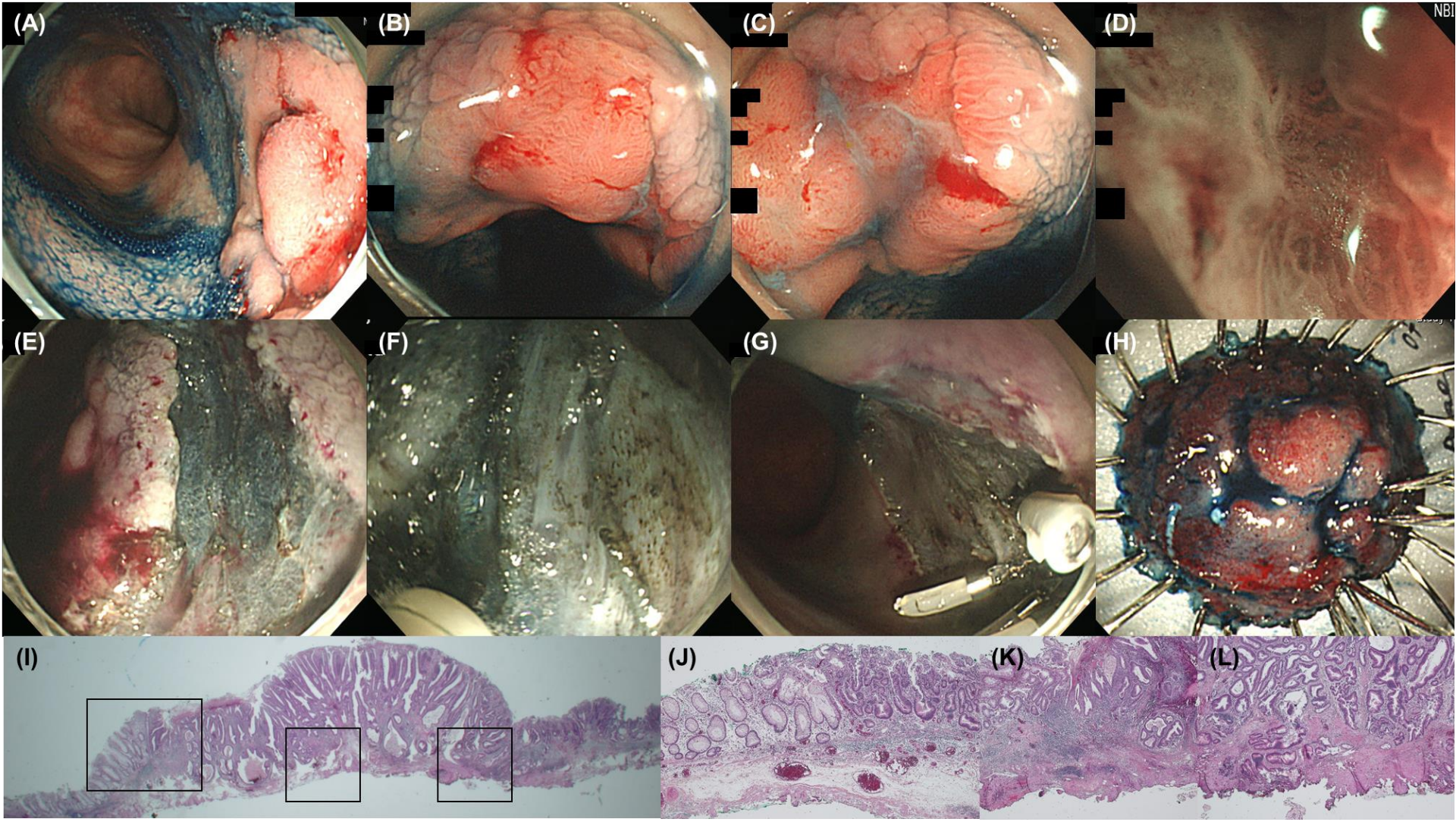
ESD for dysplasia developed in UC



ESD with snaring



ESD for colorectal cancer developed in UC



Management of invisible dysplasia in IBD

- **Invisible dysplasia**
  - Very strong association (38–83%) with meta/synchronic CRC

