Bowel Screening Colonoscopy in Glasgow 2017

How well are we doing?

How well should we be doing?

How can we evidence and improve performance?

Bowel Screening Standards - Scotland

Standard Statement 8

Safe and effective investigation is available to people with a positive screening test.

Criteria

8.1 Screening colonoscopy is undertaken in a unit taking part in the Global Rating Scale.

8.2 Colonoscopy is carried out by a colonoscopist who can show at least 90% colonoscopy completion, 35% adenoma detection rate and a six-minute withdrawal time for diagnostic colonoscopy in mandatory, continuous audit of screening colonoscopy.

Definitions

Completion Rate

- Percentage of all (unadjusted for mitigating factors) colonoscopies where the caecum is intubated with photographic evidence

Definitions

Adenoma Detection Rate

Percentage of colonoscopies where at least one adenoma (or serrated adenoma) is found

NB - multiple adenomas do NOT change numerator

- histological ADR is presented for bowel screening data in NHSGGC

Definitions

Colonoscopy withdrawal time

Inspection time taken on withdrawal from caecum to anus <u>during negative procedures</u>

Quality in Screening Colonoscopy

- Maximise detection of pathology
  - Examination of entire colon
  - Careful inspection of the whole colon
  - Lesion recognition

- Minimise harm to screening population
  - Safe removal of adenomas
  - (Effective removal of adenomas by appropriate intervention)
  - Lesion recognition/interrogation and shared decision making in complex cases

Bowel Screening Standards – England (2011)

Item	Minimum	Target
Caecal Intubation Rate	90%	97%
Adenoma Detection Rate	35% 40%	40% 44% (2016)
Withdrawal Time	6 minutes	10 minutes

Screening Colonoscopists

- 22 active screening colonoscopists in GGC
- 6 Clyde sector, 8 South sector, 8 North sector

- Adenoma detection rates - **Average 42%**

  >35% over 4 year period in 20/22 (91%)
  >40% over 4 year period in 16/22 (73%)

- Completion rates - **Average 97.4%**

  >90% over 4 year period in 21/22 (95%)

Bowel Screening Standards – England (2011)

Other Standards in English BCSP

Item	Minimum	Target
Proportion of scopes where preparation adequate or excellent	90%	95%
Polyp retrieval rate	90%	95%

Bowel Screening Standards – England (2011)

Minimising harm to screening population	(i) Minimum number of BCSP colonoscopies per annum undertaken by an accredited BCSP colonoscopist	≥150 colonoscopies	Not applicable
	(ii) Perforation rate	<1 per 1000 colonoscopies	Auditable outcome
	(iii) Post polypectomy perforation rate	<1 per 500 colonoscopies where polypectomy is performed	Auditable outcome
	(iv) Post polypectomy bleeding rate (intermediate severity or higher)	<1 per 100 colonoscopies where polypectomy is performed	Auditable outcome
	(v) Rate of other adverse events	100% recorded	Auditable outcome
	(vi) Colonoscopy comfort	100% recorded	Auditable outcome
	(vii) Sedation use and doses	100% recorded	Auditable outcome
	(viii) Use of reversal agents	100% recorded	Auditable outcome

Governance of Bowel Screening Colonoscopy in NHS GGC

- Board Audit group

  - Meets bi-annually to report on colonoscopy KPIs

  - Caecal intubation rate, Adenoma detection rate, complication

  - Data presented annually <u>and</u> as 3 year aggregate

- Local M&M process in each sector

Proposals for Effective Governance

Audit targets

- Total number of colonoscopies per operator per year
- Unadjusted caecal intubation rate
- Adenoma detection rate
- Complication rate (analysis, interrogation)
- Post colonoscopy cancer rate (analysis, interrogation)

Total Number of Colonoscopies

- England : > 150 screening colonoscopies per year

- GGC : >150 colonoscopies per year
  (> 75 screening colonoscopies)

Proposals for Performance Management

- Caecal Intubation Rate

  Performance review with local lead

- 85-90% in 1 year	:	calculation of adjusted CIR and analysis of individual cases
- <85% in 1 year	:	calculation of adjusted CIR consider stopping screening (?unless year 1 screener)
- <90% over 3 years	:	stop screening

Proposals for Performance Management

- Adenoma Detection Rate

- 30-35% in any one year	:	mandatory recording of withdrawal time
- <30% in any one year	:	mandatory recording of withdrawal time performance review with local lead
- <25% in any one year	:	stop screening
- <35% for 3 year period	:	stop screening

Proposals for Performance Management

Complications

- Adequate detection of complications

- Feedback from local lead to ensure knowledge of complications on annual basis

Complications in NHSGGC

2013-2015

8 colonic perforations (out of 5525 = rate 1/715)

6 required surgery. 1 death.

7 episodes of bleeding (rate = 1/770)

1 significant (rate 1/5000)

Post Colonoscopy Colon Cancer

- Diagnosis of colorectal cancer within 3 years after a colonoscopy where cancer was not detected

- Rates in England (non screening) approx 7.3% in 2007

  Morris *Endoscopy* 2014

- 8 cases identified between 2009 and 2015

  8/886 = 1% of cancers which <u>may</u> have been present at screening

  One Dukes A, 2 Dukes B, 4 Dukes C1, 1 no data

  7 different colonoscopists

Complex Polypectomy

SMSA polyp score and level

SMSA Polyp score							
Size	Points	Morphology	Points	Access	Points	Site	Points
<1cm	1	Pedunculated	1	Easy	1	Left	1
1-1.9cm	3	Sessile	2	Difficult	3	Right	2
2-2.9cm	5	Flat	3				
3-3.9cm	7						
>4cm	9						
SMSA Level							
1: 4-5 points	2: 6-9 points	3: 9-12 points	4: >12 points				

Longcroft Wheaton, *Dis Colon Rectum* 2013

Large Non-Pedunculated Colorectal Polyps

- Careful visual interrogation
- Photograph/video before removal
- Characterise morphology using Paris classification
- Characterise pit pattern via Kudo classification
- Caution with biopsies

- Local referral pathways and audit of quality of removal

BSG Guidelines Rutter *Gut* 2015

Polyp Management

- No standard process therefore variation in practice

- Optimal polyp management important to
  - Minimise complications of polypectomy
  - Increase likelihood of adequate removal
  - Minimise need for potentially unnecessary surgery

- Not all screeners may be equally skilled in management of all lesions.

- Identification of frequency of complex lesions will help resource planning – MDT discussion, endoscopist skill mix

NHS Greater Glasgow & Clyde
Endoscopy Services

Audit of Spread & Complexity of Polyps across GG&C

NHS Greater Glasgow and Clyde

This is a scannable form. Please complete all appropriate sections of the form with an **X** or clear legible writing. Do not use patient labels and please **do not photocopy forms**. (If you require more forms please call 0141 201 0741)

Please complete a separate audit form for EACH Polyp detected

CHI No: ☐☐☐☐☐☐☐☐☐☐

Date of Procedure: ☐☐ / ☐☐ / ☐☐☐☐

Endoscopy Unit:

Endoscopist:

SMSA score for determining difficulty of Polyp:

Size

- <1cm SMSA score 1 ☐
- 1-1.9cm SMSA score 3 ☐
- 2-2.9cm SMSA score 5 ☐
- 3-3.9cm SMSA score 7 ☐
- >or equal to 4cm SMSA score 9 ☐

Morphology

- Pedunculated SMSA score 1 ☐
- Sessile SMSA score 2 ☐
- Flat SMSA score 3 ☐

Site

- Left colon SMSA score 1 ☐
- Right colon SMSA score 2 ☐

Rectum: Yes ☐ No ☐

Access

- Easy SMSA score 1 ☐
- Difficult SMSA score 3 ☐

Total Score: ☐☐

Action:

Remove ☐ Defer ☐ Refer ☐

If Defer or Refer is ticked please state reason below:

Intervention:

Cold Snare Enbloc ☐ Hot Snare Enbloc ☐ Cold Biopsy ☐

Cold Snare Piecemeal ☐ Hot Snare Piecemeal ☐ Hot Biopsy ☐

With Subinjection Yes ☐ No ☐

Tattoo placed Yes ☐ No ☐

Record 1

CPD Requirements in Screening Colonoscopy

- Evidence of tailored CPD regarding knowledge and skill in screening colonoscopy
- Upskilling course or advanced polypectomy course once per appraisal cycle

Trainees on Bowel Screening Lists

- Excellent training opportunity
- Direct supervision
- Should already have completed JAG accreditation in colonoscopy

Trainees on Bowel Screening Lists

Criteria for full criteria	Requirement
Colon provisional certification	Granted
Caecal intubation rate	≥90%
Unassisted (physically)	≥90%
Polyp detection and removal	≥10%
Sedation rate for patients aged under 70 years old.	≤5mgs midazolam
Sedation rate for patients aged 70 or over	≤2.5mgs midazolam
Analgesia rate for patients aged under 70 years old.	≤50mg Pethidine ≤100µg Fentanyl
Analgesia rate for patients aged 70 or older	≤25mg Pethidine ≤50µg Fentanyl
Serious complication rate	≤0.5%**
Number of procedures completed since award of provisional certification	≥100
Recommended lifetime procedure count	≥300
Procedures in previous 3 months	≥15
Formative DOPyS (level 2) A level 2 DOPyS records a polyp which is greater than or equal to 10mm in size.	≥4
4 most recent formative lower GI DOPyS (level 2) all items scoring 'Competent for independent practice'	100%
Polypectomy techniques assessed by DOPyS (level 2) – Stalked polyps	≥1
Polypectomy techniques assessed by DOPyS (level 2) - Small sessile lesions/ EMR	≥1

Accrediting as Screening Colonoscopist

- No ‘driving test’ in Scotland

- Should aspire to demonstrate same objective criteria as in England

  - Minimum lifetime experience >1000
  - >150 colonoscopies in previous 12 months
  - Caecal intubation rate of 90%
  - Polyp detection rate of 20%
  - Provide evidence of complications and sedation use

NHS
Greater Glasgow and Clyde

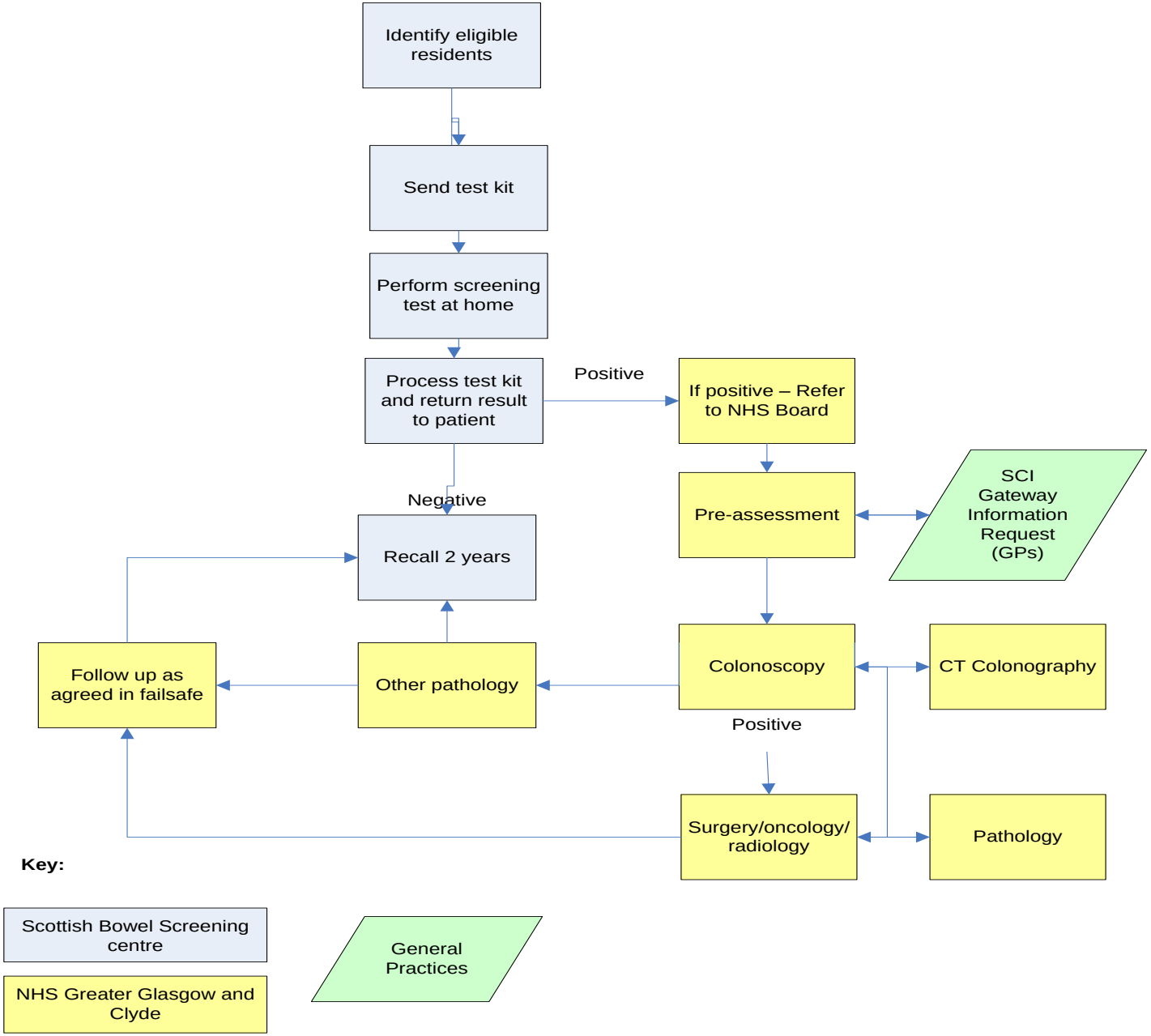
Bowel Screening in NHSGGC

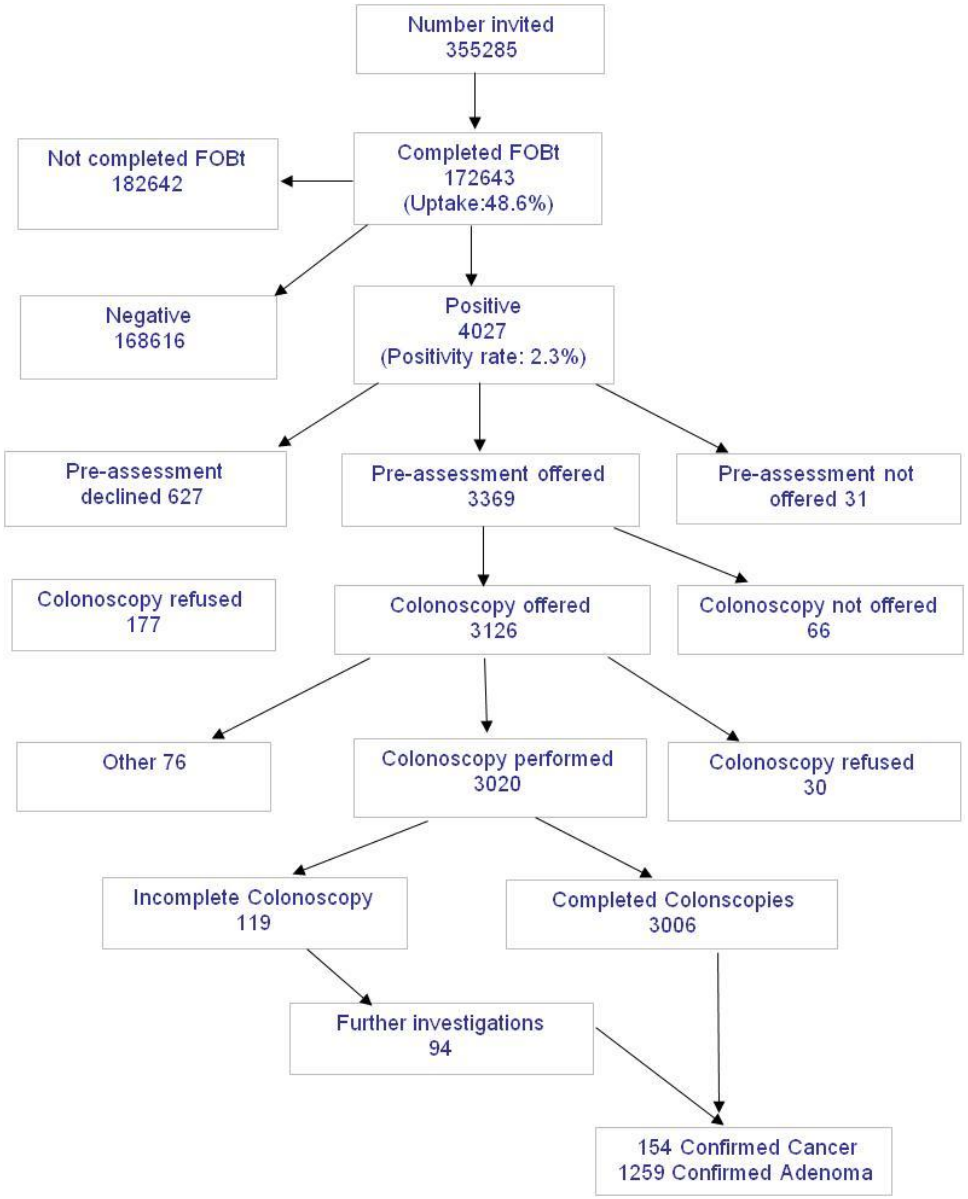
Dr Emilia M Crighton

DDPH

23 October 2017

Bowel Screening


Identify eligible residents
Send test kit
Perform screening test at home
Process test kit and return result to patient
Positive
If positive – Refer to NHS Board
Negative
Recall 2 years
Pre-assessment
SCI Gateway Information Request (GPs)
Follow up as agreed in failsafe
Other pathology
Colonoscopy
CT Colonography
Positive
Surgery/oncology/ radiology
Pathology
Key:
Scottish Bowel Screening centre
NHS Greater Glasgow and Clyde
General Practices


