
GI ON DEMAND
Access GI Expertise, Educational Resources and Support for You and Your Patients
Registered Dietitians
GI Psychologists
GI Sub-Specialists
APP
Patient
GI
Genetic Testing
Telehealth Features
Education Resources
A Free ACG Member Benefit Designed to Help You and Your Patients!
Learn More and Join Today at
GIONDEMAND.COM

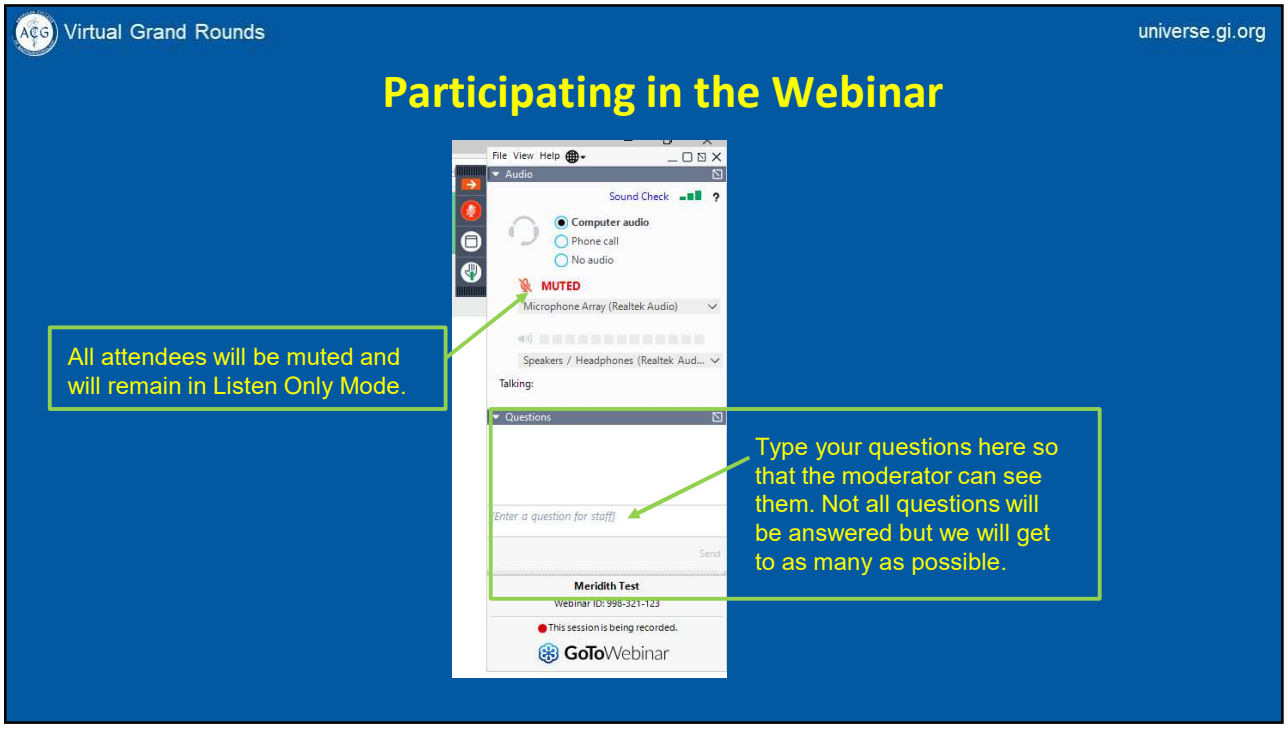
1


2023
ACG HEPATOLOGY SCHOOL & EASTERN
REGIONAL POSTGRADUATE COURSE
JUNE 2-4, 2023 | RENAISSANCE HOTEL WASHINGTON, DC
Register online: meetings.gi.org

2


ACG
2023
OCTOBER
20-25, 2023
VANCOUVER, CANADA
VANCOUVER
Save the Date!
Be sure your passport is up to date!

3


Virtual Grand Rounds
universe.gi.org
Participating in the Webinar
All attendees will be muted and will remain in Listen Only Mode.
Type your questions here so that the moderator can see them. Not all questions will be answered but we will get to as many as possible.
File View Help
Audio
Sound Check
Computer audio
Phone call
No audio
MUTED
Microphone Array (Realtek Audio)
Speakers / Headphones (Realtek Aud...
Talking:
Questions
Enter a question for staff]
Send
Meridith Test
Webinar ID: 998-321-123
This session is being recorded.
GoToWebinar

4

Virtual Grand Rounds universe.gi.org

How to Receive CME and MOC Points

LIVE VIRTUAL GRAND ROUNDS WEBINAR

ACG will send a link to a CME & MOC evaluation to all attendees on the live webinar.

ABIM Board Certified physicians need to complete their MOC activities by December 31, 2023 in order for the MOC points to count toward any MOC requirements that are due by the end of the year. No MOC credit may be awarded after March 1, 2024 for this activity.

5

Virtual Grand Rounds universe.gi.org

MOC QUESTION

If you plan to claim MOC Points for this activity, you will be asked to: Please list specific changes you will make in your practice as a result of the information you received from this activity.

Include specific strategies or changes that you plan to implement.
THESE ANSWERS WILL BE REVIEWED.

6

Virtual Grand Rounds universe.gi.org

ACG Virtual Grand Rounds

Join us for upcoming Virtual Grand Rounds!

Please NOTE: there will be no ACG Virtual Grand Rounds on April 6 and 13 due to low attendance from Spring Breaks.


Week 16 – Thursday, April 20, 2023
Quality Indicators for Capsule Endoscopy and Deep Enteroscopy: An ACG and ASGE Joint Publication
Faculty: Jonathan A. Leighton, MD, FACG
Moderator: Carol E. Semrad, MD, FACG
At Noon and 8pm Eastern


Week 17 –Thursday, April 27, 2023
Gut Directed Hypnotherapy for IBS: What Gastroenterologists and Patients Should Know
Faculty: Olafur Palsson, PsyD
Moderator: Megan E. Riehl, PsyD, MA
At Noon and 8pm Eastern

Visit **gi.org/ACGVGR** to Register

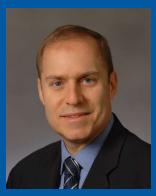
7

8

Virtual Grand Rounds

universe.gi.org

Disclosures



Charles Kahi, MD, MSc, FACG

Dr. Kahi has no financial relationships with ineligible companies.

Jennifer Maratt, MD, MS

Dr. Maratt has no financial relationships with ineligible companies.