  → Usually recommended total colectomy

<u>On flat mucosa or random biopsy</u>

- High grade dysplasia → total colectomy
- Low grade dysplasia → no consensus

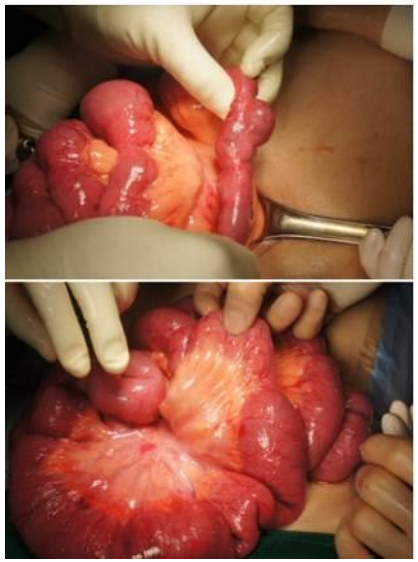
  total colectomy vs. yearly surveillance

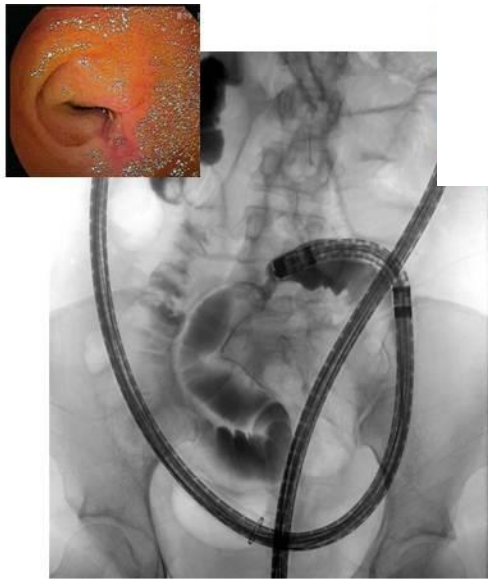
Endoscopy in patients with Inflammatory Bowel Diseases

1. Initial diagnosis of IBD
2. Differential diagnosis of IBD
3. Assess the disease extent & activity
4. Monitor response to therapy
5. Surveillance of dysplasia or neoplasia
6. Endoscopic treatment

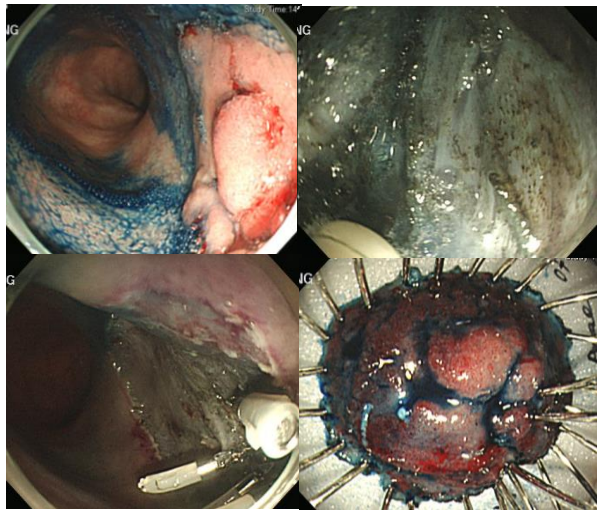
Recent advance in endoscopic instrument and technique

- Recent advent of endoscopy in the management of complicated IBD has changed the approach from surgery to non-surgical intervention.