Number invited
355285
Completed FOBt
172643
(Uptake:48.6%)
Not completed FOBt
182642
Negative
168616
Positive
4027
(Positivity rate: 2.3%)
Pre-assessment
declined 627
Pre-assessment offered
3369
Pre-assessment not
offered 31
Colonoscopy refused
177
Colonoscopy offered
3126
Colonoscopy not offered
66
Other 76
Colonoscopy performed
3020
Colonoscopy refused
30
Incomplete Colonoscopy
119
Completed Colonscopies
3006
Further investigations
94
154 Confirmed Cancer
1259 Confirmed Adenoma

)

Uptake of Bowel screening by sex in NHSGGC

Sex	Not Screened	Screened	Total	*% Screened*
Male	95585	79956	175541	*45.5*
Female	87057	92687	179744	*51.6*
Total	182642	172643	355285	*48.6*

Uptake of Bowel screening by age in NHS GGC

Age Group	Not Screened	Screened	Total	*% Screened*
50-54	67651	44846	112497	*39.9*
50-52	46355	29512	75867	*38.9*
55-59	43802	38815	82617	*47.0*
60-64	26251	27015	53266	*50.7*
65-69	29392	40855	70247	*58.2*
70-74	15546	21112	36658	*57.6*
Total	182642	172643	355285	*48.6*

Uptake of Bowel screening by SIMD in NHS GGC

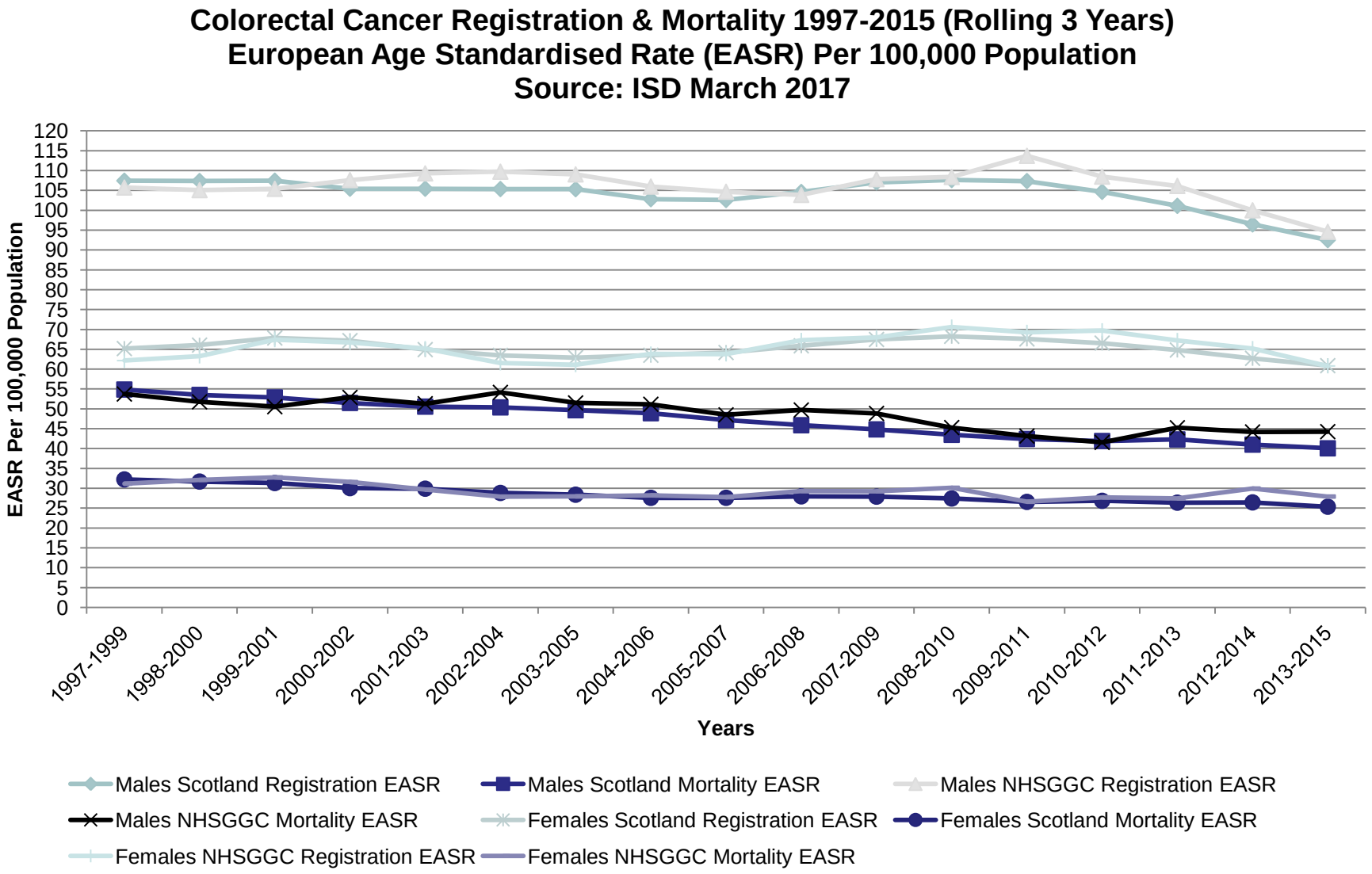
SIMD Quintile 2016	Not Screened	Screened	Total	*% Screened*
1 (Most Deprived)	74563	48745	123308	*39.5*
2	31725	27441	59166	*46.4*
3	23540	23712	47252	*50.2*
4	22524	28265	50789	*55.7*
5 (Least Deprived)	30290	44480	74770	*59.5*
Total	182642	172643	355285	*48.6*

Uptake for Bowel screening and positivity rate by age and sex for NHSGGC

	Age Group					
Gender	50-54	55-59	60-64	65-69	70-74	Total
Male Uptake	36.0	43.9	48.0	56.2	56.7	45.5
Female Uptake	43.8	50.1	53.4	60.0	58.4	51.6
Total Uptake	39.9	47.0	50.7	58.2	57.6	48.6
Male Positivity	2.1	2.5	2.9	3.2	3.6	2.8
Female Positivity	1.5	1.8	1.9	2.2	2.7	2.0
Total Positivity	1.8	2.1	2.4	2.7	3.1	2.3

Bowel screening positivity rate by SIMD for NHSGGC, 2016-17

SIMD Quintile 2016	Negative	Positive	Total	*% Screened*
1 (Most Deprived)	47145	1600	48745	*3.3*
2	26704	737	27441	*2.7*
3	23183	529	23712	*2.2*
4	27743	522	28265	*1.8*
5 (Least Deprived)	43841	639	44480	*1.4*
Total	168616	4027	172643	*2.3*


Colorectal Cancer Registration & Mortality 1997-2015 (Rolling 3 Years)
European Age Standardised Rate (EASR) Per 100,000 Population
Source: ISD March 2017
EASR Per 100,000 Population
120
115
110
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
1997-1999
1998-2000
1999-2001
2000-2002
2001-2003
2002-2004
2003-2005
2004-2006
2005-2007
2006-2008
2007-2009
2008-2010
2009-2011
2010-2012
2011-2013
2012-2014
2013-2015
Years
Males Scotland Registration EASR
Males Scotland Mortality EASR
Males NHSGGC Registration EASR
Males NHSGGC Mortality EASR
Females Scotland Registration EASR
Females Scotland Mortality EASR
Females NHSGGC Registration EASR
Females NHSGGC Mortality EASR

G-FOBT to FIT

- Automated FIT


LOT 226AFB
2018.02 Date of
REF 63281

Questions ?

Management of large non-pedunculated colonic polyps in NHS Lothian

Bowel Screening Meeting

Glasgow 23rd October 2017

NHS Lothian

Background

- Complex polyps were being taken off by a number of different operator across different sites
- No audit of results
- Concern about complications and patients having unnecessary surgery

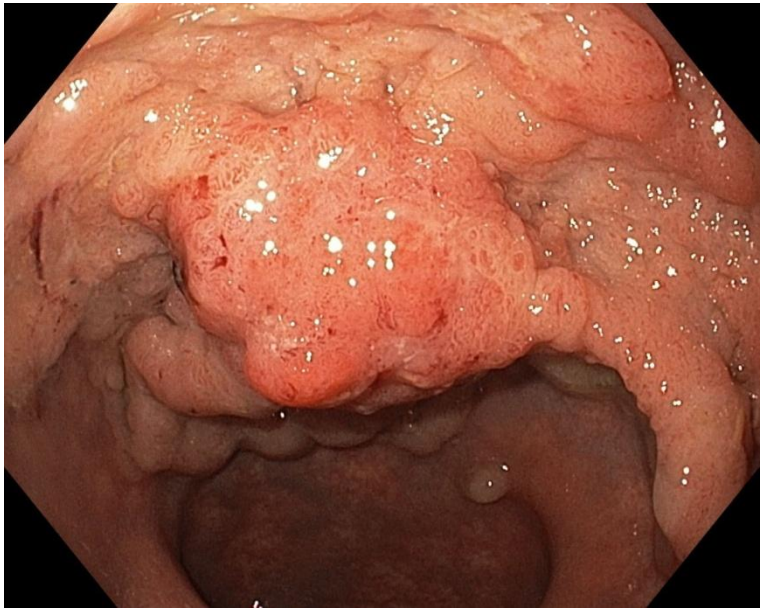
- Agreement that complex polypectomy should be carried out at the Western General Hospital

Definition of LNPCP (large non-pedunculated colonic polyp)

- Sessile lesion
- Greater than 20mm measured against the open snare

- BSG Guidelines for the management of large non-pedunculated colonic polyps (LNPCP)

  Rutter et al Gut 2015



Complex large LNPCP

Large NPCP (LNPCP) – a sessile or flat polyp of at least 20mm in size

Complex NPCP

(a) Increased risk of malignancy (see below)
(b) Increased risk of incomplete resection/recurrence (see below)
(c) Increased risk of adverse event (see below)
(d) SMSA level 4

(a) Increased risk of malignancy

- Pit pattern type V
- Paris 0-IIc or 0-IIa+IIc morphology
- Non-granular laterally spreading type polyp (LST-NG)
- Granular LST (LST-G) with a dominant nodule
- Distorted surface pattern, colour and vessels (NICE NBI type III)
- Thick and irregular microvessels (Sano capillary pattern type III)

(b) Increased risk of incomplete excision/recurrence

- Size ≥40mm
- Location involving ileocaecal valve, appendix, diverticulum or dentate line
- Within an inflamed segment of colitis
- Prior failed attempt at resection or recurrence at site of previous resection (excluding unifocal, diminutive and easily resected/ablated residual adenoma on first site check)
- Non-lifting sign after submucosal injection
- Endoscopist concern about difficult location (e.g. behind flexure or fold, in stenotic diverticular disease)

(c) Increased risk of adverse events

- Caecal location
- Size ≥40mm
- Endoscopist inexperience

Matthew D Rutter et al. Gut 2015;64:1847-1873

GUT

Audit of NHS Lothian complex polyp service

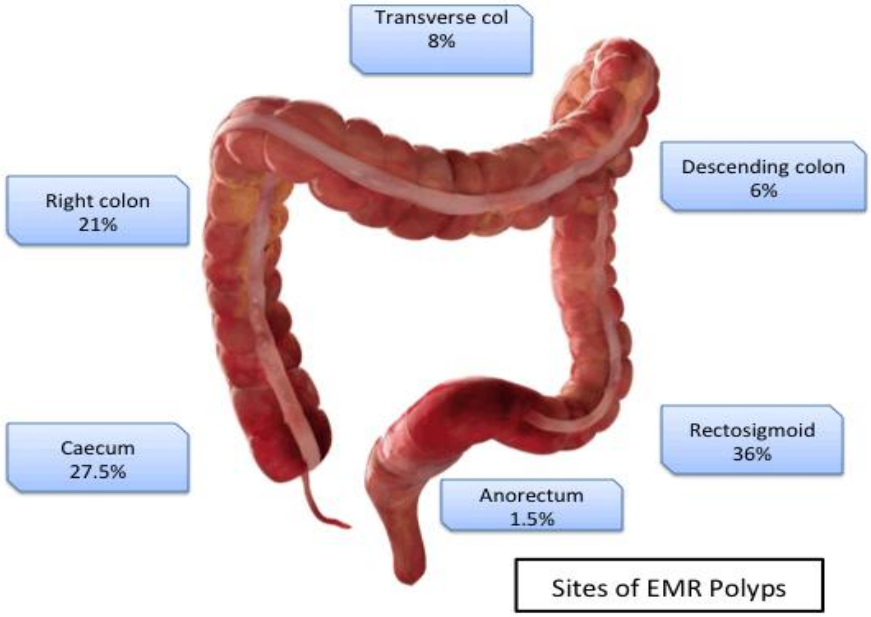
- Aim: Patients who underwent EMR over a three year period from 2011 to 2014 were analysed retrospectively for technique, polyp characteristics, pathology, recurrence rates and complications.

- Three operators

Nesargikar et al Gut 2015

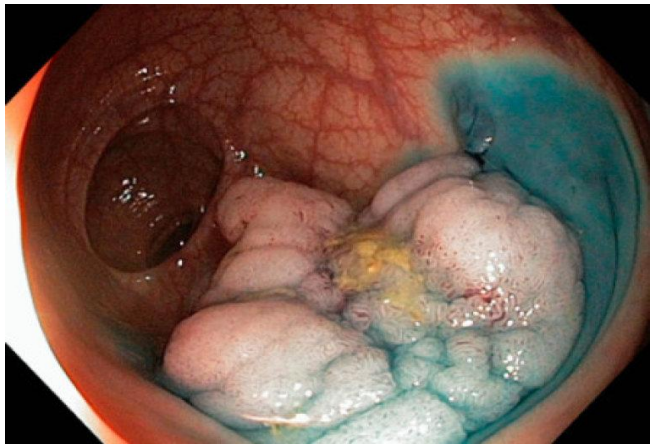
Polyp Audit II

- 80 EMRs were carried out over a 3 year period
- Male: Female 52:28, mean age 68.25
- Median polyp size was 28.5 mm (10 mm–60 mm)



Histology

- Tubolovillous adenomas 75%
- High grade dysplasia in 27.5% (22/80)
- Polyp cancers in 3.75% (3/80)
- Only two polyps failed to be lifted, with majority of polyps removed by piecemeal resection



Follow Up & Complications

- Repeat scope at a Median of 5 months
- Polyp recurrence rate was 17.5%
- All were successfully treated endoscopically

- **Complications**
  - Bleeding 4 patients, abdominal pain 1, post polypectomy syndrome 1 and perforation 1
  - Two patients required operative intervention and rest were managed conservatively
  - APC was used in 64% patients and was associated with 6 of the above 7 complications.