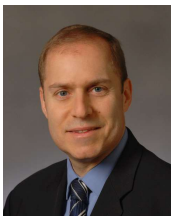
**All of the relevant financial relationships listed for these individuals have been mitigated*

9

Virtual Grand Rounds

universe.gi.org

Colon Polypectomy Techniques Big Polyps, Small Polyps, and Everything in Between



Charles Kahi, MD, MSc, FACG

ACG Virtual Grand Rounds

March 30th, 2023

10

Virtual Grand Rounds

universe.gi.org

The Big Picture

- Colonoscopy: Most performed endoscopic procedure in the U.S.→ 11 M out of 17.7 M

Table 11. Colonoscopy Findings in the Total Population and Screening Population in GI Quality Improvement Consortium Endoscopy, 2014–2016

	Total population (n = 3,901,576)		Screening only, ages 50–75 y, average risk (n = 1,476,145)	
Pathology	n	%	n	%
Adenocarcinoma	22,118	0.6	5409	0.4
Adenomatous polyps	1,328,060	34.0	510,539	34.6
1 or 2 tubular adenomas <10 mm	945,263	24.2	371,706	25.2
3 or more tubular adenomas <10 mm	245,223	6.3	84,707	5.7
≥10 mm, high-grade dysplasia, villous component	178,217	4.6	69,304	4.7
Serrated polyps	211,915	5.4	83,410	5.7
<10 mm with no dysplasia	150,866	3.9	59,771	4.1
>10 mm or with dysplasia or traditional serrated adenoma	56,801	1.5	21,997	1.5
Hyperplastic polyps	695,155	17.8	275,809	18.7
Other pathology	540,268	13.9	120,157	8.1

Source: GI Quality Improvement Consortium Endoscopy.

Peery et al. Gastroenterology 2019;156:254–72.

11

Virtual Grand Rounds

universe.gi.org

Why high-quality polypectomy matters

- Colonoscopy quality is operator-dependent!
- Adenoma detection rate (ADR) inversely associated with risk of post-colonoscopy colorectal cancer (PCCRC)
- Polypectomy technique also variable, and does not necessarily correlate with detection:
  - Review of 130 polypectomy videos using the Direct Observation of Polypectomy Skills (DOPyS)
  - Overall DOPyS competency scores ranged between 30% to 90%
  - Polypectomy competency rates did not significantly correlate with ADR (r=0.4, P = 0.2)

Duloy et al. Gastrointest Endosc 2018;87:635–44.

12

Virtual Grand Rounds universe.gi.org

Why high-quality polypectomy matters

- Kaiser study including 236 PCCRC diagnosed < 4 years after colonoscopy
  - 70% likely missed lesion
  - About 15% incomplete/failed resection of advanced adenomas

Leung et al. Gastroenterology 2023; 164 (3): 470-472

- Follow-up of the original CARE study cohort
  - Measured segment metachronous neoplasia
  - Risk for any metachronous neoplasia was greater in segments with incomplete versus complete resection (52% vs. 23%; P = 0.004)
  - Incomplete polypectomy associated with 3-fold higher risk of metachronous neoplasia

Pohl et al. Annals of Internal Medicine 2021; 174(10): 1377-1384.

13

Virtual Grand Rounds universe.gi.org

Step 0: Systematic Structured Assessment

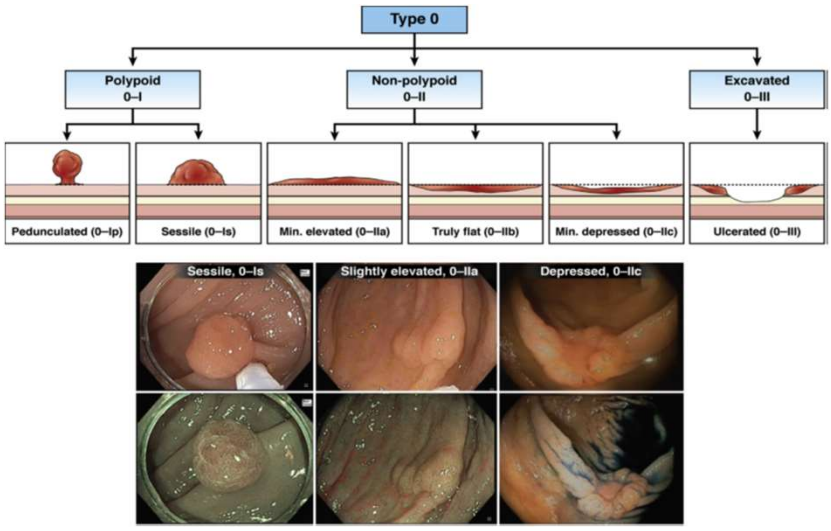
- Facilitates clear communication between endoscopists
- Defines best practice resection techniques
- Helps identify correct surveillance intervals
- Helps identify features of submucosally invasive carcinoma (SMIC), especially in large polyps.

14

Virtual Grand Rounds

universe.gi.org

Paris Endoscopic Classification



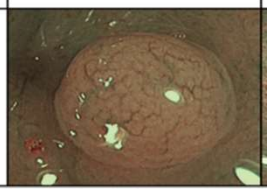
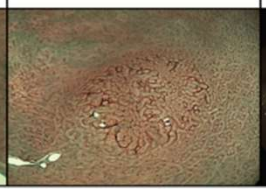
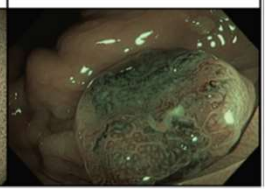
Kaltenbach et al. Gastroenterology 2020;158:1095–1129.

15

Virtual Grand Rounds

universe.gi.org

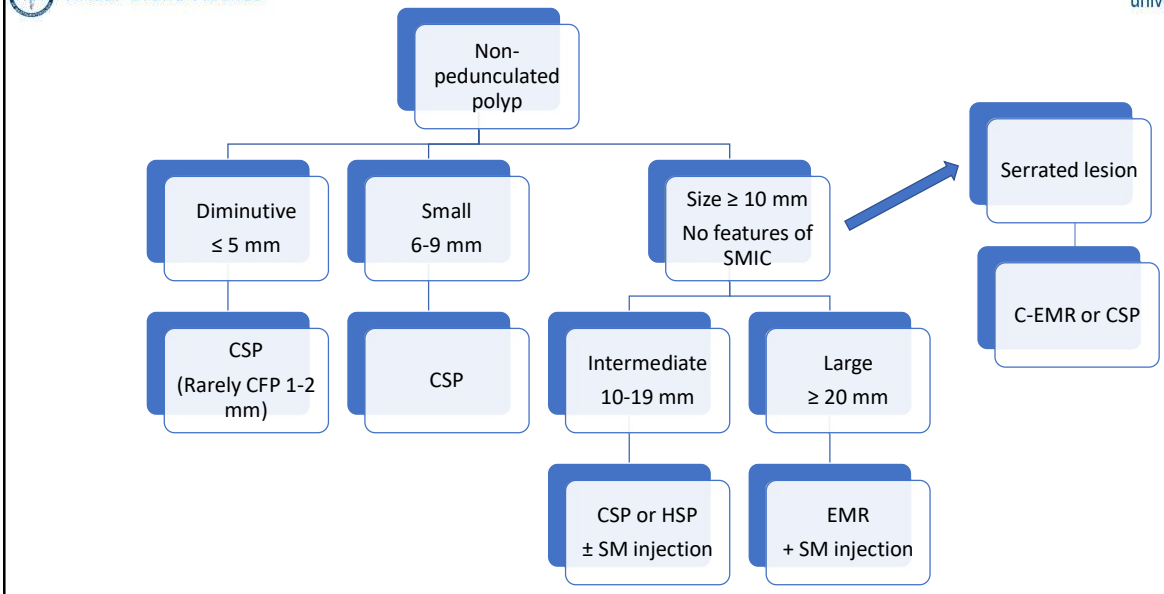
Narrow Band Imaging International Colorectal Endoscopic (NICE) classification

	Type 1	Type 2	Type 3
Color	Same or lighter than background	Browner relative to background (verify color arises from vessels)	Brown to dark brown relative to background; sometimes patchy whiter areas
Vessels	None, or isolated lacy vessels may be present coursing across the lesion	Brown vessels surrounding white structures**	Has area(s) of disrupted or missing vessels
Surface pattern	Dark or white spots of uniform size, or homogeneous absence of pattern	Oval, tubular, or branched white structures** surrounded by brown vessels	Amorphous or absent surface pattern
Most likely pathology	Hyperplastic and sessile serrated lesions***	Adenoma****	Deep submucosal invasive cancer
			

Kaltenbach et al. Gastroenterology 2020;158:1095–1129.