Small bowel enteroscopy



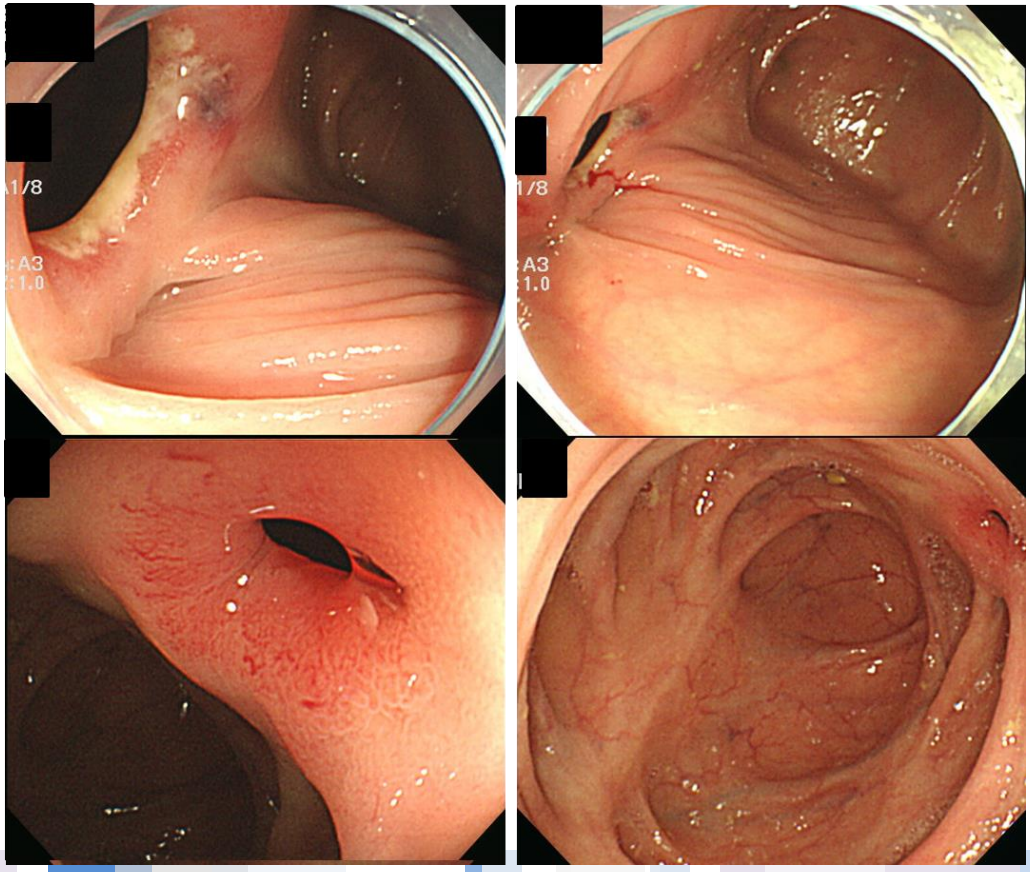
Endoscopic resection

Endoscopic Balloon Dilation

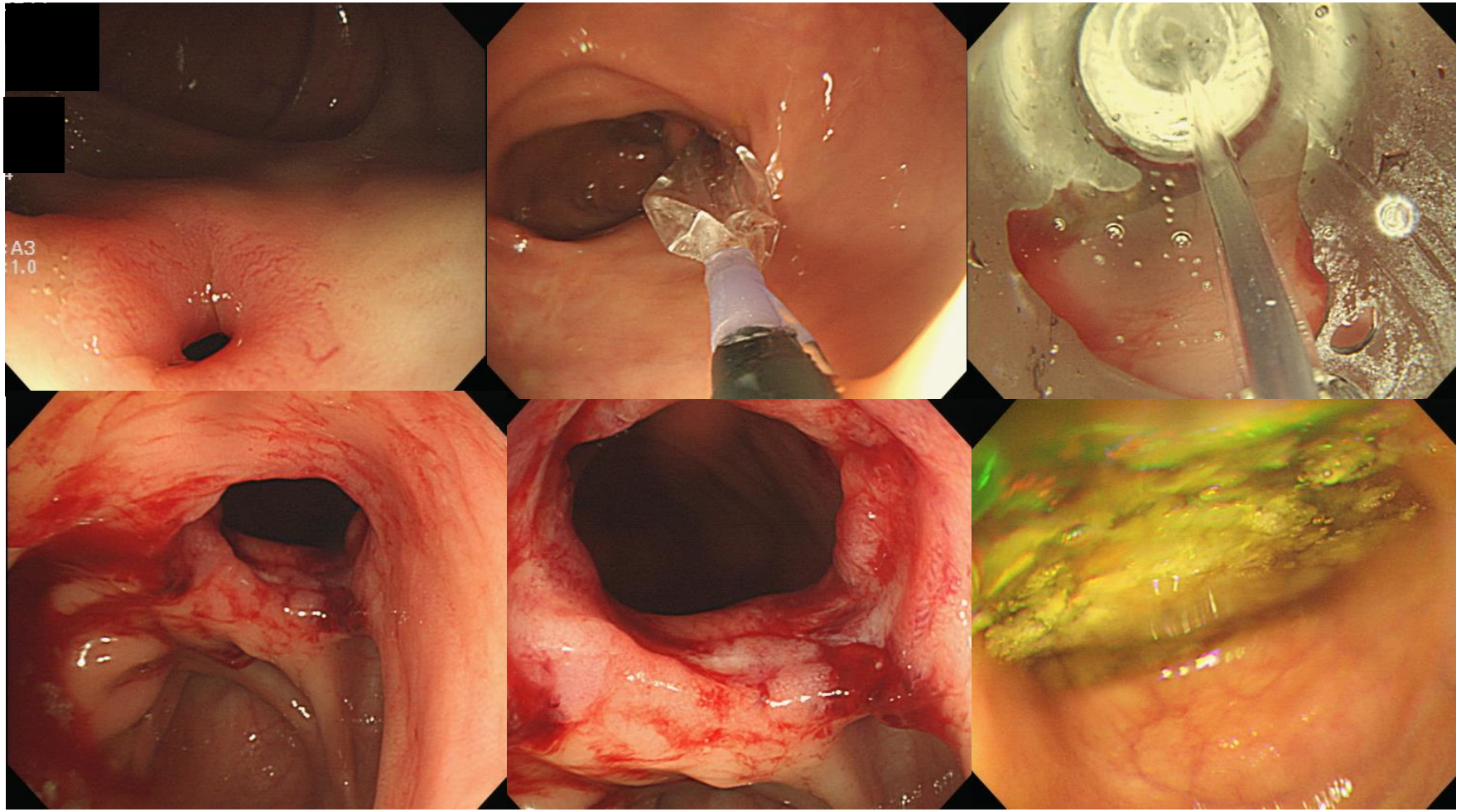
- 2007.09 CD (A2L2B3)
  - abscess resulted from fistula in terminal ileum
- 2011.11 Ileocecectomy, T-colon segmental resection
- 2012.06 Infliximab