Conclusions

- EMR is a safe procedure with few complications and acceptable recurrence rates
- The most significant complication of perforation was encountered in the early days of EMR
- This study demonstrates that with experience EMR can be safely practiced and advocated for large non-pedunculated colonic polyps

Key performance indicators (KPIs) for the management of LNPCP

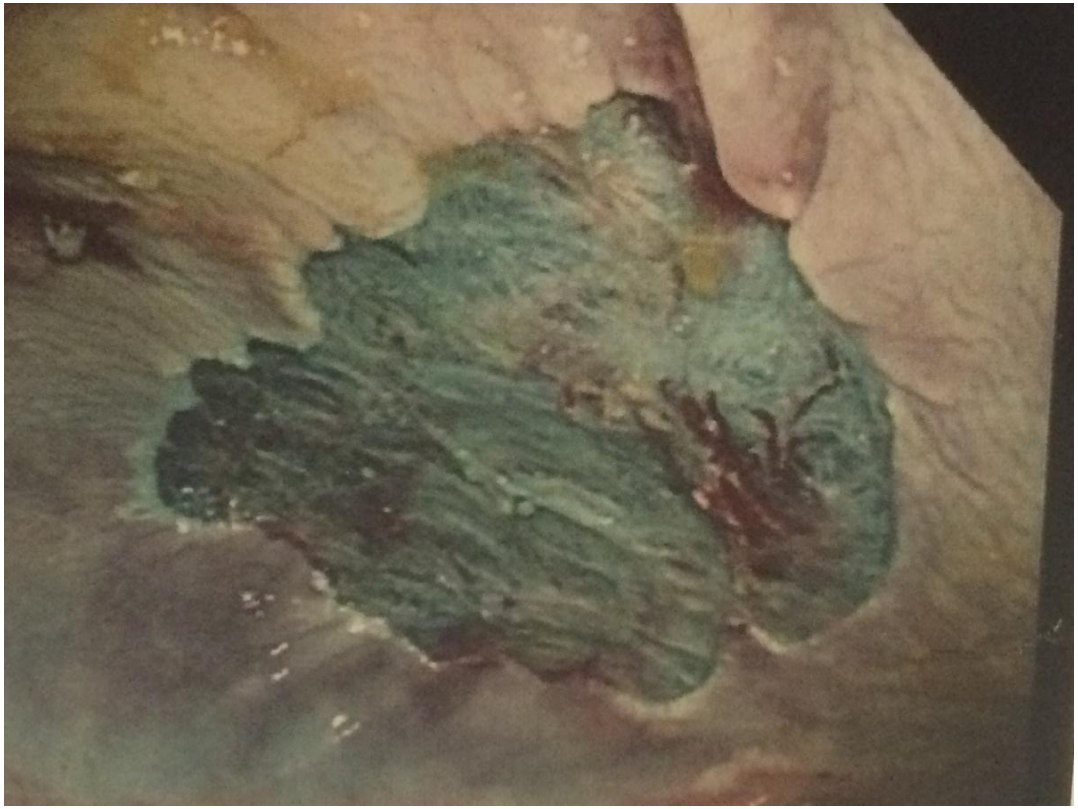
Domain	KPI	Minimum Standard	Aspirational Standard
Optimal Decision Making	Surgery rate for LNPCPs	Auditable outcome- no current standard defined	
Endoscopic Skill	Recurrent/residual polyp at 12 months in endoscopically managed LNPCPs	<10%	<5%
Safety	EMR Perforation Rate	<2%	<0.5%
	ESD Perforation Rate	Auditable outcome- no current standard defined	
	EMR Post-procedure bleeding rate	<5%	
	ESD Post-procedure bleeding rate	Auditable outcome- no current standard defined	
Timeliness	Time from diagnosis to referral for definitive therapy	<4 weeks (28 days) **Proportion of cases within this period:** Auditable outcome- no current standard defined	
	Time from referral to definitive therapy	<8 weeks (56 days) **Proportion of cases within this period:** Auditable outcome- no current standard defined	
Volume of Procedures	Number of procedures per endoscopist per year	Auditable outcome-no current standard defined	

Matthew D Rutter et al. Gut 2015;64:1847-1873

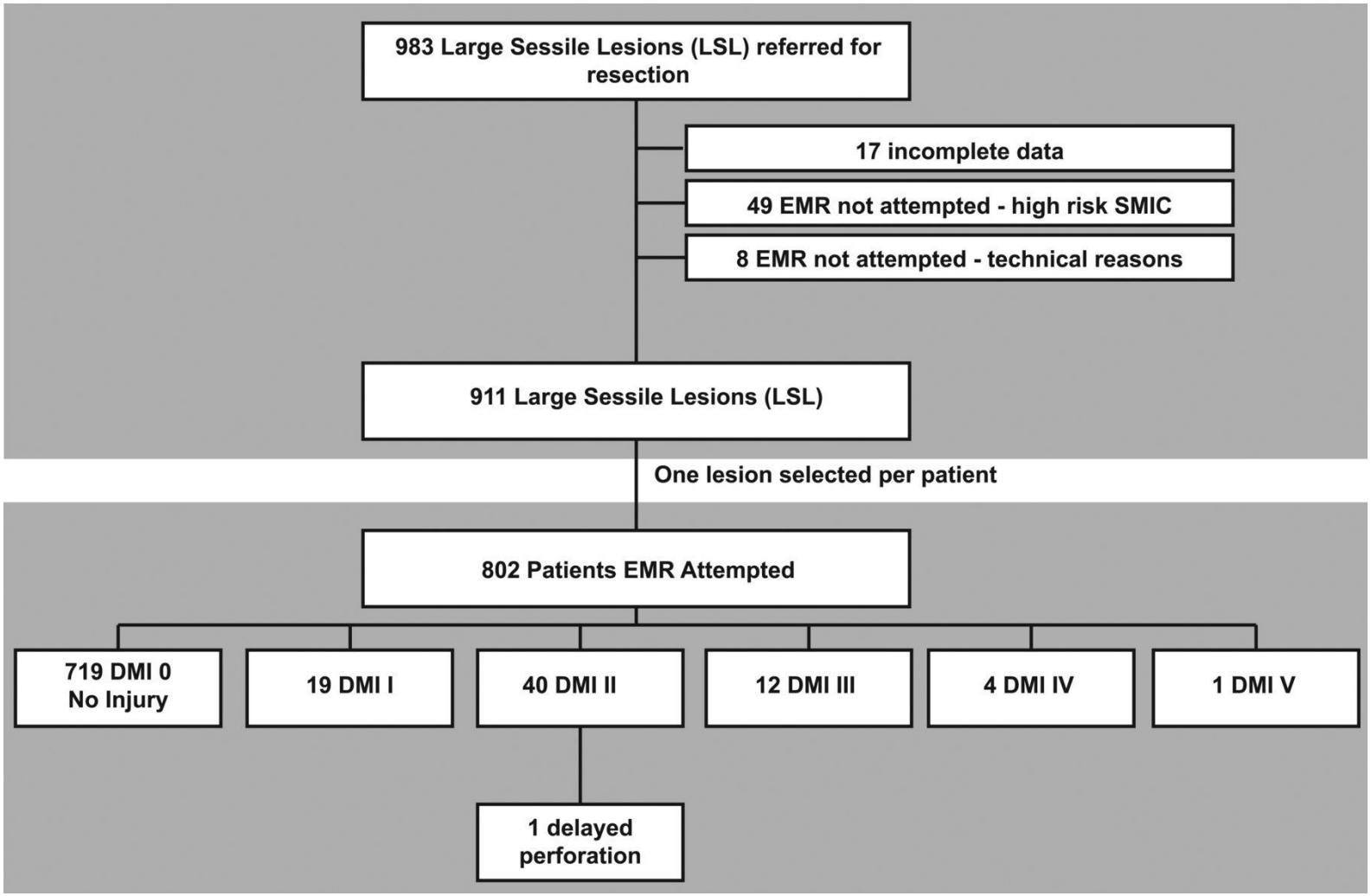
GUT

Improvements Since 2014

- Blended current
- Cold Snare
- Soft Coagulation
- Cold Biopsy



Comparative Data : Sydney 2010-14

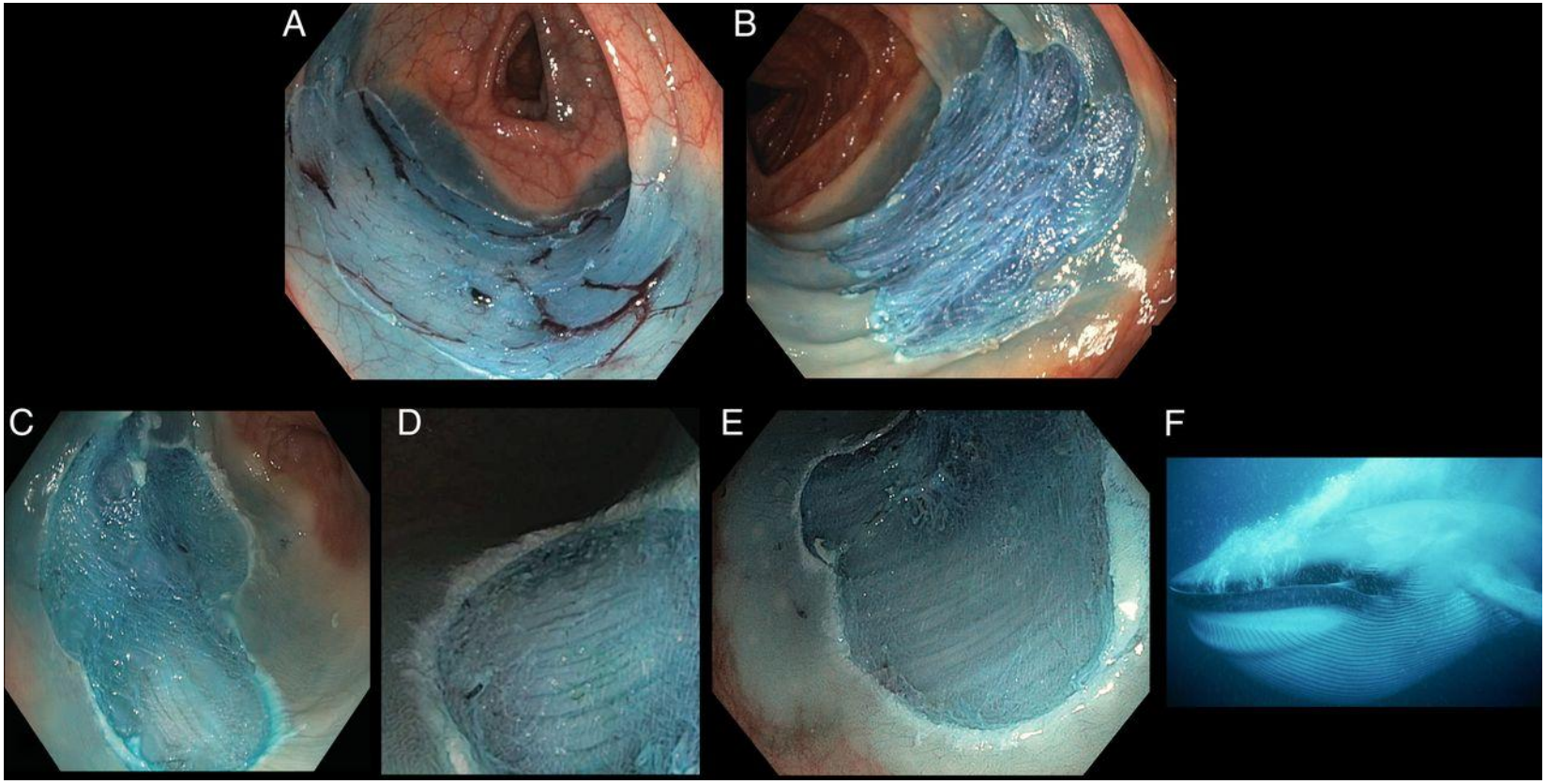


Nicholas G Burgess et al. Gut 2017;66:1779-1789

Burgess et al II

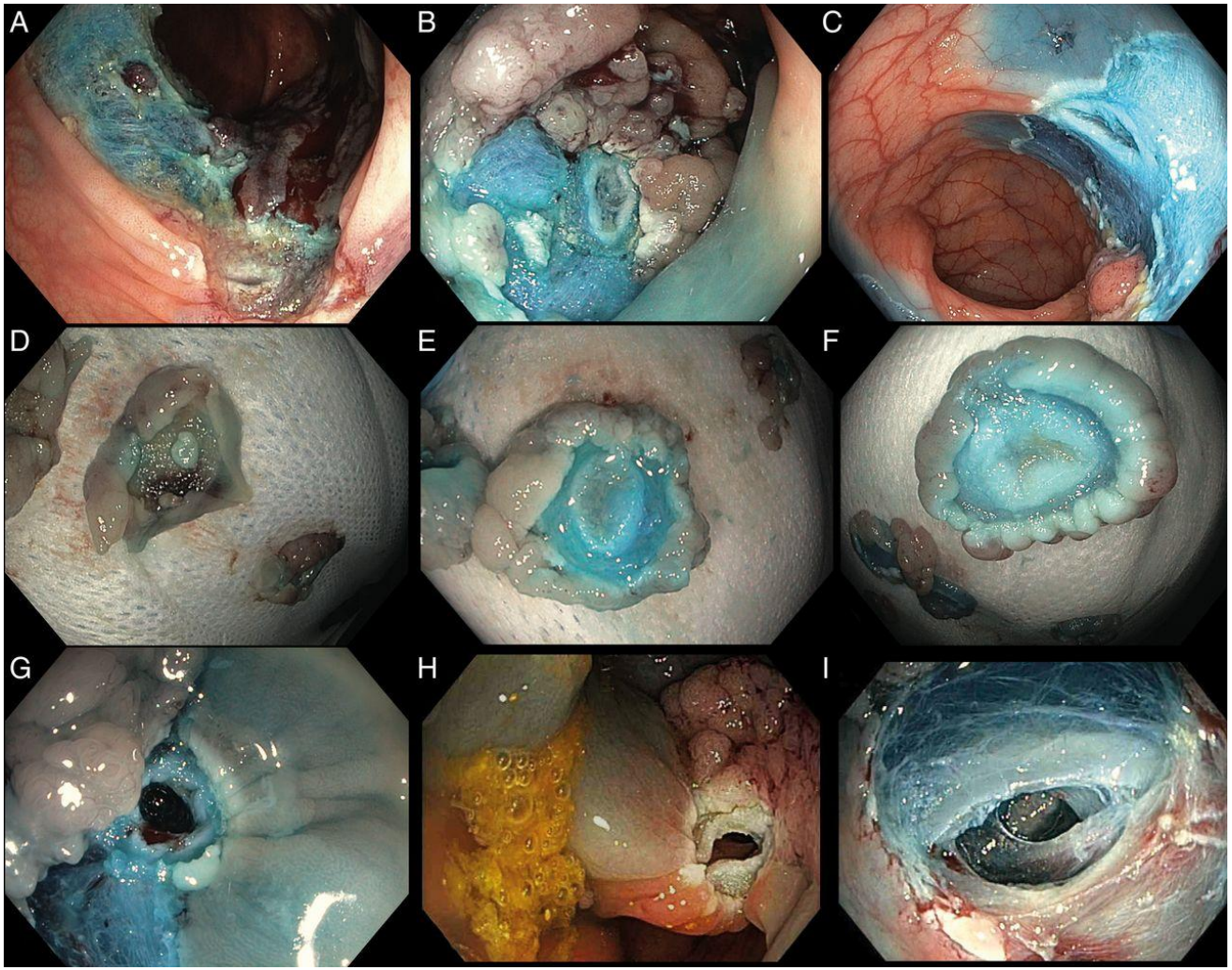
- 96% Complete excision of the lesion
- 50% Surgery, 50% further endoscopic treatment for unsuccessful resections

- Transverse colon, en-bloc resection and increasing levels of dysplasia were associated with deep mucosal injury
- No difference in SSP complications



Nicholas G Burgess et al. Gut 2017;66:1779-1789

A ‘type III’ defect refers to partial resection of the muscularis propria resulting in a defect target sign (DTS) (A, B, C) or a specimen target sign (D, E, F).



Nicholas G Burgess et al. Gut 2017;66:1779-1789

Endoscopic management of LNPCP

Planning

- Adequate planning (time, endoscopist, kit, nurses) to ensure single procedure resection
- Consent (options, risks) with written information in plain English
- Manage antithrombotic medications as per BSG guidelines

Procedure

- Use carbon dioxide
- Use submucosal injection solution with contrast agent and low concentration adrenaline
- Avoid pure cutting or prolonged pure coagulation current
- Piecemeal may be preferable for larger and/or proximal lesions
- Non-lifting lesions should not be subjected to attempted resection by conventional snare polypectomy
- Snare resect a lesion completely wherever possible (APC or soft coagulation only when further snare resection not possible)
- Careful post-procedure inspection of the resection site and photographic documentation
- Tattoo site in accordance with local policy

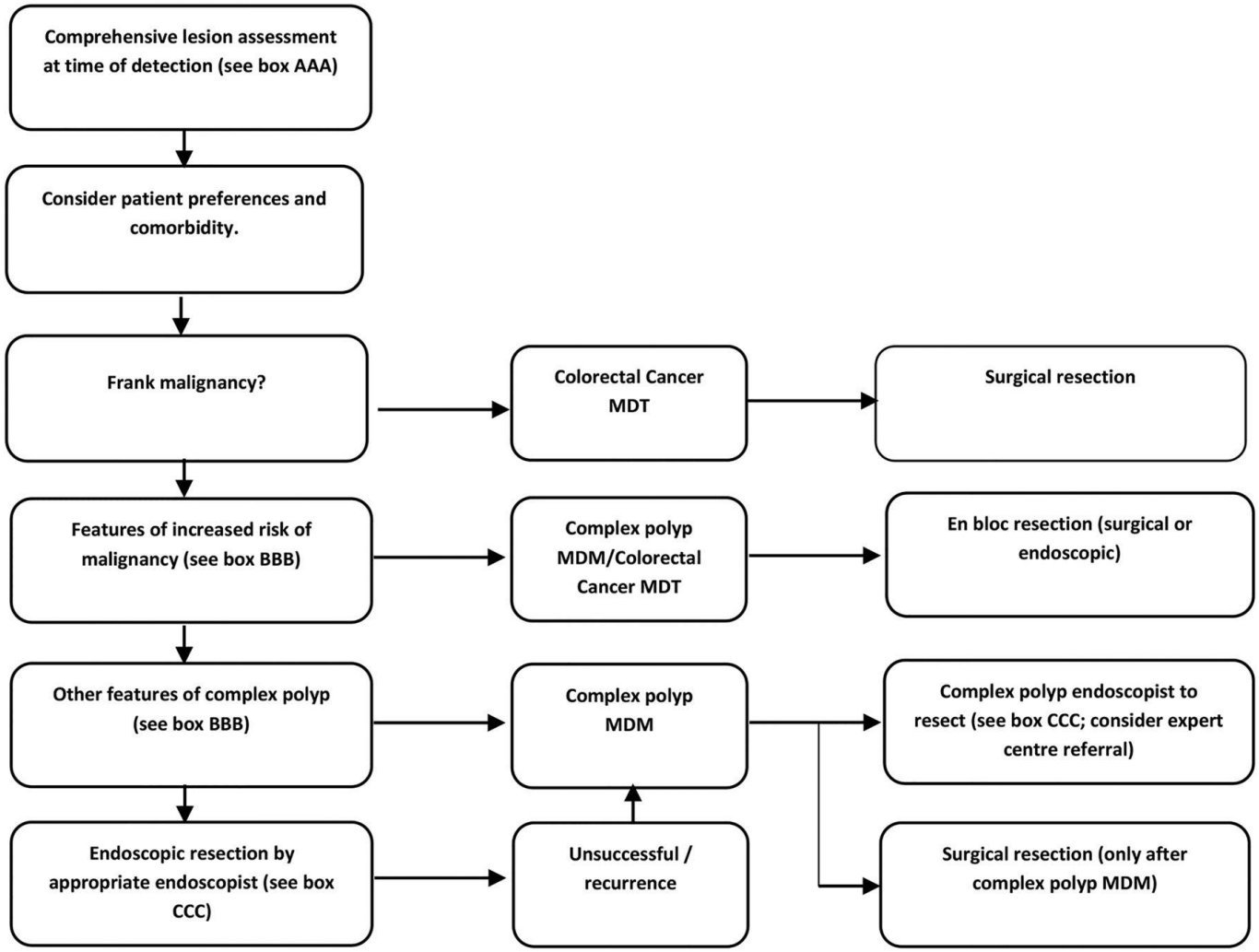
Post-procedure

- Provide patient with written information about post-procedure complications with recommended actions and an emergency phone number
- Check site 2-6 months after piecemeal endoscopic resection
- Positively identify, photograph & assess scar with image enhancement techniques