16

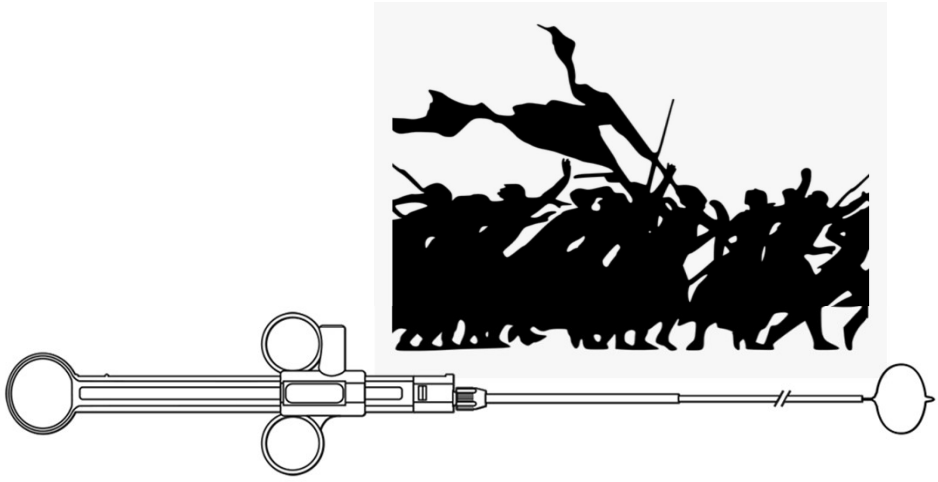
Virtual Grand Rounds universe.gi.org



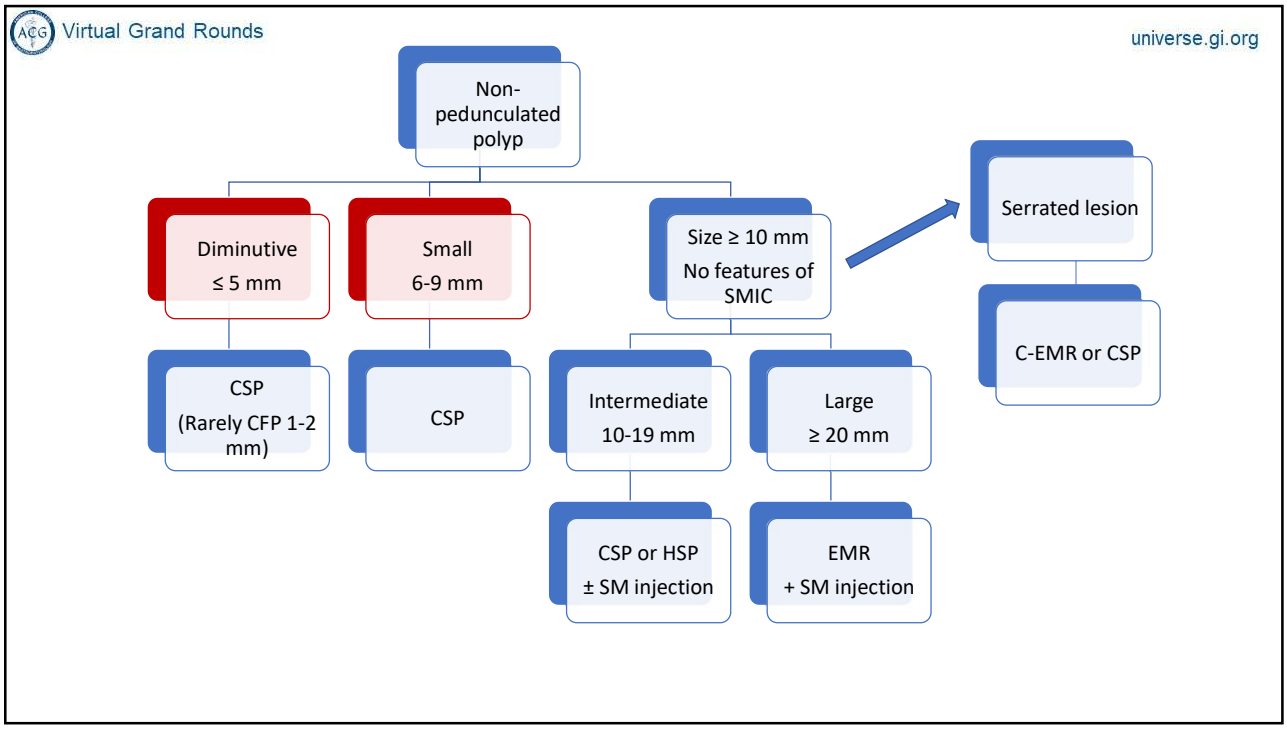
17

Virtual Grand Rounds universe.gi.org

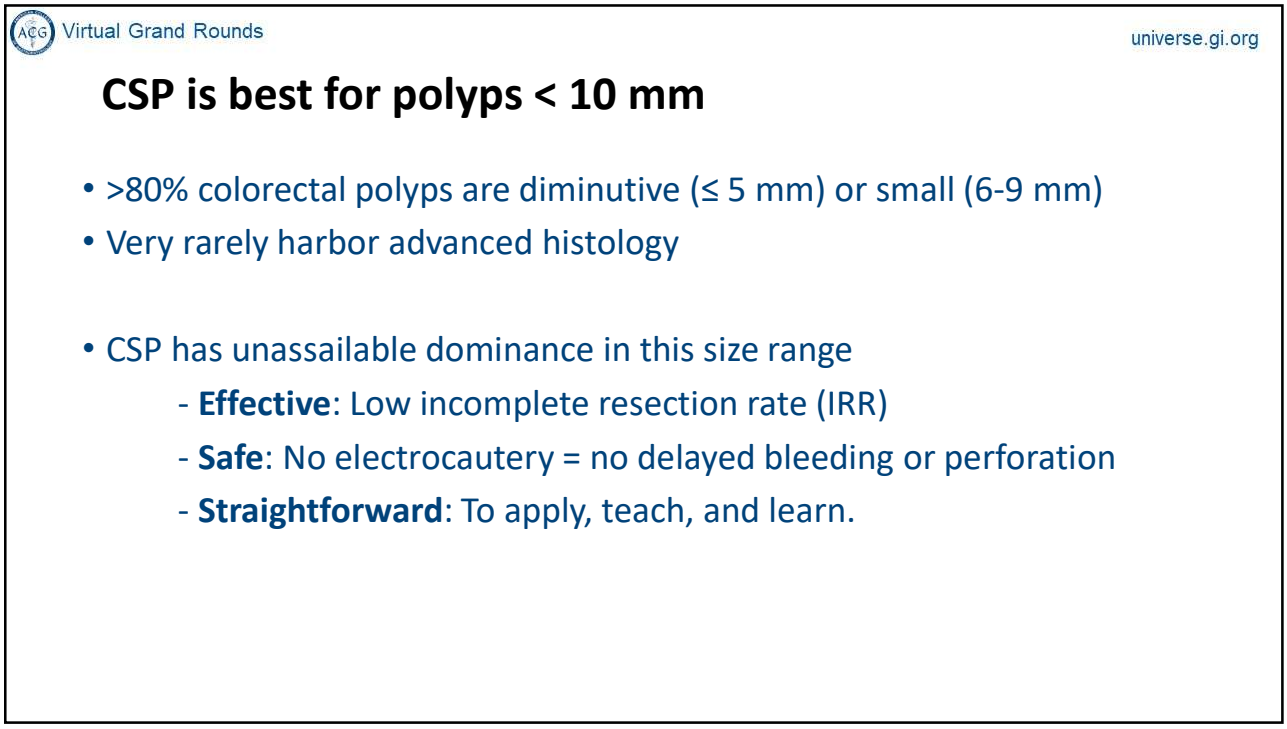
The Cold Revolution



18


Virtual Grand Rounds
universe.gi.org
Non-pedunculated polyp
Diminutive ≤ 5 mm
Small 6-9 mm
Size ≥ 10 mm No features of SMIC
Serrated lesion
C-EMR or CSP
CSP (Rarely CFP 1-2 mm)
CSP
Intermediate 10-19 mm
Large ≥ 20 mm
CSP or HSP ± SM injection
EMR + SM injection

19


Virtual Grand Rounds
universe.gi.org
CSP is best for polyps < 10 mm
• >80% colorectal polyps are diminutive (≤ 5 mm) or small (6-9 mm)
• Very rarely harbor advanced histology
• CSP has unassailable dominance in this size range
- Effective: Low incomplete resection rate (IRR)
- Safe: No electrocautery = no delayed bleeding or perforation
- Straightforward: To apply, teach, and learn.

20

Virtual Grand Rounds universe.gi.org

CSP versus cold forceps polypectomy (CFP)

- IRR of CFP ranges from 10% to 60%
- SRMA of 3 RCTs comparing CSP to CFP:

  Incomplete resection relative risk = 0.31 (0.14-0.67) favoring CSP

  Raad et al. Gastrointest Endosc 2016; 83:508-15
- Network meta-analysis of 7 studies and 700 patients:

  CSP superior to CFP for complete eradication (ORs 2.5-4.3)

  Jung et al. Surg Endosc 2018;32:1149–1159.

21

Virtual Grand Rounds universe.gi.org

CSP versus hot resection techniques

- RCT of CSP vs. hot forceps polypectomy (HFP) for polyps 3-5 mm:
  - Higher *en bloc* resection for CSP (99% vs 80%)
  - Lower IRR for CSP (20% vs 53%)
  - Higher severe injury to tissue specimen for HFP (53% vs 1%)
  - No delayed bleeding or perforation

  Komeda et al. World J Gastroenterol.2017; 23(2): 328-335
- CRESCENT non-inferiority RCT: CSP vs. HSP for polyps 4-9 mm:
  - IRR 1.8% for CSP, vs. 2.6% for HSP
  - Bleeding requiring hemostasis occurred only with HSP (0.5%)

  Kawamura et al. Gut 2017;67:1950–1957.

22

Virtual Grand Rounds universe.gi.org

CSP is safer than HSP

RCT of CSP vs. HSP for polyps 4-10 mm

- 4270 patients,
- Delayed PP bleeding (within 14 days) occurred in 0.4% vs. 1.5%
- Severe bleeding also favored CSP (0.05% vs. 0.4%)
- Mean polypectomy time (119.0 vs. 162.9 sec) shorter in CSP group
- Successful tissue retrieval, en bloc resection, and complete histologic resection did not differ.

Chang et al. Annals of Internal Medicine. https://doi.org/10.7326/M22-2189

23

Virtual Grand Rounds universe.gi.org

CSP versus HSP

- Comparable low IRR (< 5%)
- Similar retrieval rate (96%)
- Significantly shorter procedure time with CSP (mean 7 minutes)
- Lower incidence of post-polypectomy bleeding with CSP, and no deep mural injury
- Rare immediate PP bleeding with CSP, rarely requires intervention

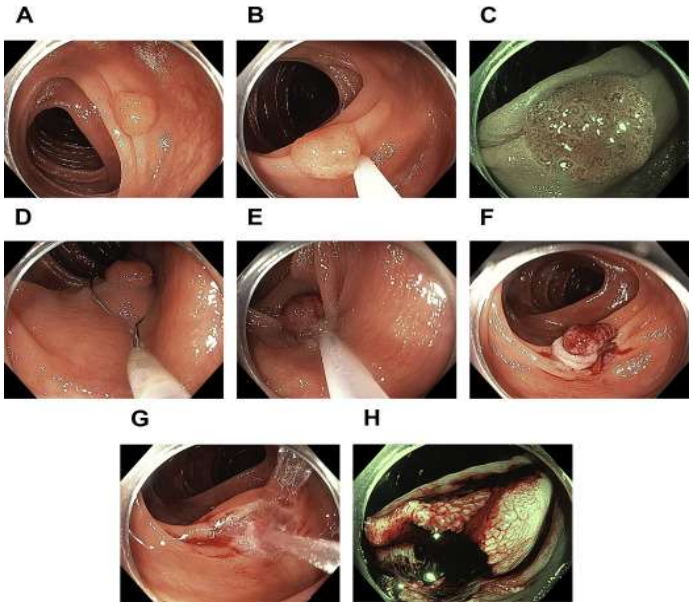
Kaltenbach et al. Gastroenterology 2020;158:1095–1129

Zarandi-Nowroozi et al. Gastrointest Endoscopy Clin N Am 32 (2022) 241–257.

24

Virtual Grand Rounds

universe.gi.org



Tutticci et al. Gastrointest Endosc Clin North Am, 2019; 29 (4): 721-736

25

Virtual Grand Rounds

universe.gi.org

USMSTF Guidelines for diminutive (≤ 5 mm) and small (6–9 mm) polyps

- **Recommend CSP** due to high complete resection rates and safety profile.
- **Recommend against cold forceps polypectomy** due to high rates of incomplete resection. For diminutive lesions ≤ 2 mm, if CSP is technically difficult, jumbo or large-capacity forceps polypectomy may be considered.
- **Recommend against hot forceps polypectomy** due to high incomplete resection rates, inadequate histopathologic specimens, and complication rates.