2010. 06

2014. 05

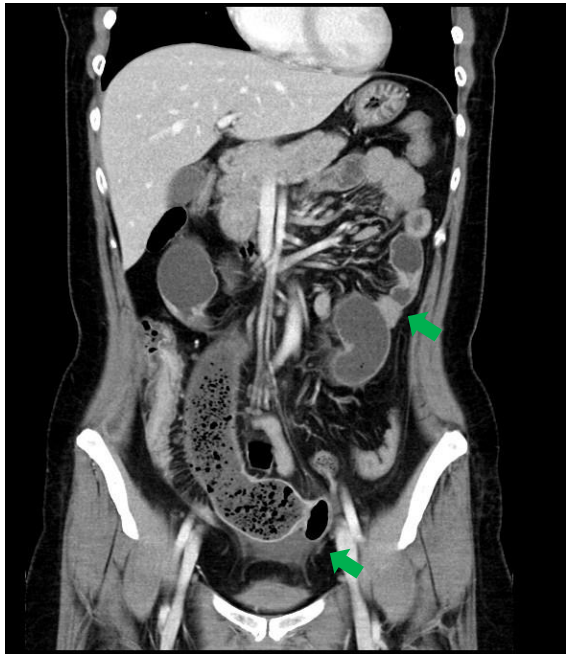


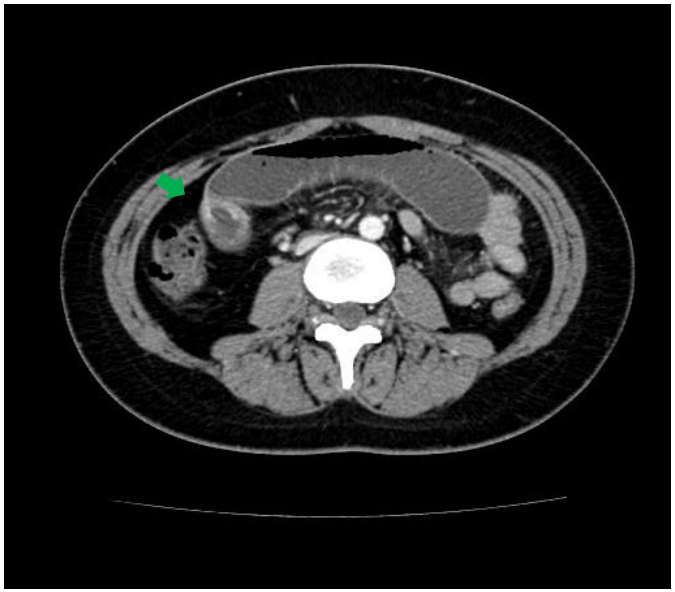
Colonoscopic Balloon Dilation



Endoscopic balloon dilation

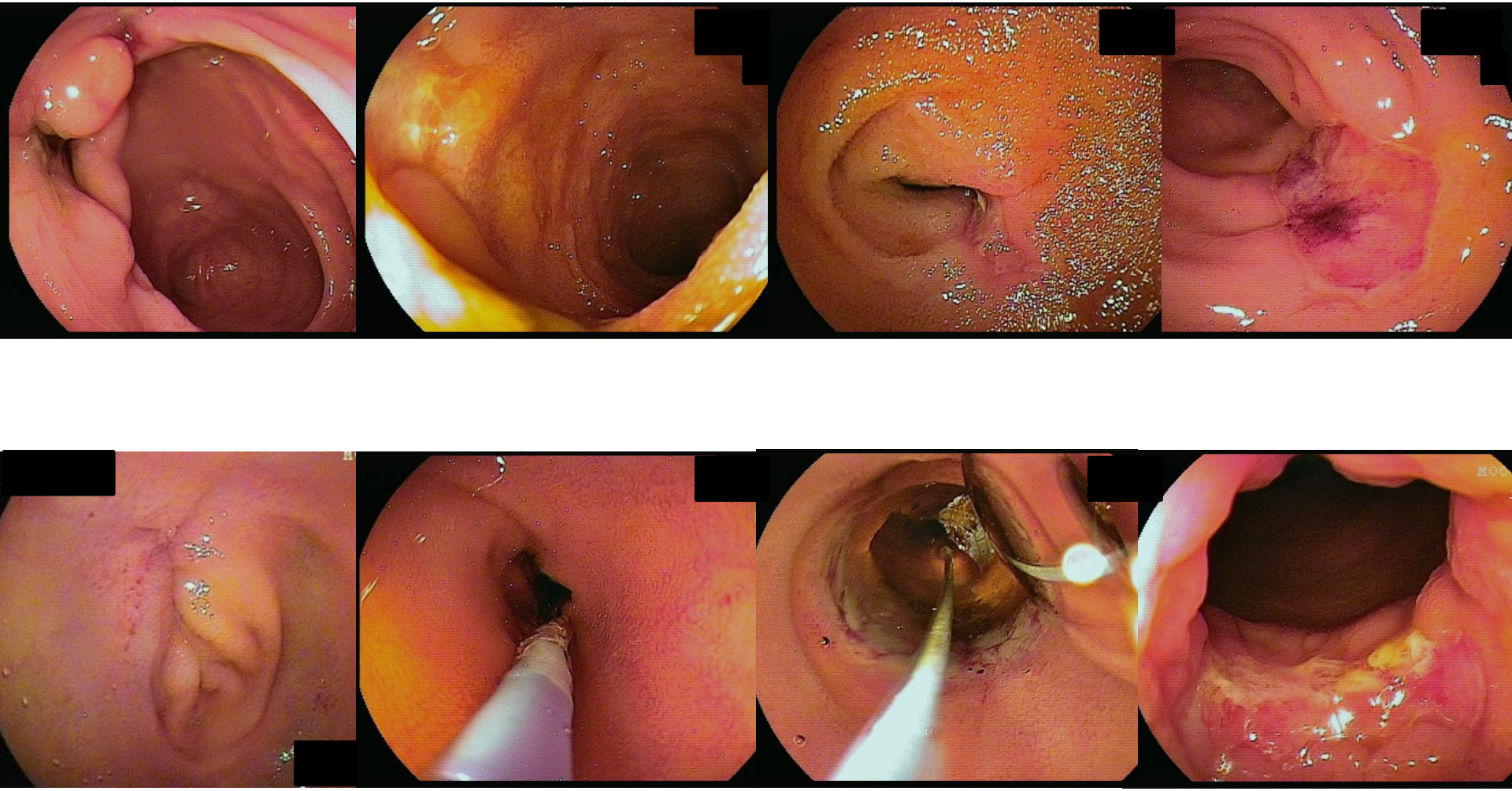
- F/29
- 2013. 08 Recurrent abdominal pain