Matthew D Rutter et al. Gut 2015;64:1847-1873

GUT

Suggested management algorithm after large non-pedunculated colorectal polyps (LNPCP) identification



Matthew D Rutter et al. Gut 2015;64:1847-1873

Complex Polyp MDT

- Agreement from surgery, radiology and pathology
- Plan to run every 2 weeks
- Admin would be provided by the CRC MDT team
- Unisoft update
- Referrals from Lothian, Borders, Fife

Patient name:	Gender:	DOB:	NHS no:
Endoscopist + Centre			
Patient Symptoms			
Additional colorectal pathology e.g. IBD			
Significant comorbidity e.g. ASA score, Schonberg Index			
Anticoagulant/antiplatelet use + indication			
Polyp details - ***Please record polyp details + indicate SMSA score. This will help determine difficulty of achieving successful endoscopic resection***			
	Details		**SMSA score *(circle/highlight)***
Site			**Left** = 1; **Right** = 2
Size			**<1cm** = 1; **1-1.9cm** = 3; **2-2.9cm** = 5; **3-3.9cm** = 7; **>4cm** = 9
Morphology (e.g. Paris/LST)			**Pedunculated (Ip)** =1; **Sessile (Is/Isp)** = 2; **Flat (II)** = 3)
Access issues			**Proximal aspect of fold, difficult colonoscopy etc; Easy** = 1; **Difficult** = 3
Total SMSA score/level *(circle/highlight)*	**Level 1:** 4-5	**Level 2:** 6-9	**Level 3:** 10-12 **Level 4:** >12
Surface Characteristics (e.g. Pit Pattern, Sano CP, NICE NBI classification)			
Features indicating high risk of malignancy ***Highlight all that apply***	**Morphological:** Lesion depression (Paris 0-IIc or 0-IIa+c), LST-NG, LST-G with dominant nodule, non-lifting sign **Surface:** Ulceration, Pit Pattern V, Sano CP III, NICE NBI Type 3		
High risk of recurrence/incomplete excision ***Highlight all that apply***	≥40+mm, difficult location (dentate line, ICV, appendix, diverticulum, anastomosis), previous failed attempts, other:		
Relevant histology results			
Relevant Radiology results			
Additional info			
Does patient have any particular wishes/ preference? Are they prepared to travel to another centre?			
Specific questions regarding management?			
Please attach photos/video, including as a minimum: full lumen view, close up lesion surface, close-up of any abnormal/concerning focus. **Additional desirable imaging: enhanced lesion surface imaging (e.g. NBI/FICE/I-Scan)** **For rectal lesions please also include: Retroflexed image & front facing image from anal verge**			

ACPGBI/BSG Complex Colorectal Polyp Minimum Dataset. *Chattree et al. Colorectal Dis 2016*

Conclusions

- LNPCP management in Lothian has been centralised and audited
- Standards up to were 2014 reasonable and I suspect continue to improve
- We now need the MDT infrastructure to take the service forward

Serrated lesions in the colon

Nick Church

GGC screening update

23rd October 2017

Importance

- Post colonoscopy CRC remains an issue despite quality improvement in UK colonoscopy

- Colonoscopy protects against left sided but not right sided cancer
  - Initial results from 2 Canadian case/control studies 2009 (symptomatic patients)
  - Later studies by same groups showed protection against right sided cancer by gastroenterologists, higher caecal intubators and higher polyp detectors
  - 3 case/control studies in US patients 2013 – 7-10% less protection from right sided cancers than left sided (open access and screening patients)

Reasons for failing to prevent right sided cancer

- Didn’t get there
- Couldn’t see when we got there

- Didn’t identify lesions
- Didn’t completely remove lesions

- Proximal serrated lesions may account in part for these observations

REVIEW ARTICLE

The cutting edge of serrated polyps: a practical guide to approaching and managing serrated colon polyps (CME)

Berkeley N. Limketkai, MD,[1] Dora Lam-Himlin, MD,[2] Michael A. Arnold, MD,[3] Christina A. Arnold, MD[4]

Baltimore, Maryland; Scottsdale, Arizona; Columbus, Ohio, USA

Limketkai et al. GIE 2013; 77(3): 360-75

ORIGINAL ARTICLE: Clinical Endoscopy

Endoscopic features of sessile serrated adenomas: validation by international experts using high-resolution white-light endoscopy and narrow-band imaging (CME)

Yark Hazewinkel, MD,[1] Maria López-Cerón, MD,[2] James E. East, MD,[3] Amit Rastogi, MD,[4] Maria Pellisé, MD, PhD,[2] Takeshi Nakajima, MD, PhD,[5] Susanne van Eeden, MD, PhD,[6] Kristien M.A.J. Tytgat, MD, PhD,[1] Paul Fockens, MD, PhD,[1] Evelien Dekker, MD, PhD[1]

Amsterdam, The Netherlands; Barcelona, Spain; Oxford, United Kingdom; Kansas City, Missouri, USA

Hazewinkel et al. GIE 2013; 77(6): 916-24

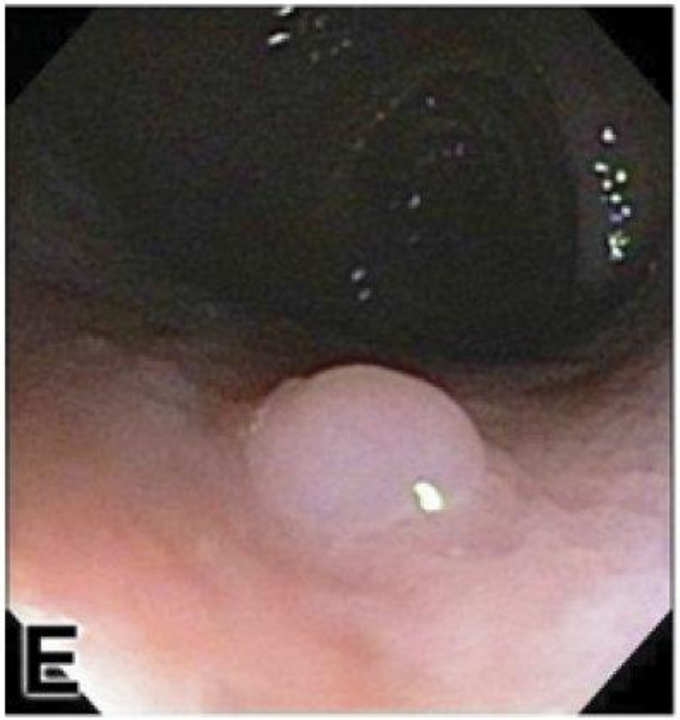
TABLE 1. Serrated polyp classification scheme

Hyperplastic polyp	Microvesicular (MVHP) Goblet cell rich (GCHP) Mucin poor (MCHP)
Sessile serrated adenoma/polyp (SSA/P)	Without cytological dysplasia With cytological dysplasia
Traditional serrated adenoma (TSA)	Without conventional dysplasia With conventional dysplasia
Filiform serrated adenoma	
Serrated polyp, unclassifiable	

Limketkai et al. GIE 2013; 77(3): 360-75

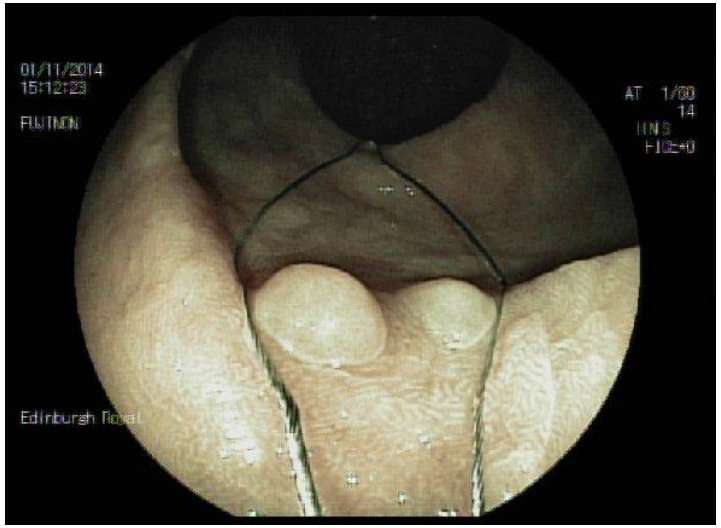
Hyperplastic polyps

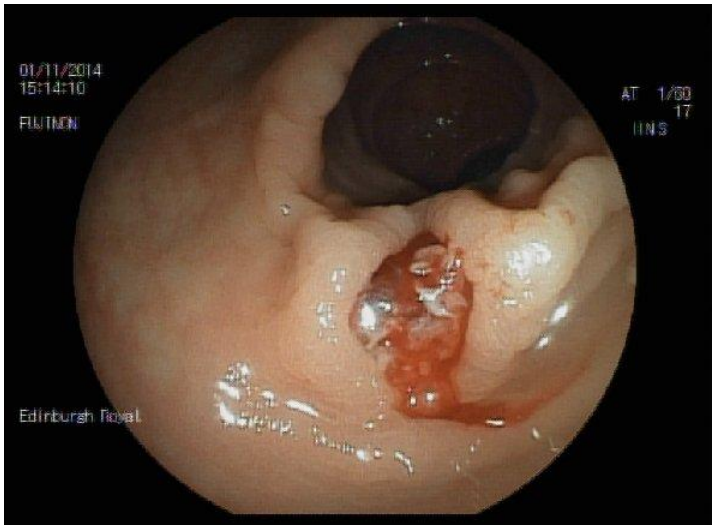
- 75% of serrated polyps
- 28-42% of all polyps detected at colonoscopy
- More common in men
- Most frequently left sided/distal
- Average size <5mm
- Sessile
- Pale, stuck on
- Stellate pit pattern
- Non-dysplastic
- Malignant potential absent/low



F Type II

Papillary or stellate





Sessile serrated lesions

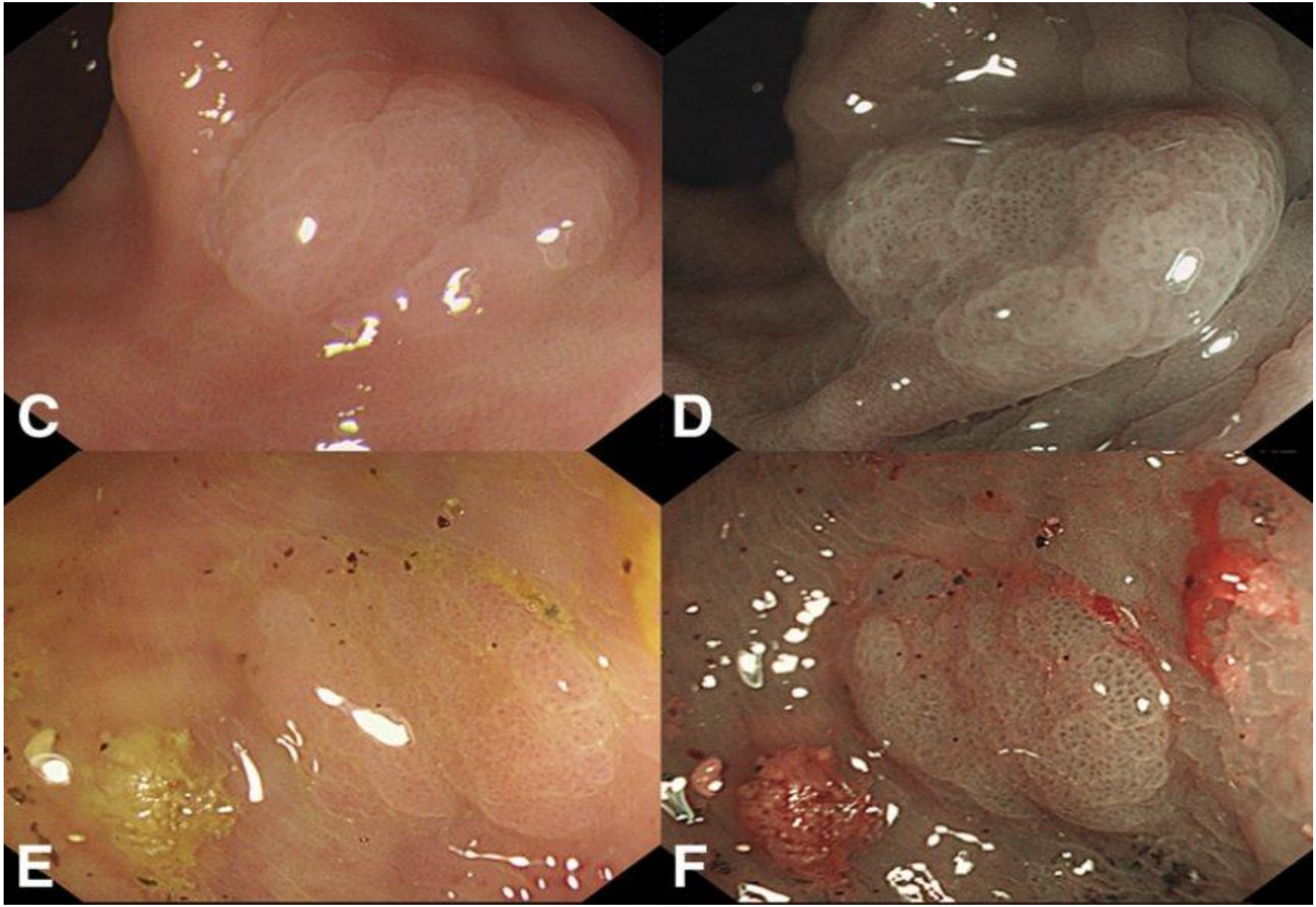
- Described in 1996, called SSA/P from 2003 now called SSL
- Previously known as giant hyperplastic polyp, variant hyperplastic polyp, serrated polyp with abnormal proliferation, mixed polyp, hyperplastic polyp with adenoma
- 1-9% of colonic polyps (compares with conventional adenoma 55-71% of all polyps)
- Recent study suggesting that at screening colonoscopy SSL should be expected in 5% of patients