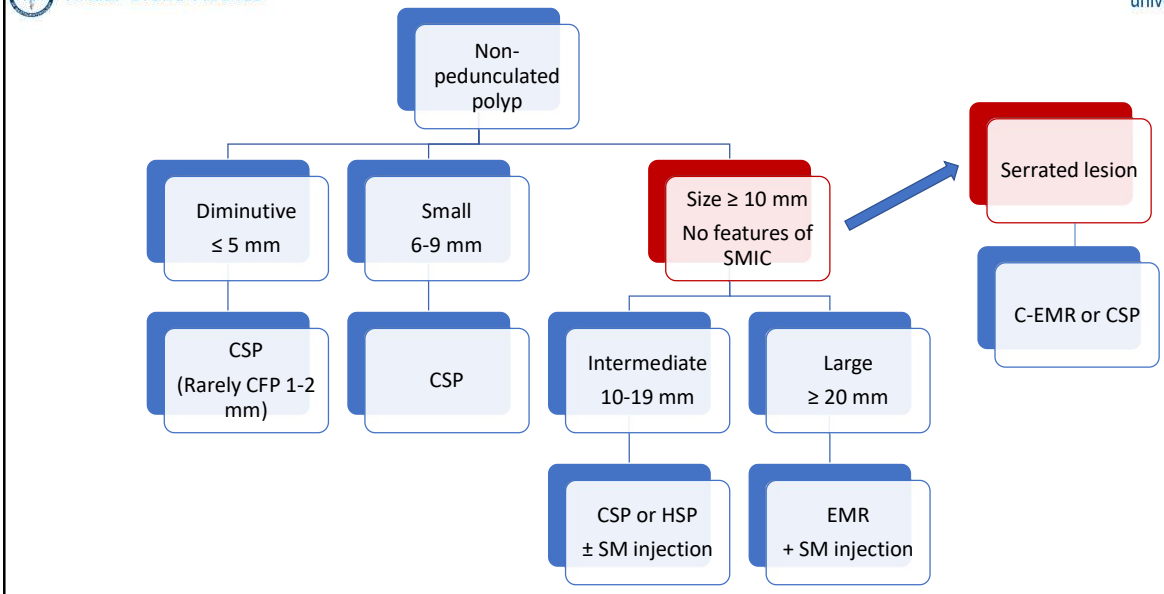
(Strong recommendation, moderate-quality evidence)

Kaltenbach et al. Gastroenterology 2020;158:1095–1129.

26

Virtual Grand Rounds

universe.gi.org



27

Virtual Grand Rounds

universe.gi.org

CSP/c-EMR for serrated polyps ≥ 10 mm

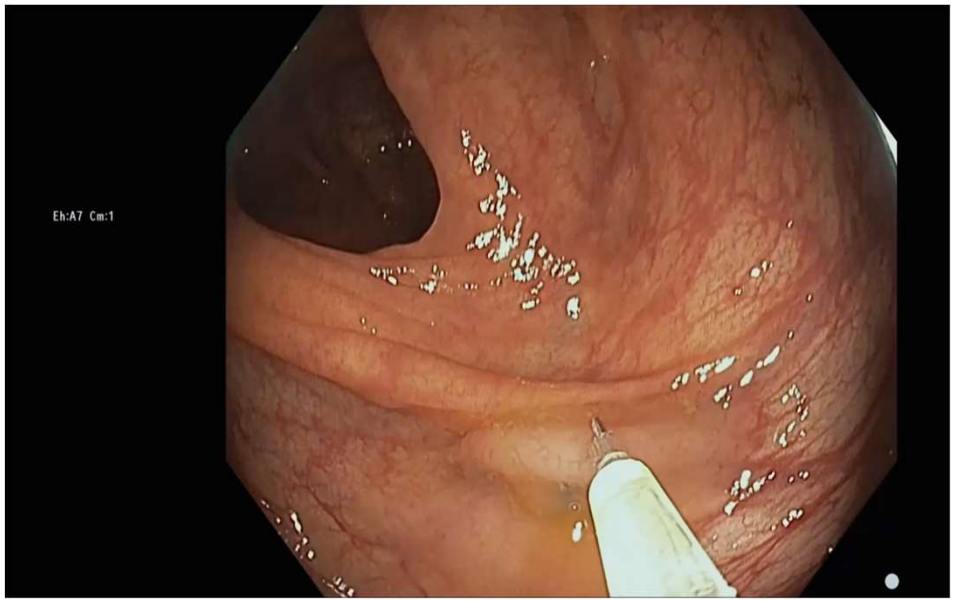
- Literature supporting cold resection for large SLs is significant, but heterogeneous
- Most studies use submucosal injection:
  - Better delineation of lesion borders = ensure a resection margin of ≥ 2 mm
  - Facilitate transection and decrease immediate bleeding
- No need for STSC or clips
- Low recurrence rates (0-10%), low immediate bleeding rates (0-3%), and no perforations

Piraka et al. Endosc Int Open 2017;5:E184–E189
Tutticci et al. Gastrointest Endosc 2018; 87:837–842
Tate DJ et al. Endoscopy 2018;50:248–252.

28

Virtual Grand Rounds

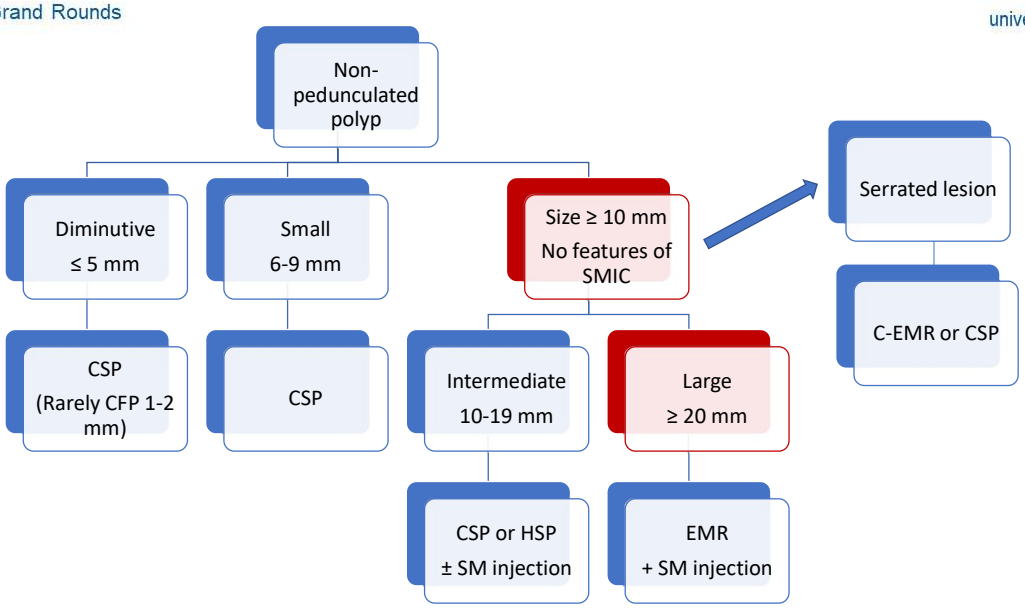
universe.gi.org



29

Virtual Grand Rounds

universe.gi.org



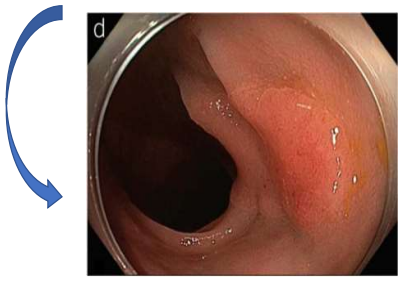
30

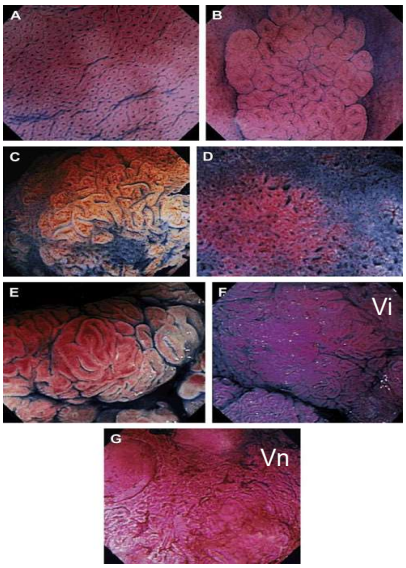
Virtual Grand Rounds

universe.gi.org

Always Assess for SMIC

- NICE 3
- Paris 0-IIc or 0-III (depressed or ulcerated)
- Kudo pit pattern types Vi (irregular) or Vn (non-structural)
- Non-granular surface