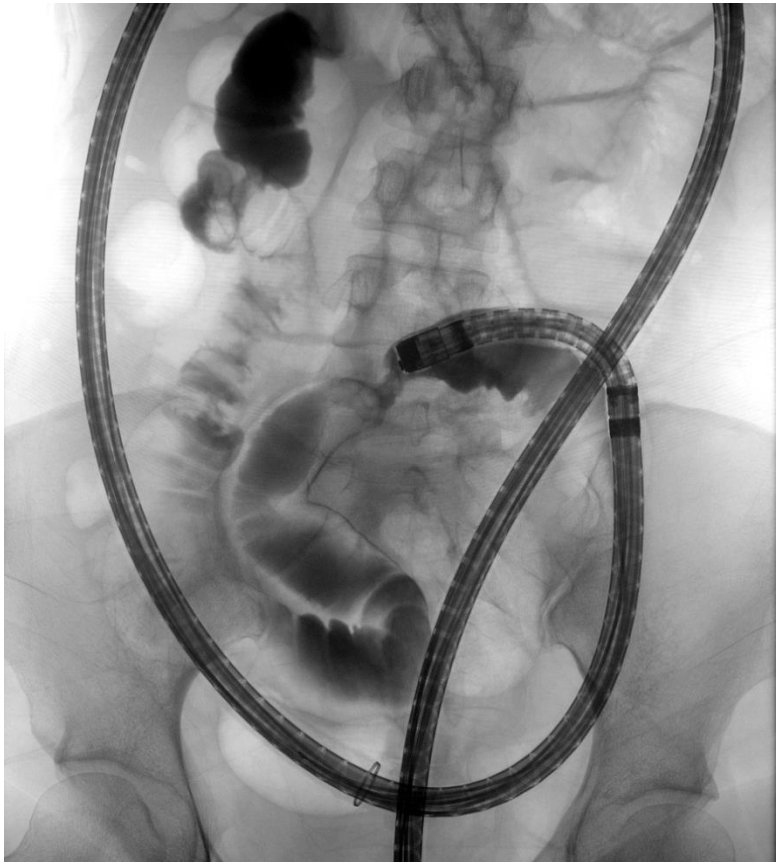


Benign SB obstruction
d/t R/O cicartrical change of healing intestinal TB
R/O Crohn's disease

Double-balloon Enteroscopy



DBE balloon dilation

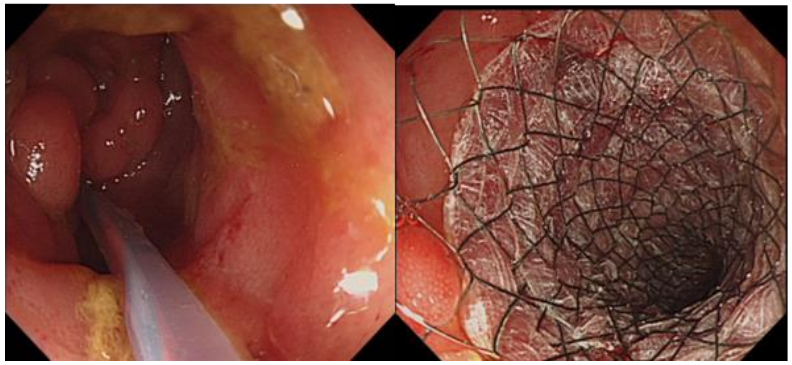


Stent for benign crohn's stricture

- Clinical success rate : 45% - 80%
- Complication : migration, perforation, stent impaction

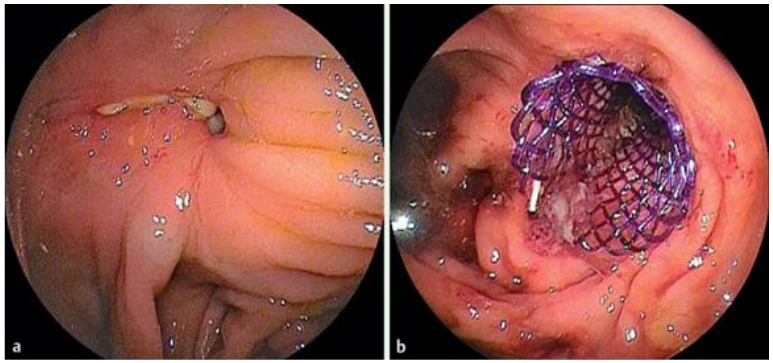
Self expanding metallic stent

- Impaction (Tissue hyperplasia into stent)