SSL

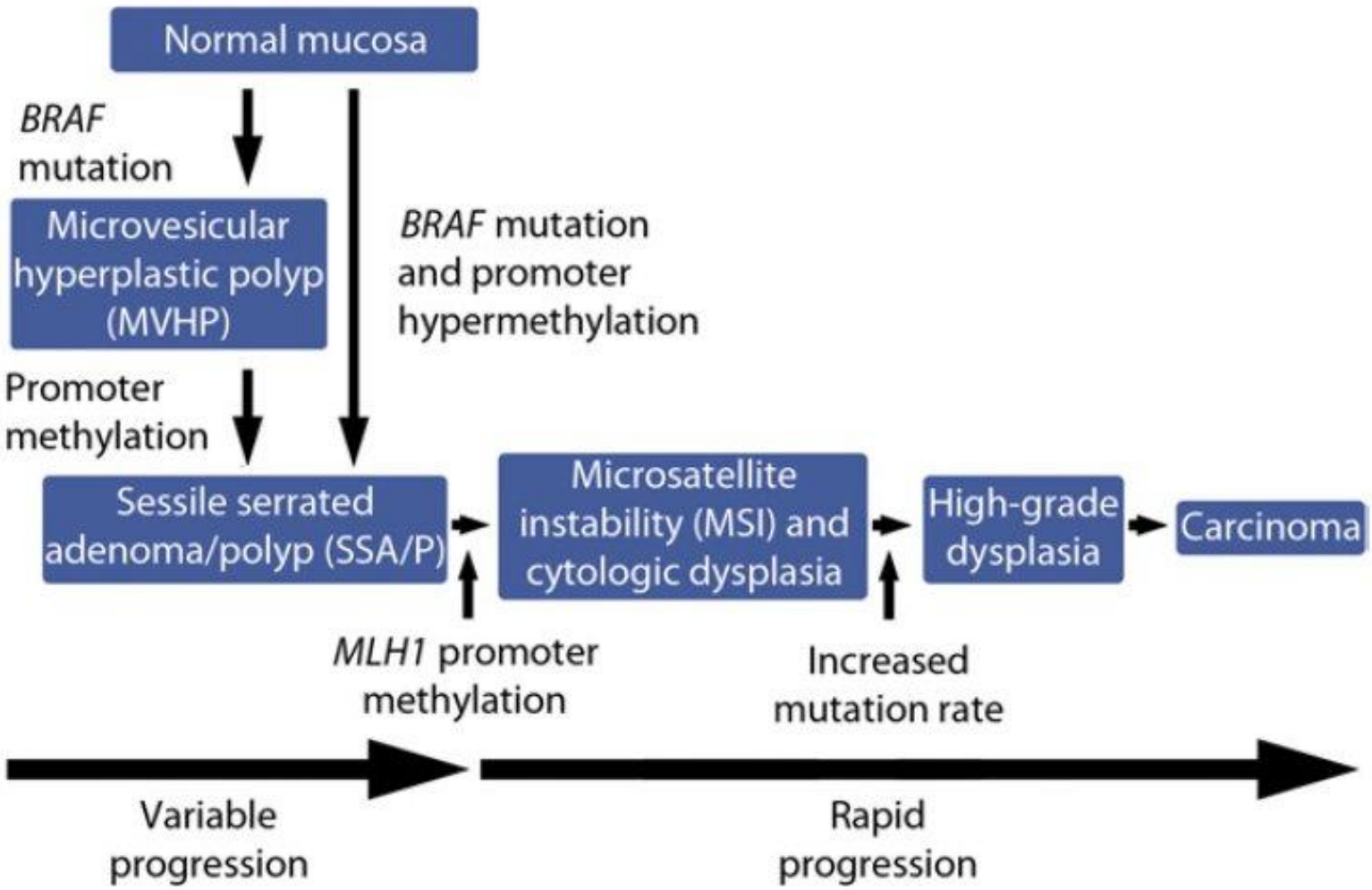
- More common in women, median age 62
- Proximal large SSL associated with 2-5 times greater risk of synchronous advanced neoplasia
- Multiple studies show association with interval cancer
- Predominantly right sided
- Sessile or flat
- Average size >5mm

SSL

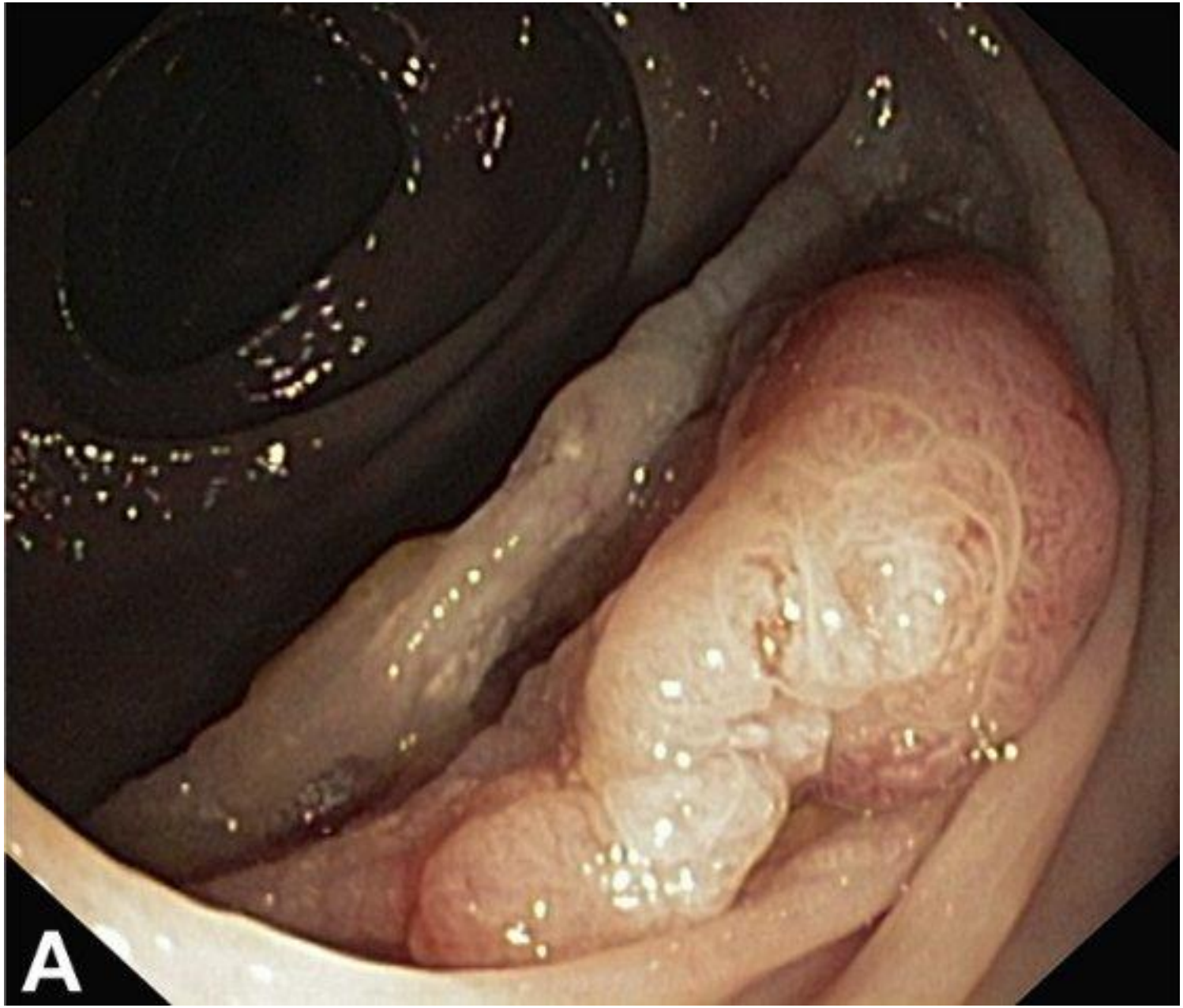
- Typical endoscopic features
  - Mucus cap
  - Indistinct border
  - Irregular shape
  - Cloudy surface
  - Round open pit pattern
  - Dark spots in crypts
- Dysplasia uncommon – associated with increasing age, larger size, nodule, adenomatous pit pattern
- Malignant potential even if no dysplasia



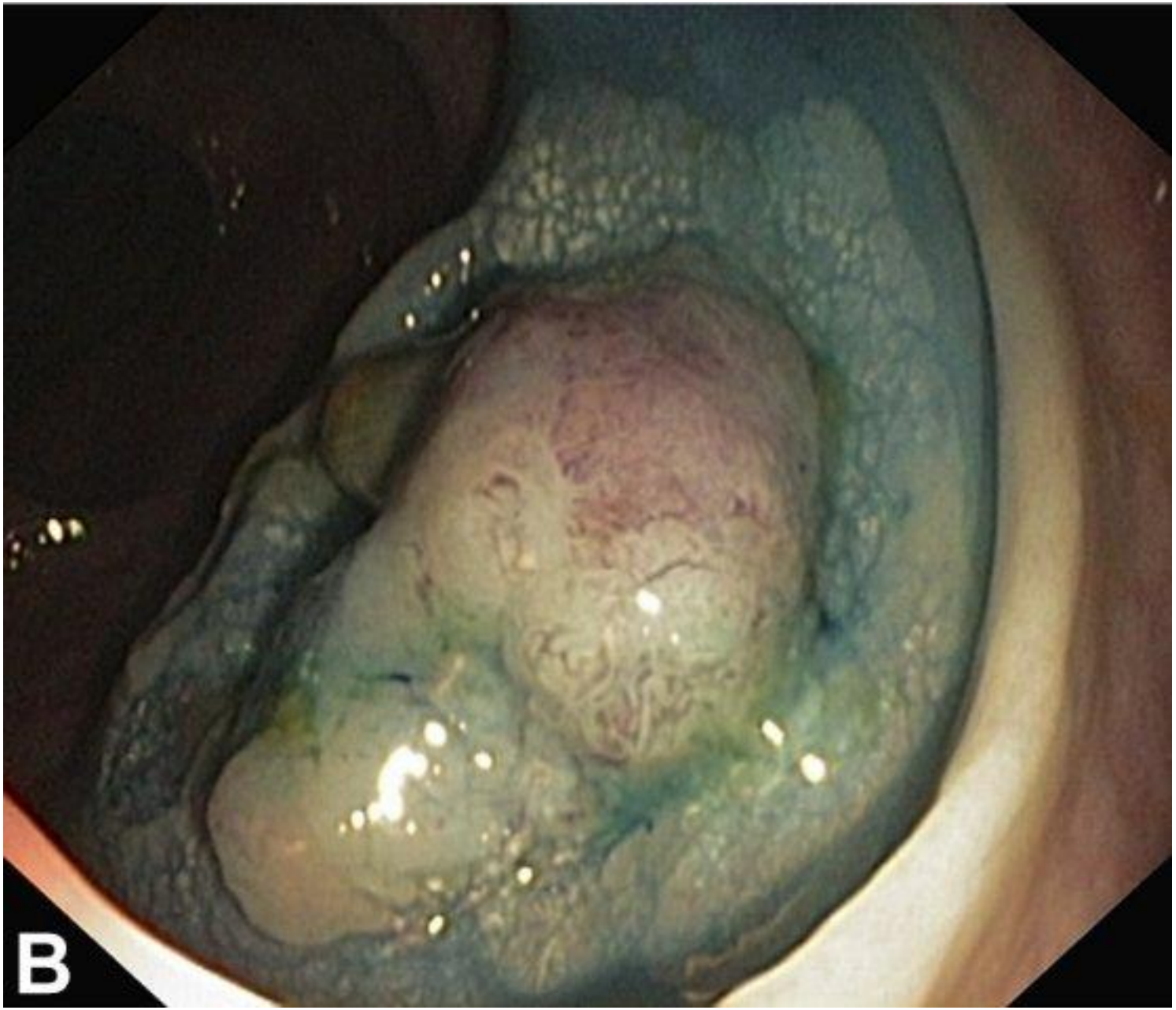
Hazewinkel et al. GIE 2013; 77(6): 916-24



Limketkai et al. GIE 2013; 77(3): 360-75



Burgess et al. GIE 2014; 80(2): 307-9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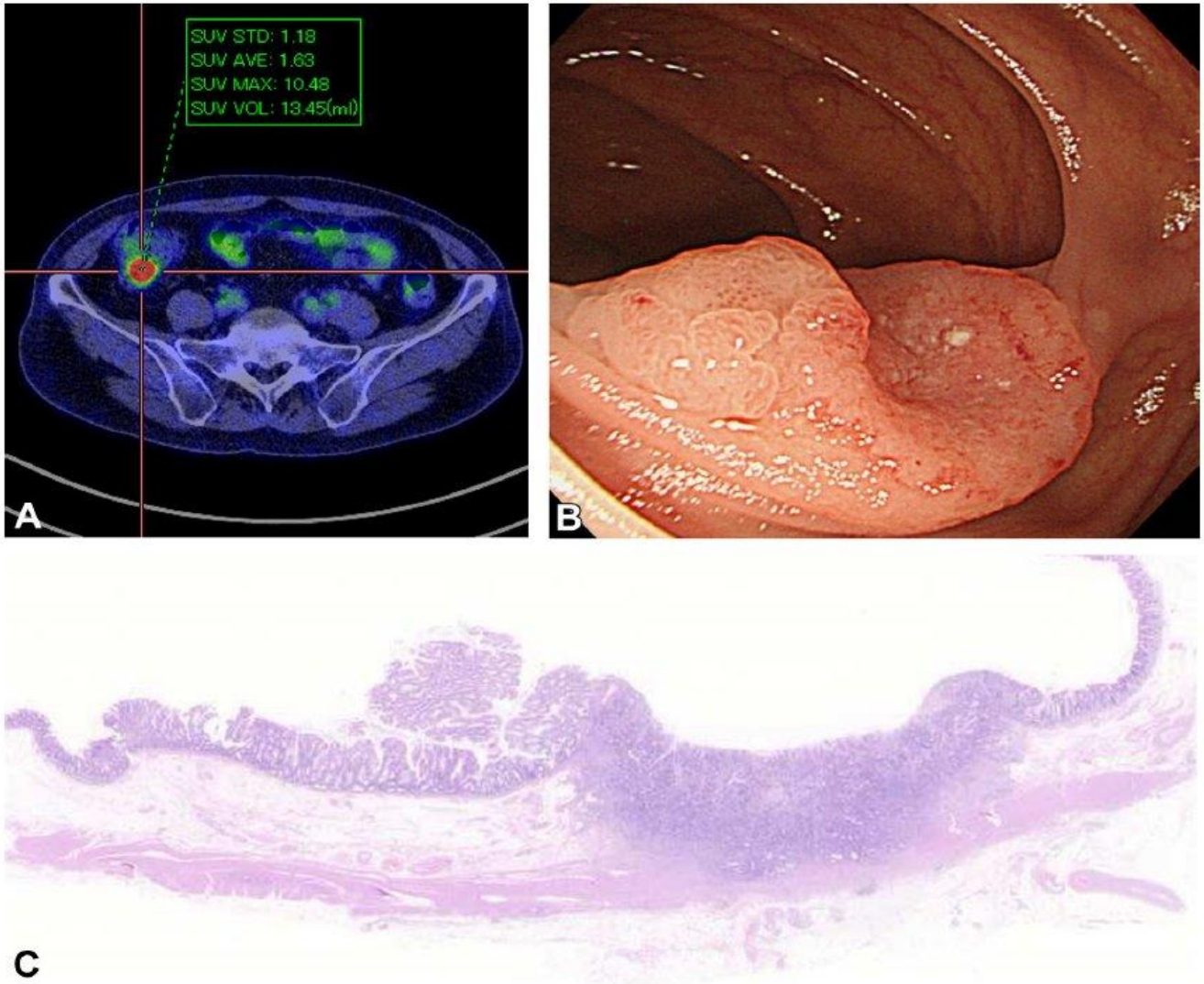
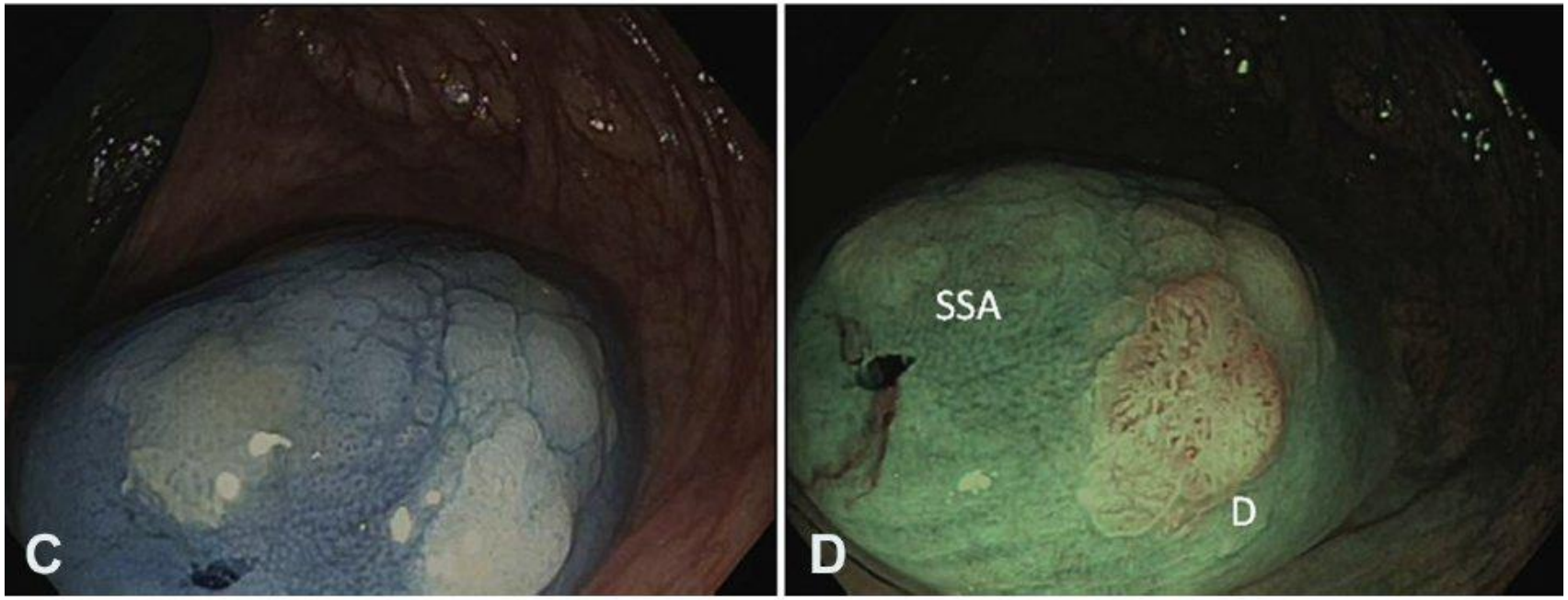
Colon cancer arising from a sessile serrated adenoma/polyp detected on positron emission tomography/computed tomography