31

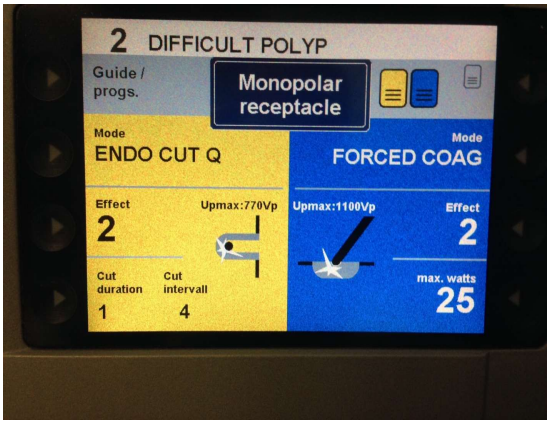
Virtual Grand Rounds

universe.gi.org

Fundamentals of EMR for non-pedunculated polyps ≥ 20 mm

- Do not start unless you know you can finish!
- Expertise of endoscopist and endoscopy team are critical factors
- Use **snare resection** for all visible polyp tissue
- Use submucosal injection with dye for lifting
- Treat post-EMR margin with snare tip soft coagulation (STSC)
- Defect closure in the appropriate setting.

32



33

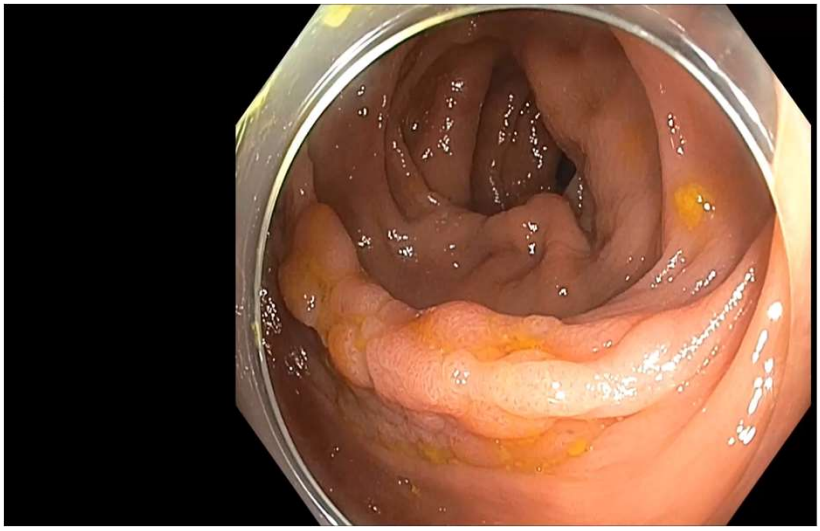
Submucosal injection fluids for EMR

- Proprietary solutions (FDA-approved)
  - Eleview, Everlift
  - Note: ORISE gel recalled by manufacturer due to foreign body reactions presenting as mass formations
  - Practical but more expensive
- DIY solutions
  - Add indigocarmine or methylene blue
  - Normal saline, hydroxyethyl starch, succinylated gelatin, sodium hyaluronate, glycerol
  - More economical.