Biodegradable stents

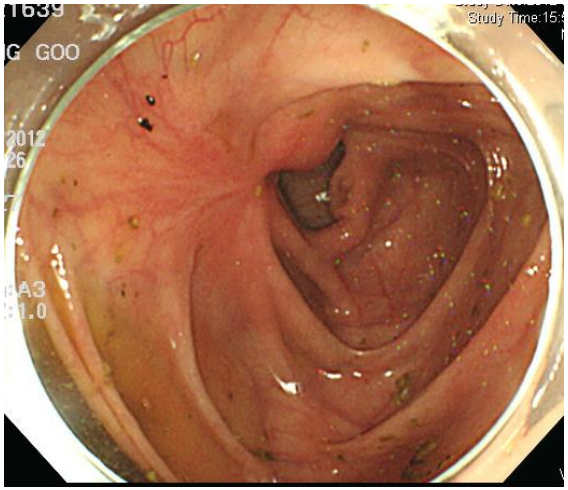
- High incidence of migration

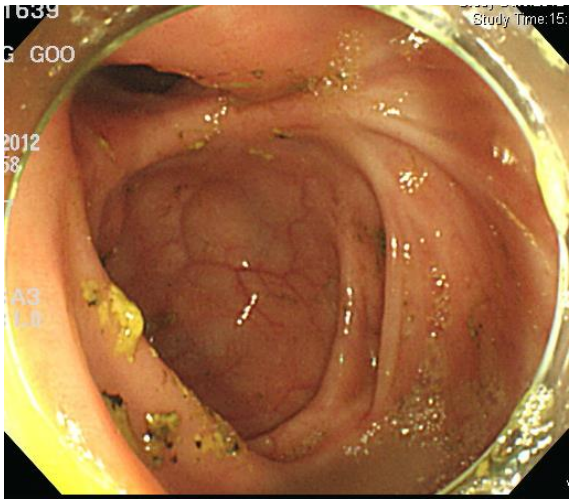


Rejchrt, Endoscopy 2011

Endoscopic hemostasis

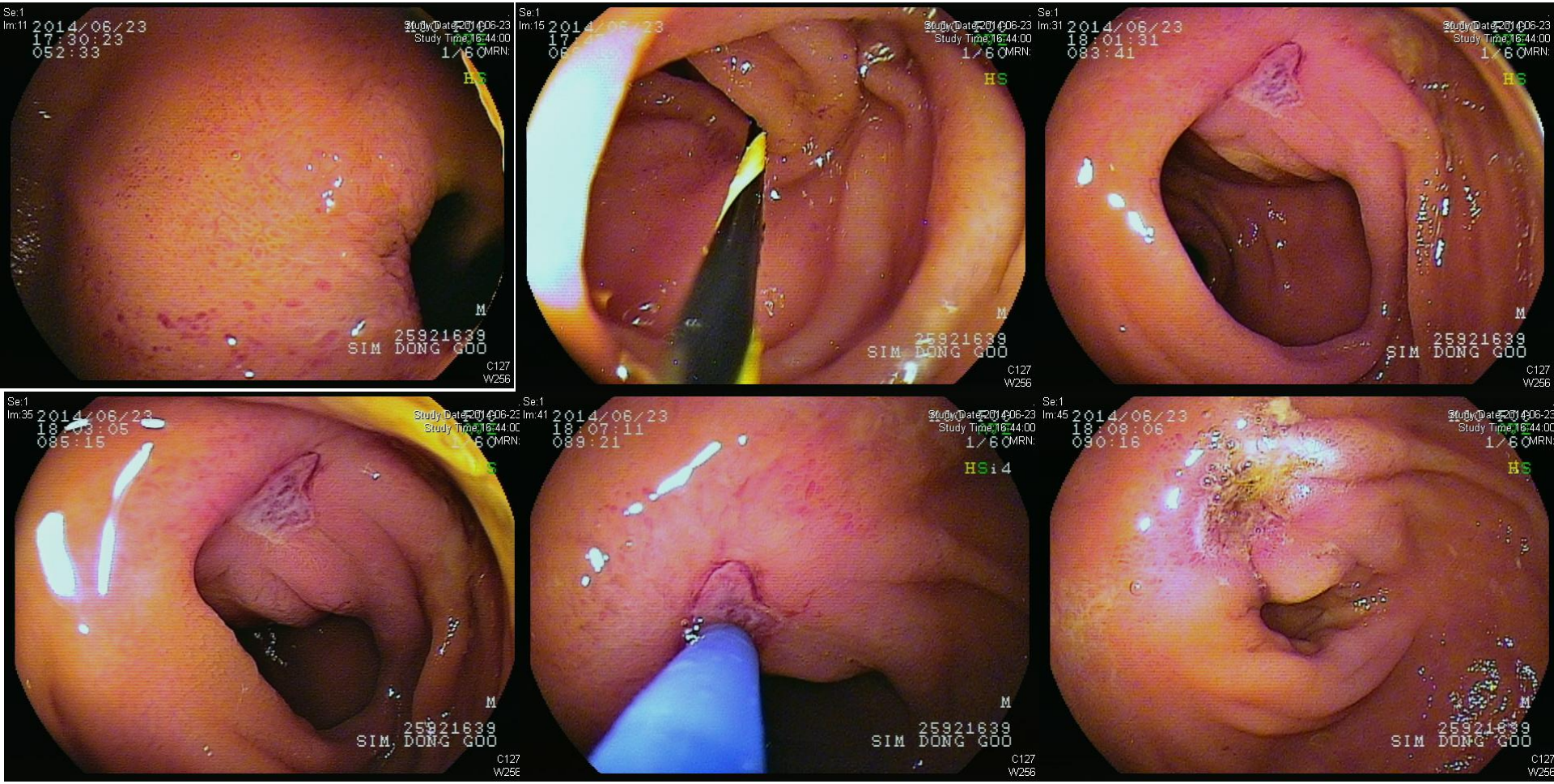
2012.08





CT angiography

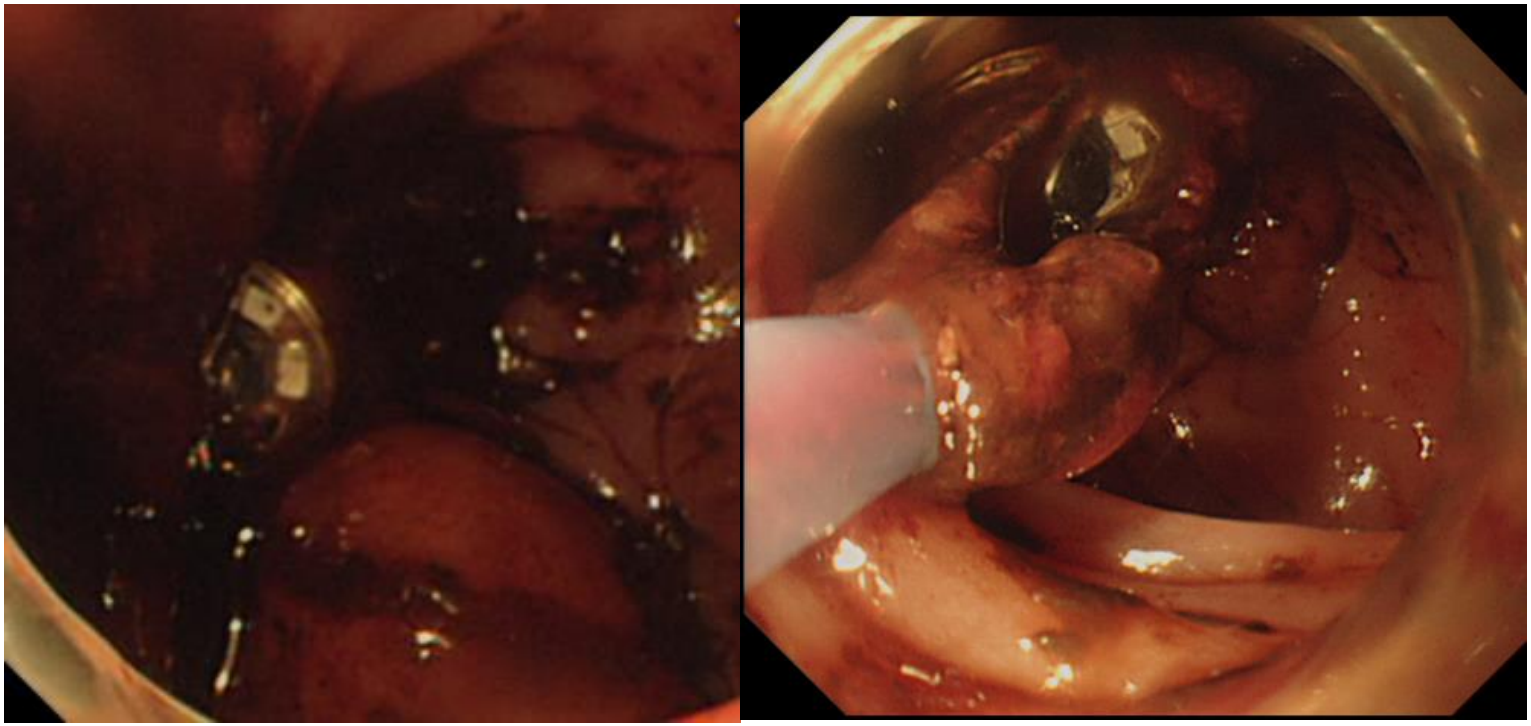
Enteroscopic Hemostasis



Remicade dose up (10mg/kg)

Foreign body removal

- Retrieval of retained capsule endoscope or Bezoar



Endoscopy in patients with Inflammatory Bowel Diseases

1. Initial diagnosis of IBD
2. Differential diagnosis of IBD
3. Assess the disease extent & activity
4. Monitor response to therapy
5. Surveillance of dysplasia or neoplasia
6. Endoscopic treatment




Thank You for Attention !

SAMSUNG 삼성서울병원