Seishima R. GIE 2015; 82(4): 760-761



Nanda et al. GIE 2014; 79(5): 864-70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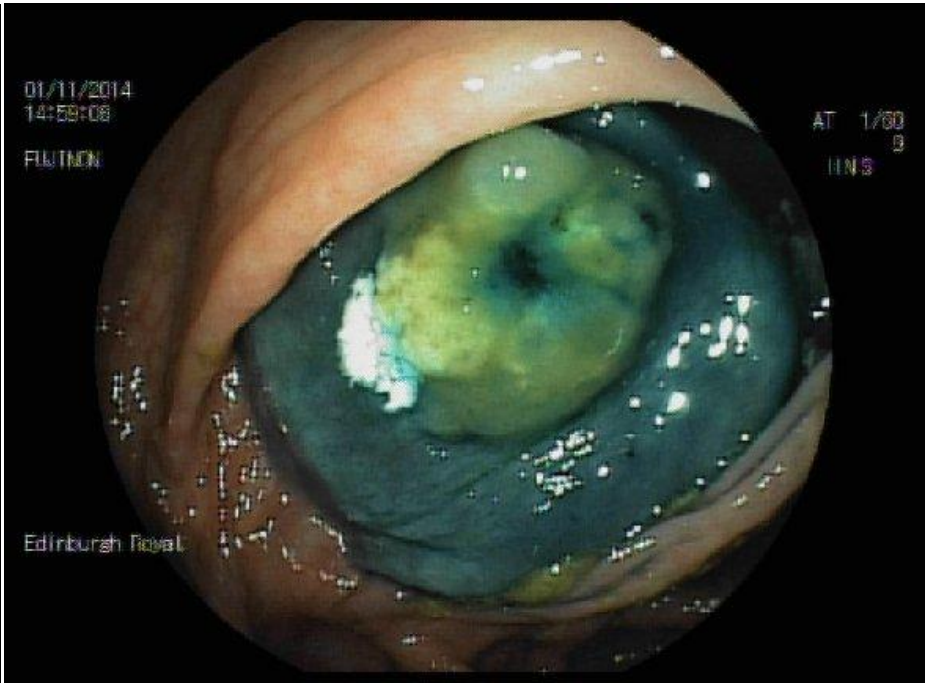
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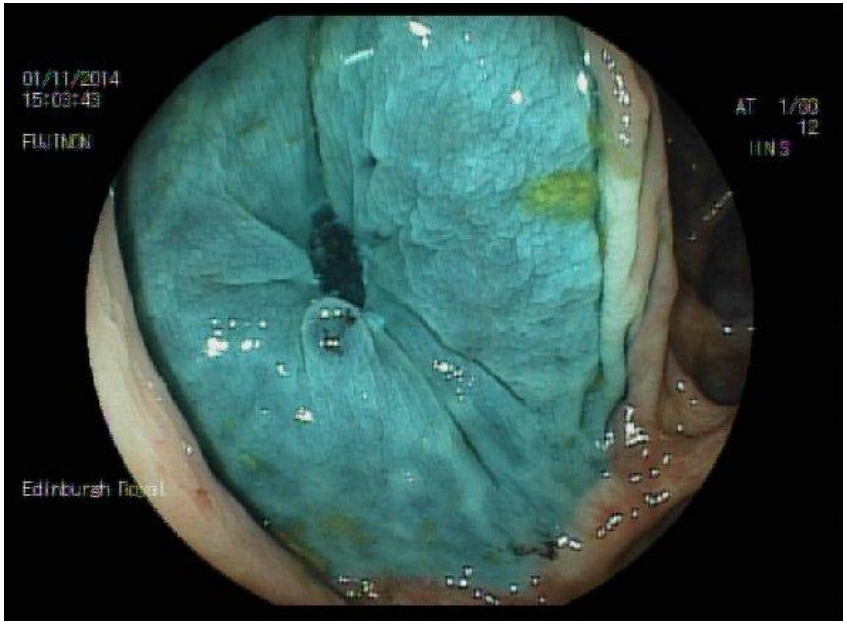
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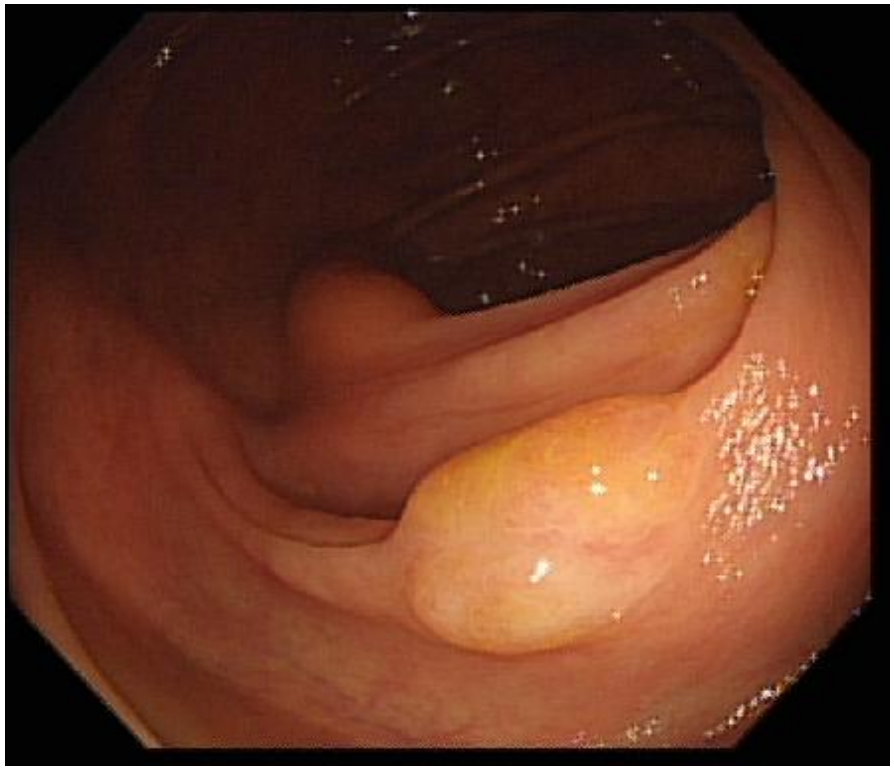


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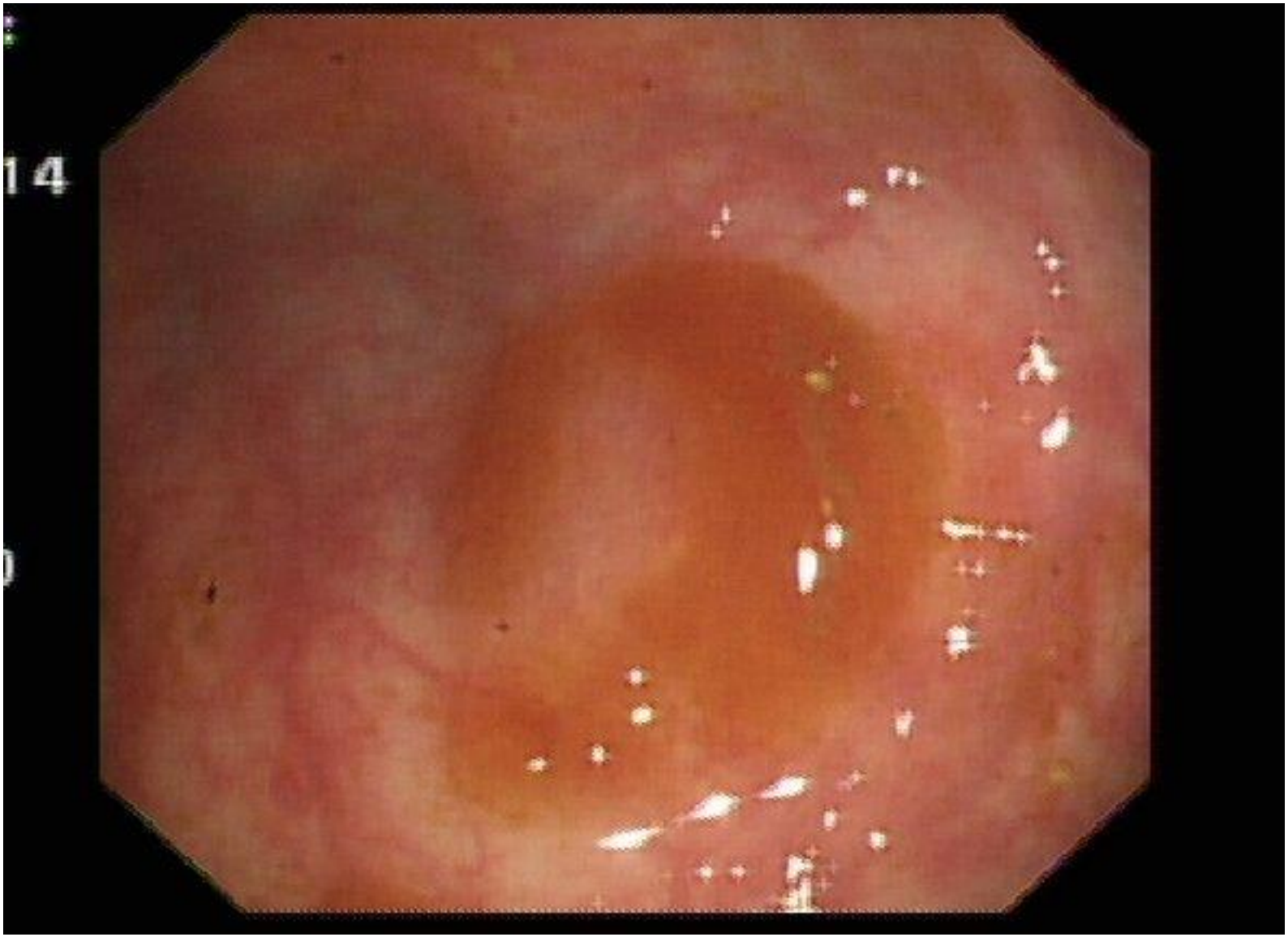
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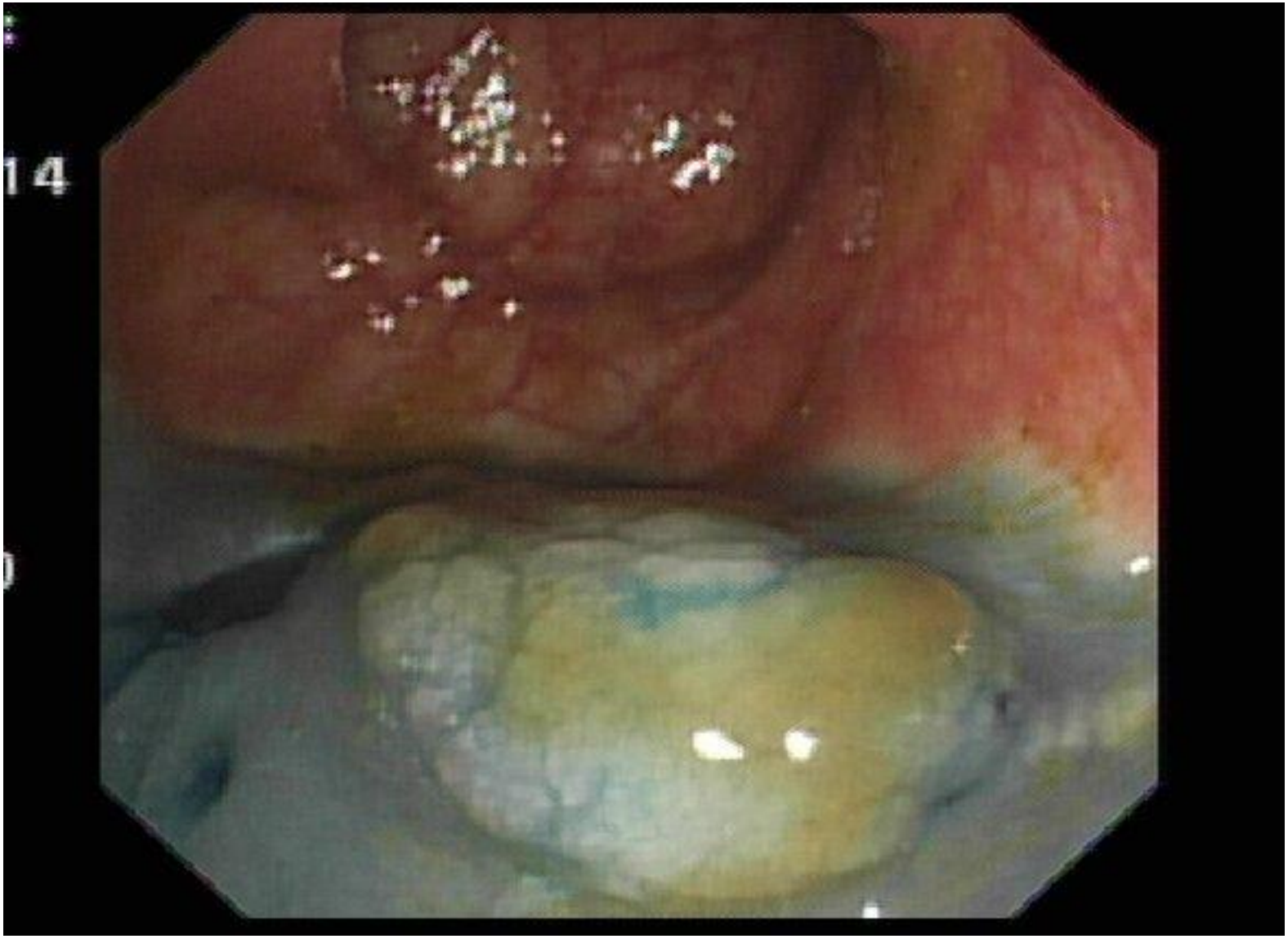
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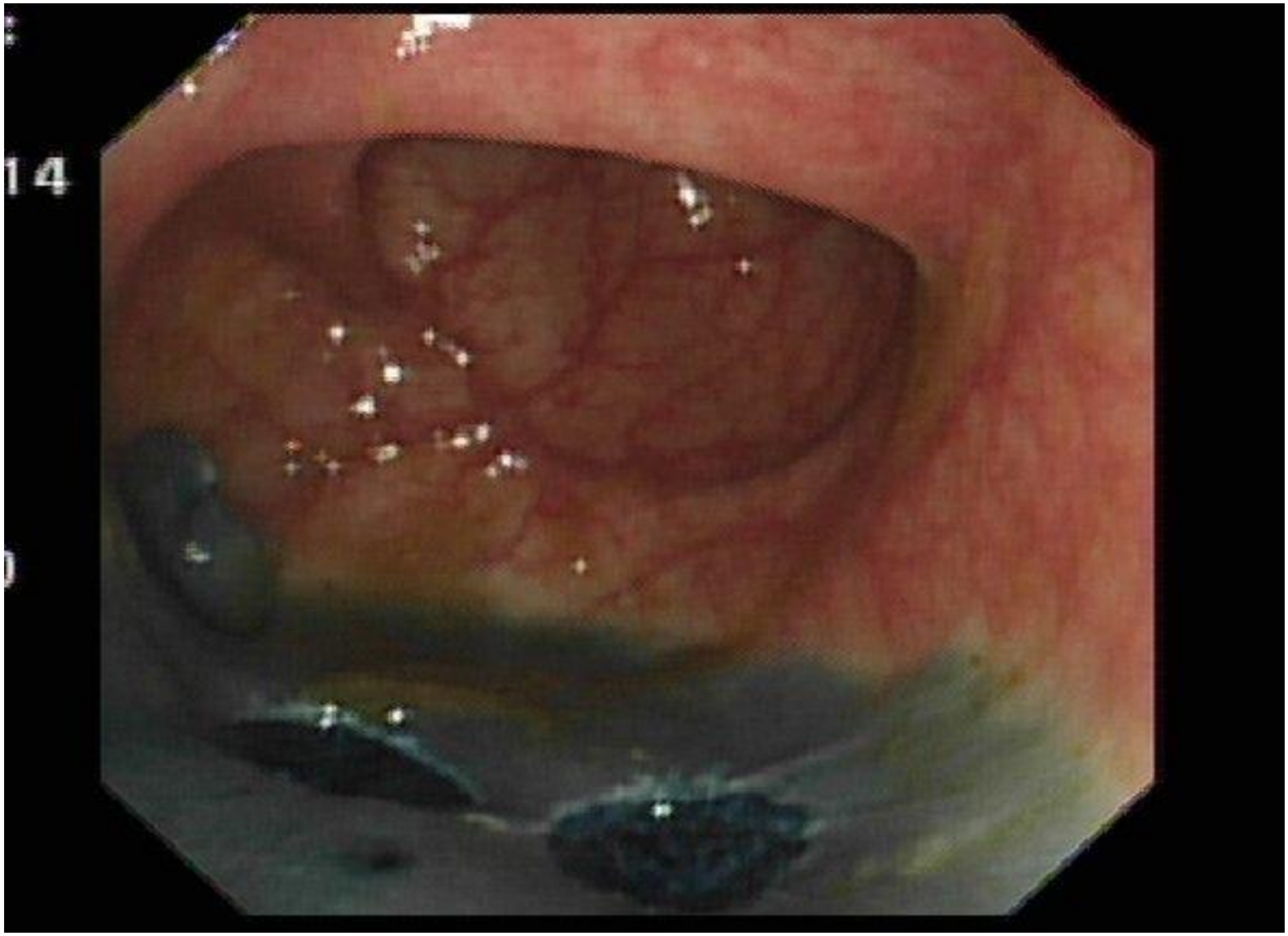
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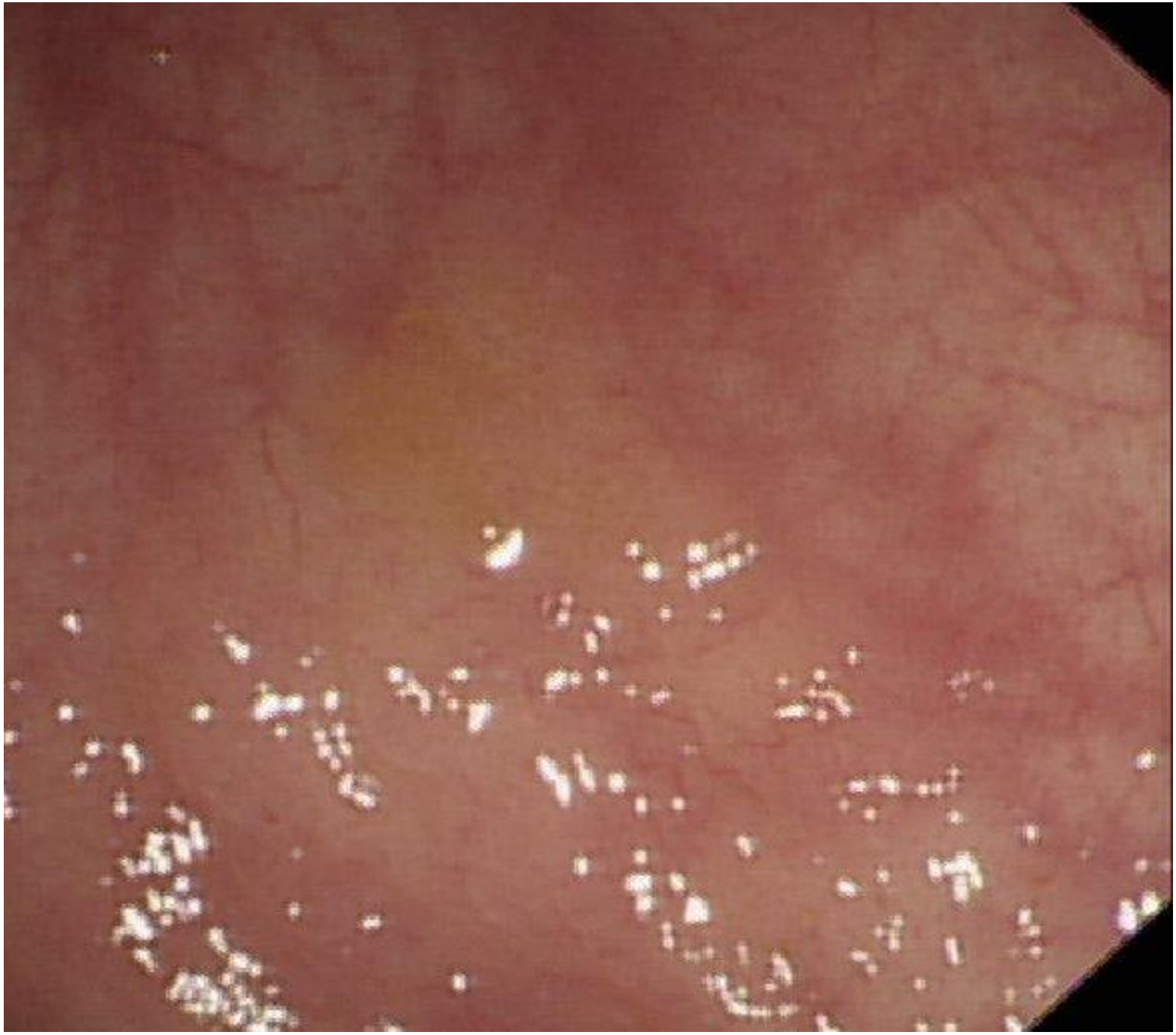