34

Virtual Grand Rounds

universe.gi.org



35

Virtual Grand Rounds

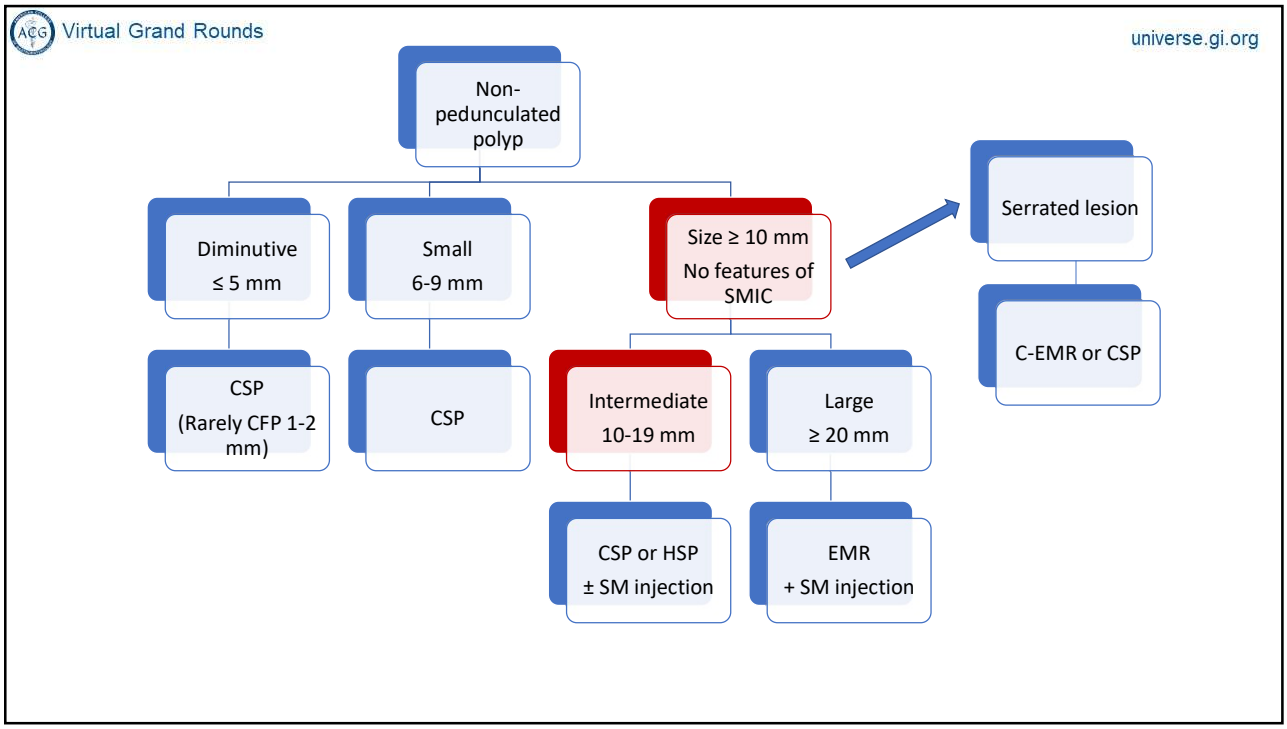
universe.gi.org

EMR Outcomes

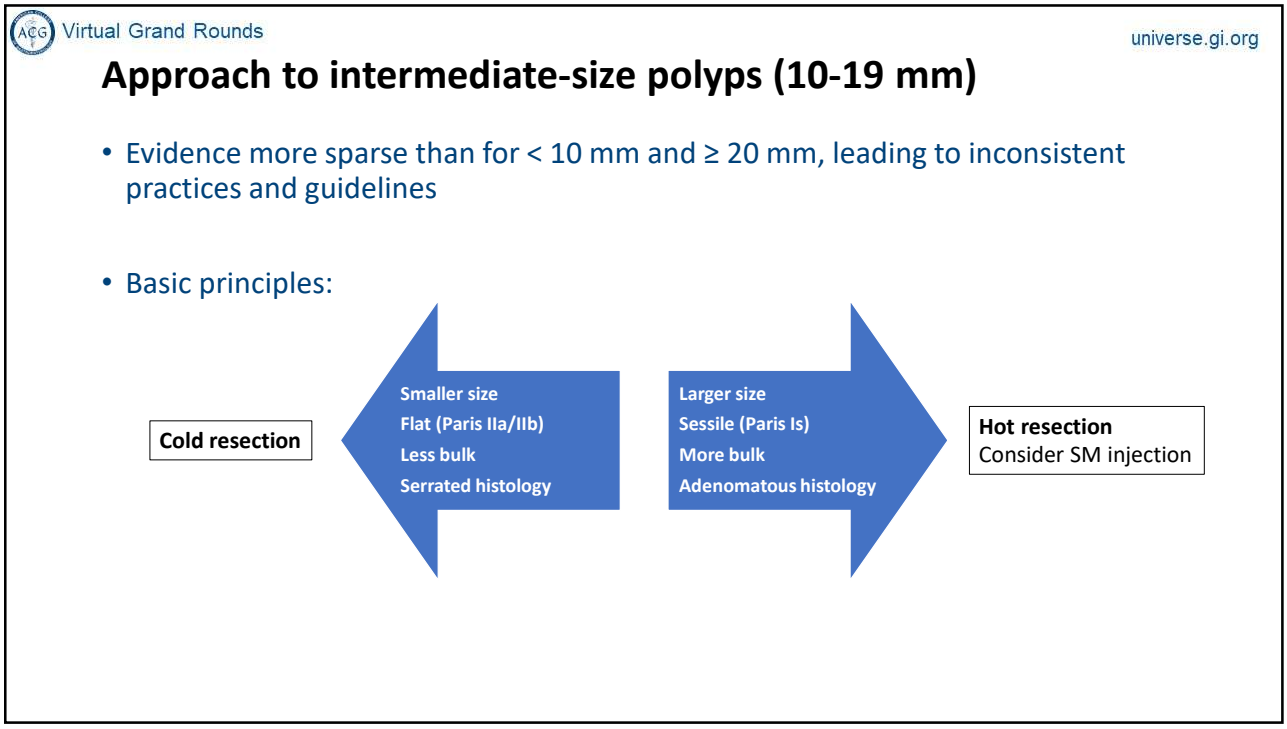
- Less morbidity and mortality, and more cost-effective than surgical resection
- Low risk of severe adverse events (1%)
- Low rate of local recurrence (< 15%)
- Local recurrences usually small and straightforward to resect
- **USMSTF guidelines recommend EMR as the preferred treatment method of ≥20 mm non-pedunculated colorectal lesions**

Kaltenbach et al. Gastroenterology 2020;158:1095–1129.

36


Virtual Grand Rounds
universe.gi.org
Non-pedunculated polyp
Diminutive ≤ 5 mm
Small 6-9 mm
Size ≥ 10 mm No features of SMIC
Serrated lesion
C-EMR or CSP
CSP (Rarely CFP 1-2 mm)
CSP
Intermediate 10-19 mm
Large ≥ 20 mm
CSP or HSP ± SM injection
EMR + SM injection

37


Virtual Grand Rounds
universe.gi.org
Approach to intermediate-size polyps (10-19 mm)
• Evidence more sparse than for < 10 mm and ≥ 20 mm, leading to inconsistent practices and guidelines
• Basic principles:
Cold resection
Smaller size
Flat (Paris IIa/IIb)
Less bulk
Serrated histology
Larger size
Sessile (Paris Is)
More bulk
Adenomatous histology
Hot resection
Consider SM injection

38

Virtual Grand Rounds universe.gi.org

Approach to intermediate-size polyps (10-19 mm)

- Non-inferiority RCT including 286 polyps 6-15 mm:
  - Randomized to CSP, c-EMR, HSP, or h-EMR
  - Overall IRR 2.4%
  - 7 incompletely removed polyps were all 10-15 mm in size, and 6 of 7 were resected using HSP or h-EMR.
  - No incomplete resections in CSP group, only one in c-EMR group.
  - No serious adverse events in CSP group
  - Resection time was significantly shorter for CSP

Rex et al. Gastrointest Endosc 2022;96:330-338.

39

Virtual Grand Rounds universe.gi.org

Pushing the envelope further for polyps 10-19 mm

- Observational study including 350 polyps 10-19 mm:
  - All treated with CSP or c-EMR (87% with SM injection)
  - 68.5% were adenomas, 30% SSL
  - IRR based on margin or central biopsies being positive was 1.7%
  - Polyp recurrence rate was 1.7%(n=4) at first surveillance colonoscopy
  - Adverse events occurred in 3.4%(n=10) of patients, including 4 bleeds
  - 2 patients had post-polypectomy-syndrome-like presentations (unusual)
  - There were no perforations.

Mangira et al. Endoscopy 2023 Feb 7. (https://doi.org/10.1055/a-2029-9539)

40

Virtual Grand Rounds

universe.gi.org

Pedunculated polyps

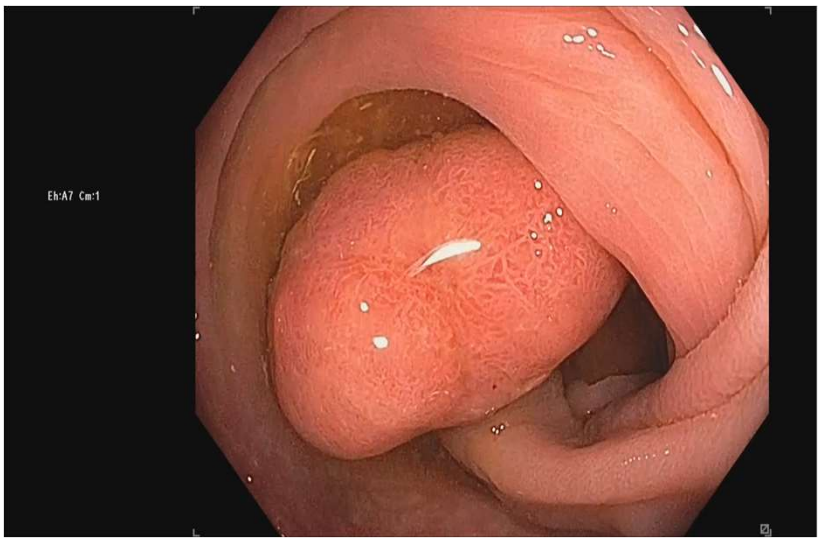
- Pedunculated polyps contain a feeding blood vessel within the lesion stalk, and HSP is recommended to decrease the risk of immediate bleeding.
- CSP may be reasonable for small (<10 mm) pedunculated polyps with a thin stalk, but this is not advisable (and often not feasible) for larger lesions.
- Polyp size ≥10mm and stalk diameter ≥5 mm are known risk factors for bleeding, and pedunculated polyps with these features should be resected using HSP.
- Prophylactic measures, such as detachable nylon loops or standard clips, are recommended to decrease the rate of immediate and delayed bleeding, particularly for pedunculated polyps with heads ≥20 mm and/or stalks ≥ 5 mm.