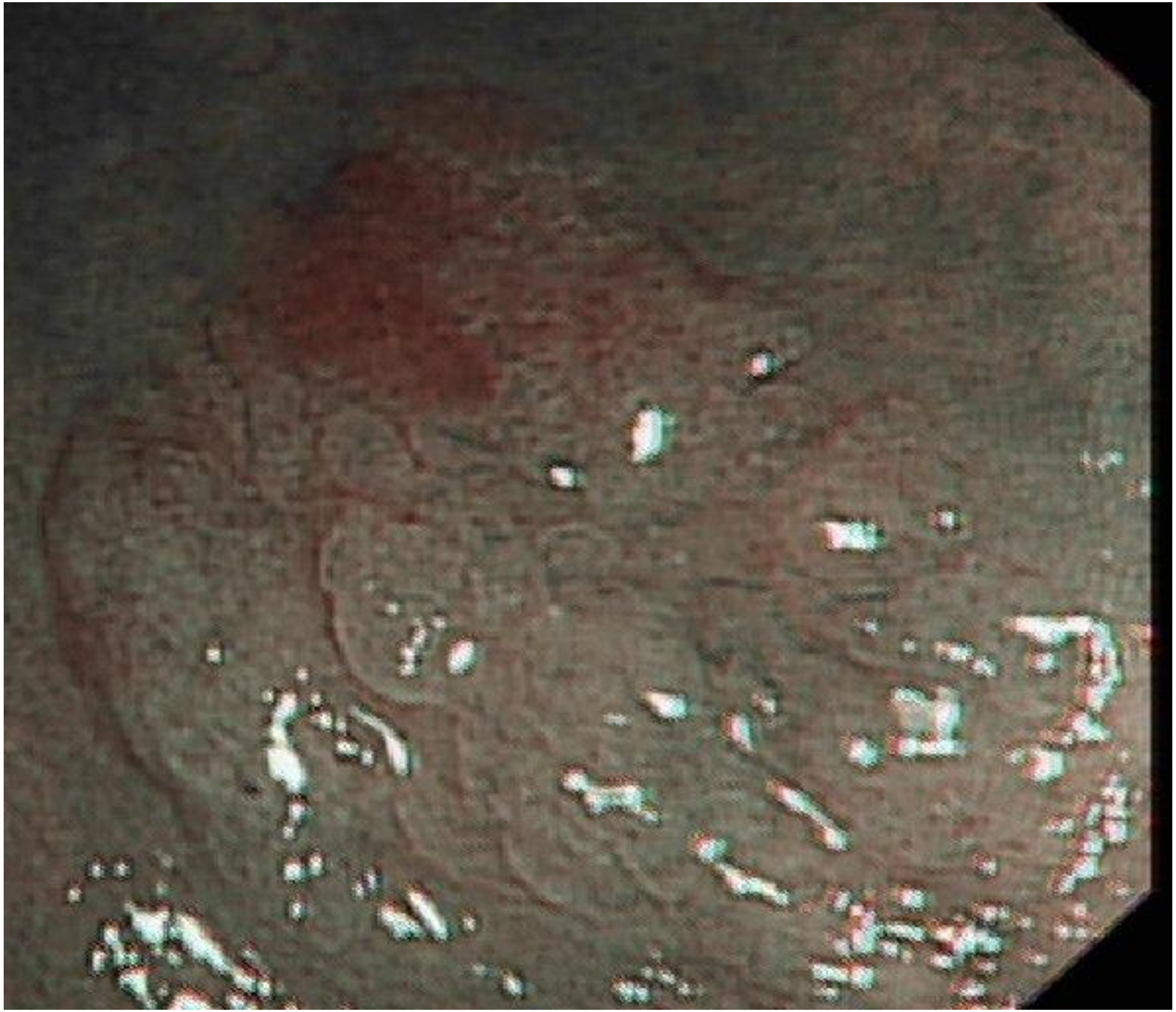

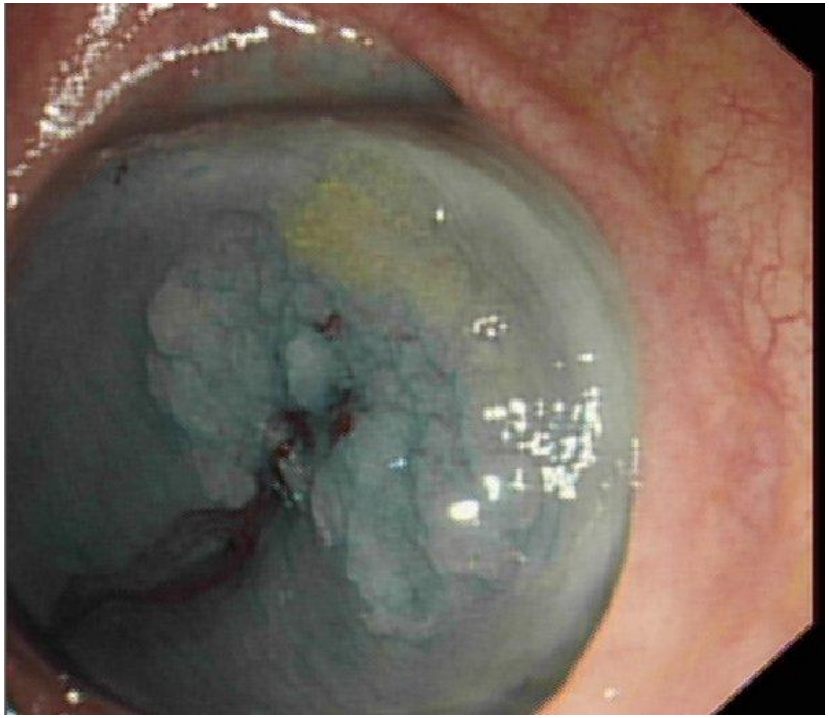

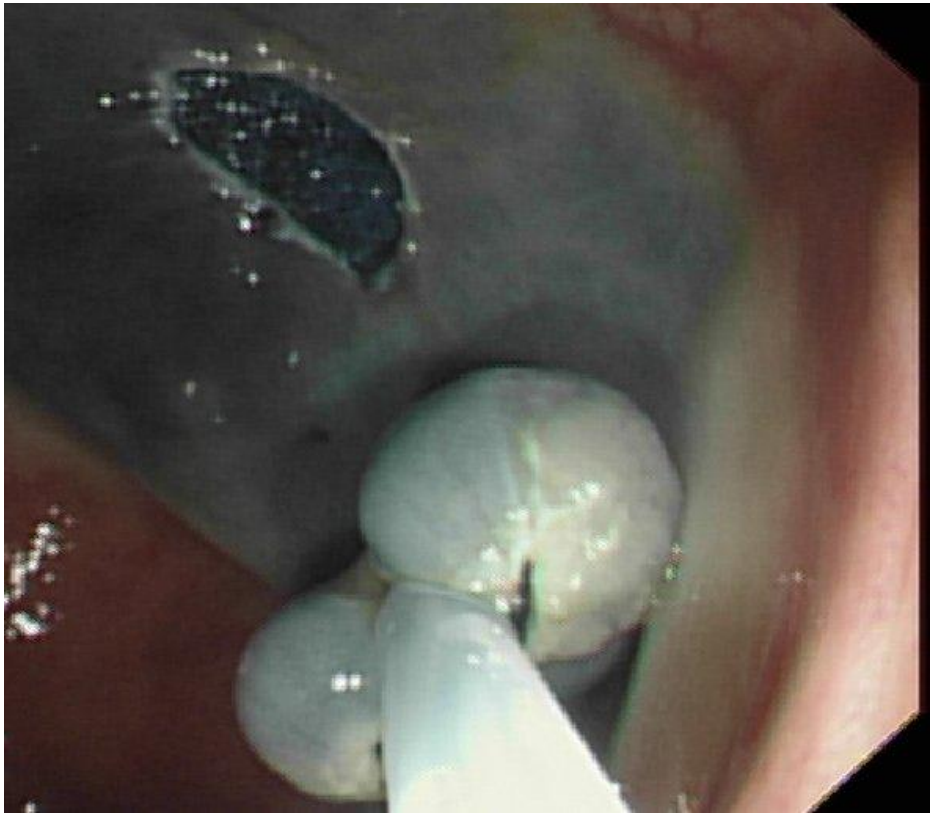

Challenges with SSL

- Subtle lesions tricky to spot
- Lesions often larger than anticipated
- Lifting flattens lesions – snares slip
- Risks of heat in the right colon – delayed bleeding, post-polypectomy syndrome, perforation

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Physician :
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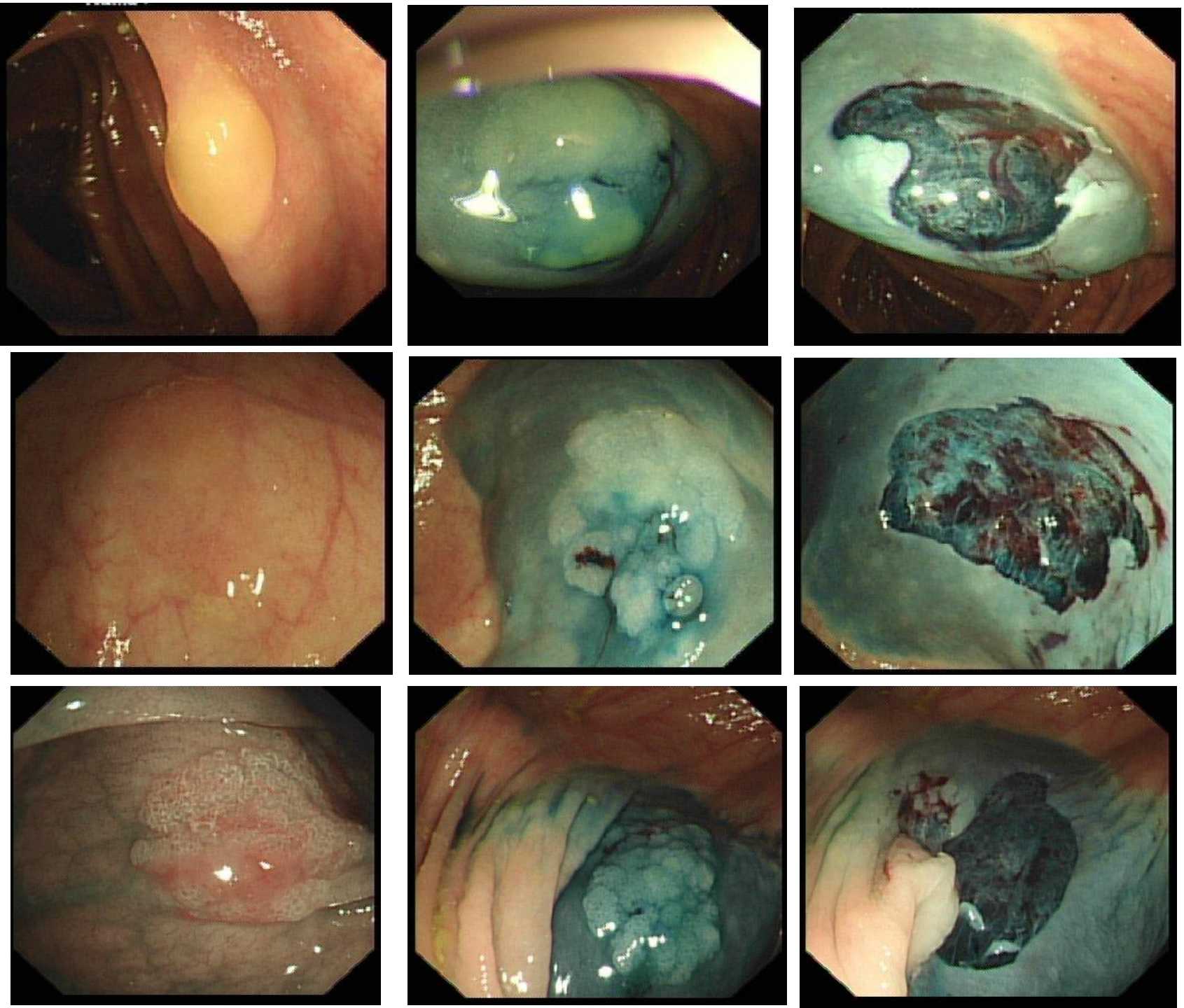

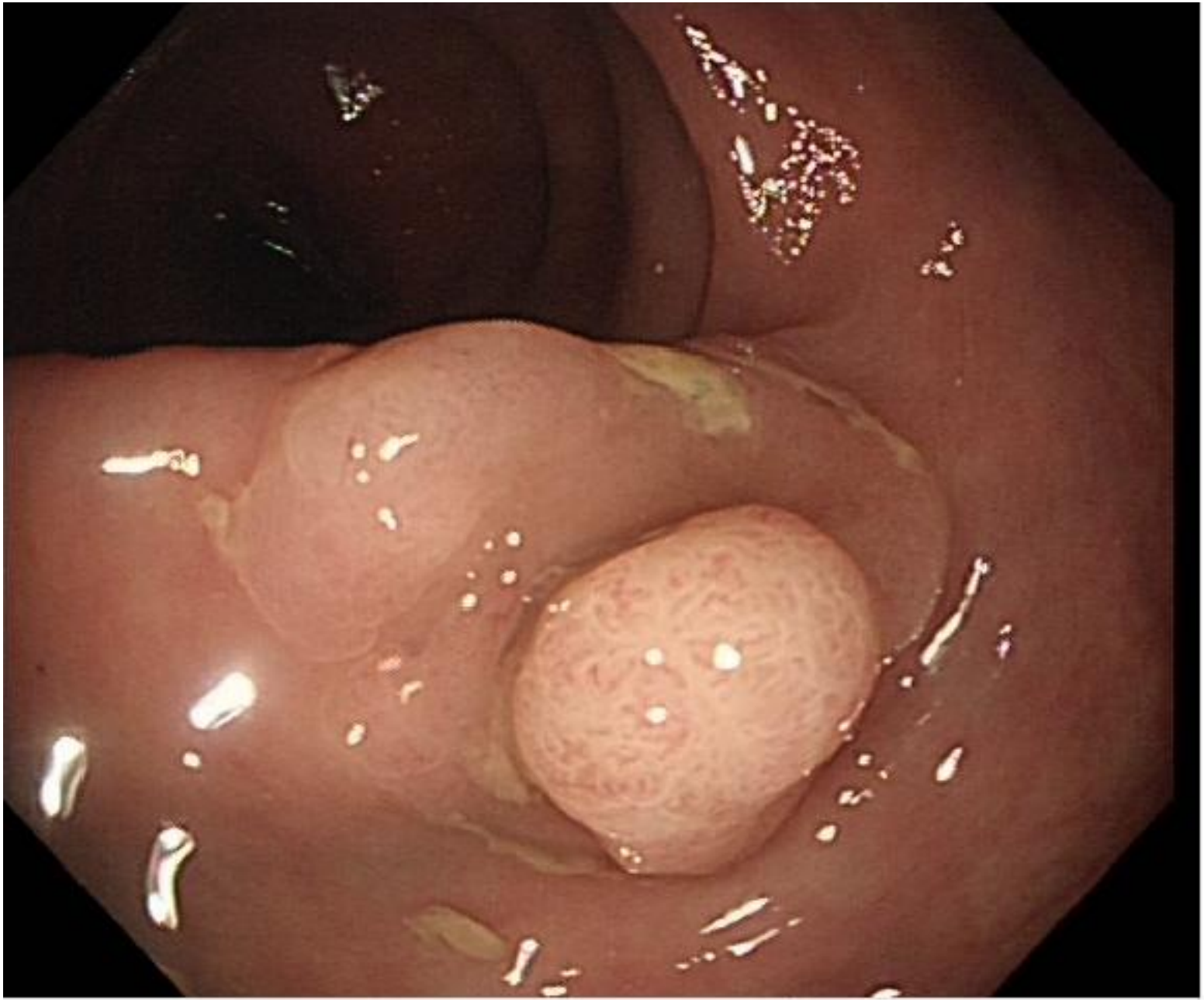

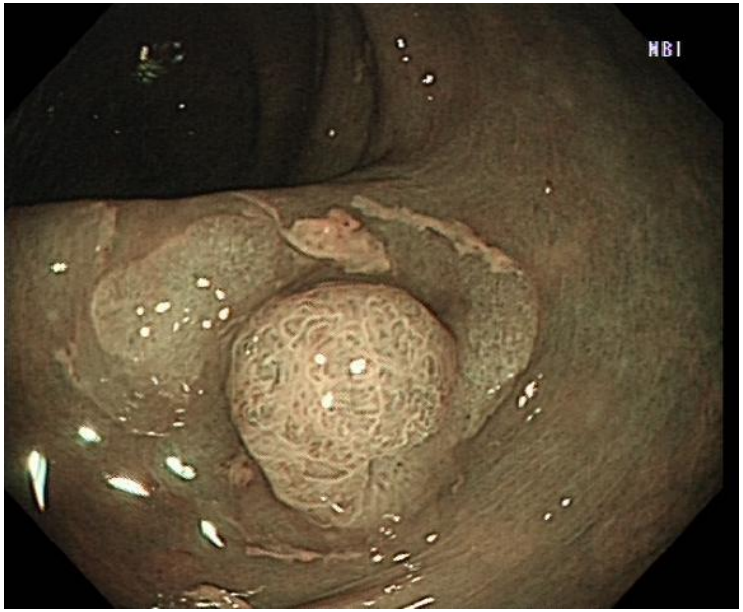
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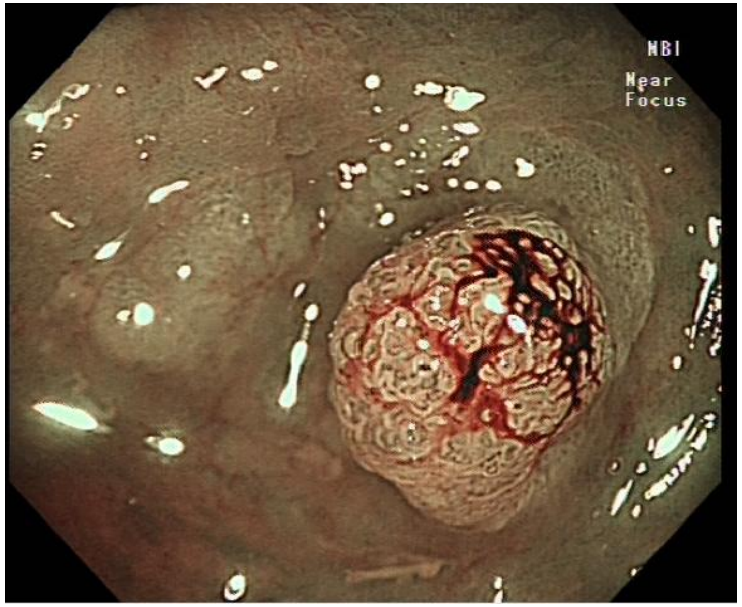
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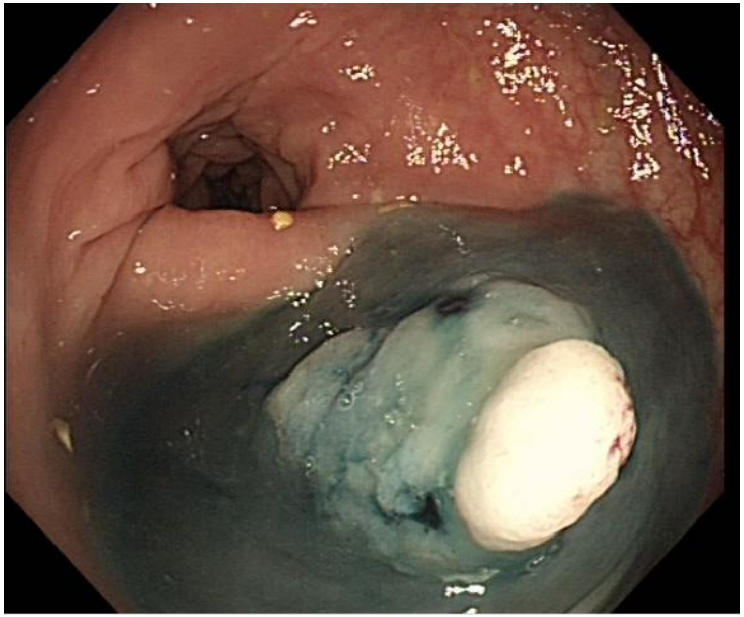
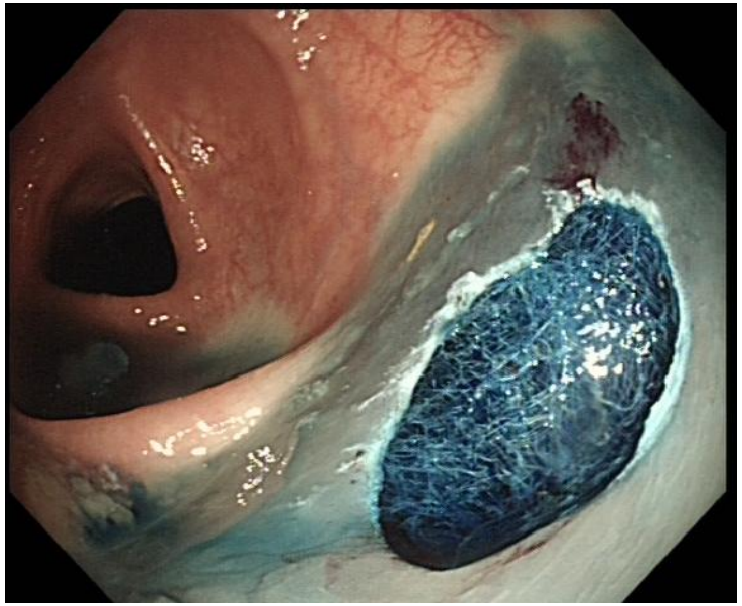




Surveillance?

- BSG guidelines do not include serrated lesions
- TSA – manage as per standard adenoma
- SSL – BSG position statement 2017

- WHO definition of serrated polyposis
- AGA guidelines on surveillance – tables for reference
- ESGE guidelines – no flow chart

TABLE 5. WHO classification criteria for serrated polyposis[2]

At least 5 serrated polyps proximal to the sigmoid colon, at least 2 polyps >10 mm, or
Any number of serrated polyps proximal to the sigmoid colon in an individual who has a first-degree relative with serrated polyposis, or
>20 serrated polyps of any size distributed throughout the colon

WHO, World Health Organization.

Limketkai et al. GIE 2013; 77(3): 360-75

TABLE 3. U.S. Multi-Society Task Force Guidelines (2012) for surveillance intervals in individuals with baseline average risk[illegible]*

Baseline endoscopy, most advanced finding	Recommended surveillance interval, y
No polyps	10
Small hyperplastic polyps limited to the rectosigmoid, <10 mm	10
<3 small tubular adenomas, <10 mm	5-10
High-risk adenomas (previously termed advanced conventional adenomas)	
3-10 small tubular adenomas, <10 mm	3
≥1 tubular adenoma, >10 mm	3
Any villous component	3
Any high-grade dysplasia component	3
Serrated lesions	
SSA/P, <10 mm, without cytologic dysplasia	5
SSA/P, ≥10 mm	3
SSA/P with cytologic dysplasia	3
TSA	3
>10 tubular adenomas	<3
Patients with serrated polyposis	1

SSA/P, Sessile serrated adenoma/polyp; *TSA*, traditional serrated adenoma.
*Assumes the colonoscopy was complete, of high-quality, and the lesions of interest were completely removed. For those incompletely removed polyps with malignant potential, repeat endoscopy at a short interval is advised (<1 year).

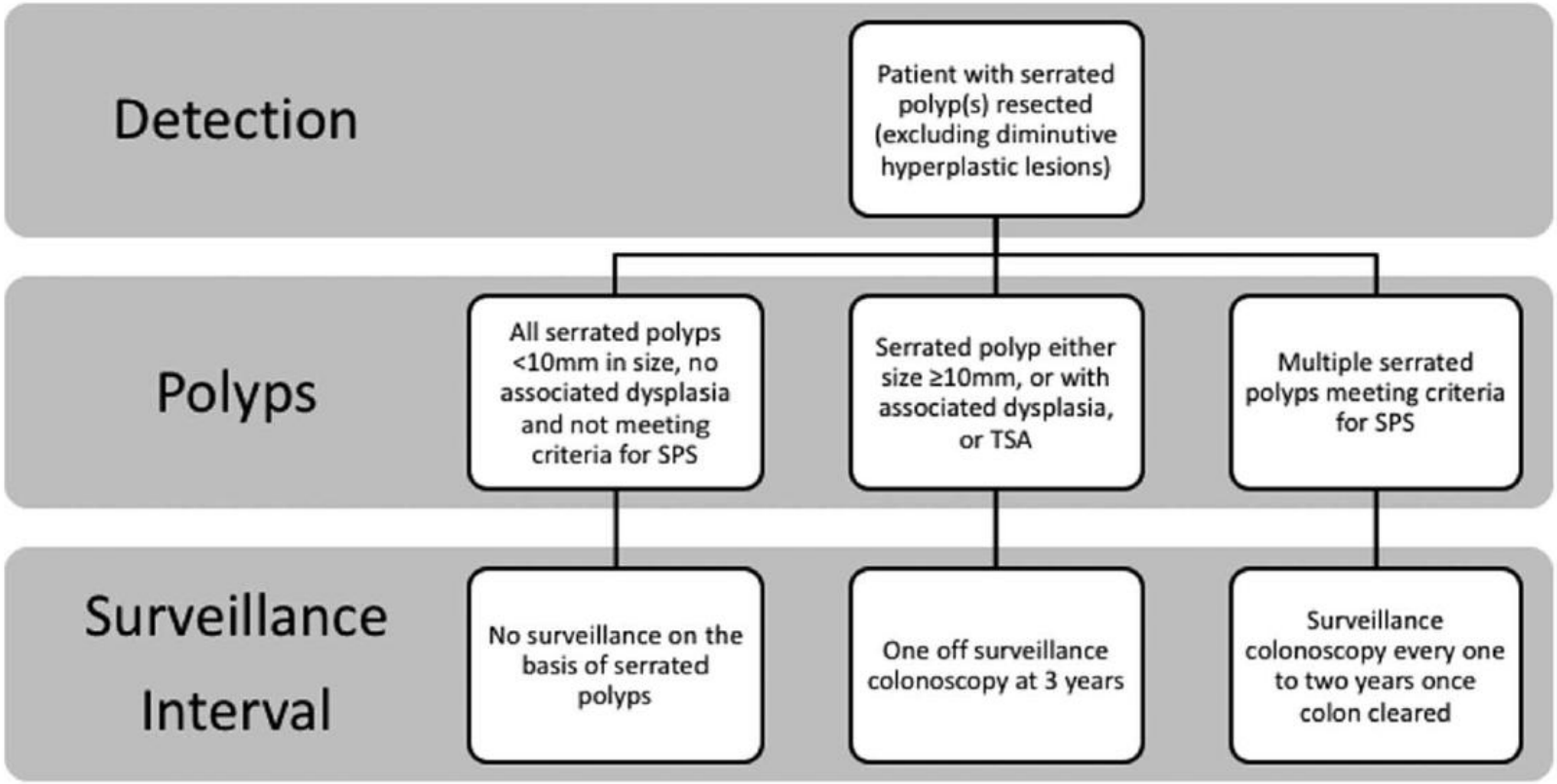
TABLE 4. Expert consensus opinions for surveillance after complete removal of serrated polyp(s)[illegible]*

Baseline endoscopy, most advanced finding	Recommended surveillance interval, y
Any number of hyperplastic polyps, restricted to the rectosigmoid, <10 mm†	10
≤3 proximal hyperplastic polyps, ≤5 mm‡	10
≥4 proximal hyperplastic polyps, any size	5
≥1 proximal hyperplastic polyp, >5 mm	5
<3 SSA/P or TSA, any site, <10 mm	5
1 SSA/P or TSA, any site, ≥10 mm	3
≥3 SSA/P or TSA, any site, <10 mm	3
≥2 SSA/P, any site, ≥10 mm	1-3
SSA with cytologic dysplasia, any site, any size	1-3
Serrated polyposis§	1
First-degree relative of a patient with serrated polyposis	5, starting at age 40 or 10 y younger than the age at diagnosis of the affected relative

SSA/P, Sessile serrated adenoma/polyp; *TSA*, traditional serrated adenoma; *SSA*, sessile serrated adenoma.
*Assumes complete excision of the lesion of interest. For those incompletely removed polyps with malignant potential, repeat endoscopy at a short interval is advised (3-6 months). Polyps larger than 10 mm diagnosed as a hyperplastic polyp proximal to the sigmoid should be managed as an SSA/P.
†Assuming the patient does not have serrated polyposis syndrome.
‡Proximal refers to polyps located proximal to the sigmoid colon.
§Complete removal of all proximal colon polyps or all serrated polyps larger than 5 mm, if numerous diminutive polyps. Colon resection advised for colorectal cancer or when endoscopic control of polyps is no longer feasible.

Limketkai et al. GIE 2013; 77(3): 360-75

Serrated surveillance flowchart



There is no current data to suggest that risk for patients with adenomas and serrated polyps is cumulative and therefore each polyp group should be considered separately for surveillance. The shortest surveillance interval recommended should take precedence. SPS, Serrated Polyposis Syndrome; TSA, traditional serrated adenoma

East JE, et al. Gut 2017;0:1–16. doi:10.1136/gutjnl-2017-314005

Summary – what we know

- Serrated lesions variable in character
- Hyperplastic lesions of little significance
- SSL easily missed
- SSL associated with interval cancer
- SSL with dysplasia rapidly progress to cancer

Future questions

- Do SSL account for interval right sided cancers – or is it synchronous missed conventional adenomata?

- Which SSL need to be resected
  - ? All
  - ? Only dysplastic
  - ? Complications acceptable
  - ? What is recurrence rate after resection

Questions?