Kaltenbach et al. Gastroenterology 2020;158:1095–1129.

41

Virtual Grand Rounds

universe.gi.org

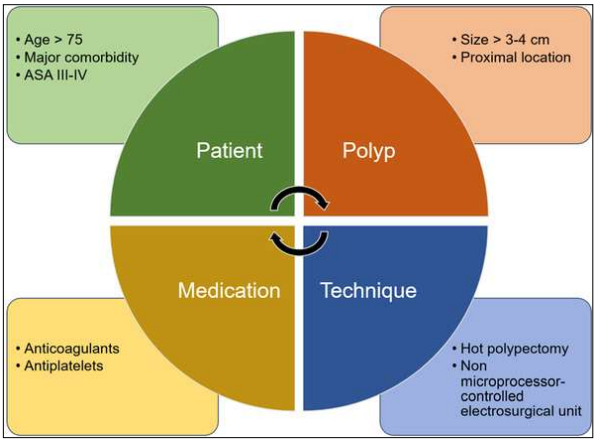


42

Virtual Grand Rounds

universe.gi.org

To Clip or Not to Clip?



Albéniz et al. American Journal of Gastroenterology. 2022; 117(7):1080-1088.

43

Virtual Grand Rounds

universe.gi.org

Clipping: Size and Location matter

- Meta-Analysis of 9 RCTs, 72,000 polyps

- Clipping did **not** significantly reduce the overall risk of PPB:
  2.2% with clipping vs 3.3% with no clipping; RR 0.69 (95% CI 0.45–1.08)

- Clipping reduced risk of PPB for polyps ≥ 20 mm (RR 0.51; 0.33–0.78) or proximal location (RR, 0.53; 0.35–0.81)
- **Clipping reduced PPB for large proximal polyps** (RR, 0.37; 0.22–0.61) but not small proximal lesions (RR, 0.88; 0.48–1.62)
- Clipping did not benefit distal polyps, regardless of size

Spadaccini, Albéniz et al. Gastroenterology 2020;159:148–158.

44

Virtual Grand Rounds

universe.gi.org

Clipping: Size and Location matter

- Individual Patient Data Meta-Analysis, 5380 patients, nearly 9000 polyps

- Prophylactic clipping reduced delayed bleeding in proximal polyps ≥20 mm
  OR 0.62 (95% CI, 0.44–0.88; NNT = 32)
  ++ especially with antithrombotics OR 0.59 (95% CI, 0.35–0.99; NNT = 23)

- No benefit with distal polyps ≥20 mm (OR 1.41; 95% CI, 0.79–2.52), regardless of antithrombotics

- No benefit with polyps < 20 mm (OR 1.05; 95% CI, 0.76 – 1.44)

Turan et al. Clin Gastroenterol Hepatol 2022; 20 (2): 362-371.

45

Virtual Grand Rounds

universe.gi.org

Clipping: Histology also matters

- Post-hoc analysis of RCT of clipping after EMR of ≥ 20mm polyps:
- Low bleeding rates for serrated polyps (2.8% vs. 5.8% for adenomas)
- Risk for PPB dependent on polyp histology:

	Clip	No Clip	P value
Adenoma	3.9%	7.6%	0.03
Serrated Polyp	2.3%	3.3%	NS

Crockett et al. Clin Gastroenterol Hepatol 2022;20:1757-1765

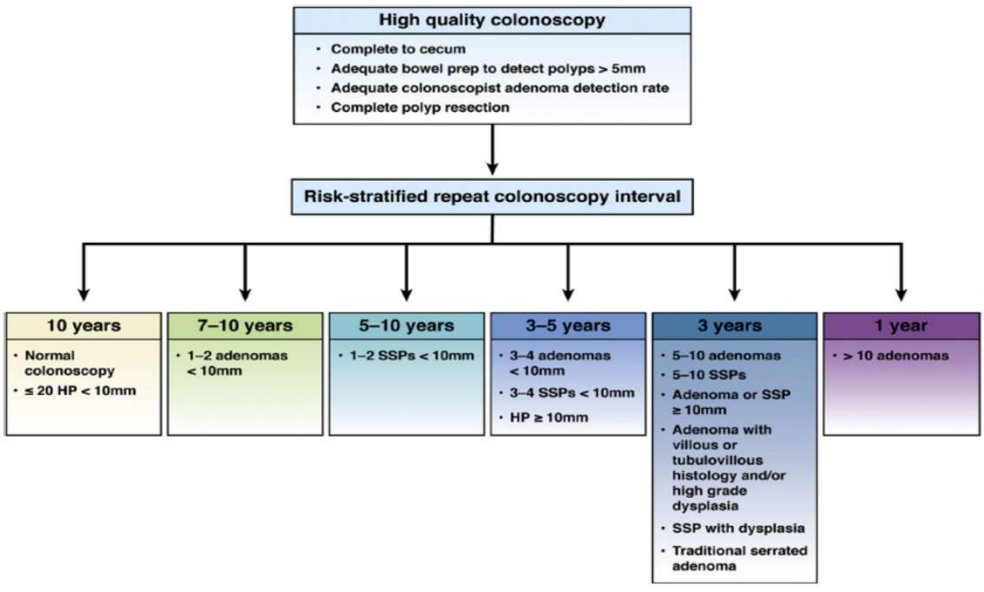
46

Gastroenterology 2020;158:1131–1153

Recommendations for Follow-Up After Colonoscopy and Polypectomy: A Consensus Update by the US Multi-Society Task Force on Colorectal Cancer

Samir Gupta,[1,2,3] David Lieberman,[4] Joseph C. Anderson,[5,6,7] Carol A. Burke,[8] Jason A. Dominitz,[9,10] Tonya Kaltenbach,[11,12] Douglas J. Robertson,[5,6] Aasma Shaukat,[13,14] Sapna Syngal,[15,16] and Douglas K. Rex[17]

47



48

Virtual Grand Rounds

universe.gi.org

Take–Home Points

- Polypectomy has become a science!
- **Key principle is tailoring technique to polyp and patient specifics**
- The "**Cold Revolution**" for non-pedunculated polyps:
  - + Cold snare polypectomy for polyps < 10 mm
  - + Cold resection for many polyps 10-15 mm
  - + Cold resection for all serrated polyps regardless of size
- Hot resection for some polyps 10-19 mm and pedunculated polyps with stalk > 5 mm
- EMR for polyps ≥ 20 mm (Refer to expert endoscopist, NOT surgical resection)
- Selective clipping:
  - + Non-pedunculated polyps ≥20 mm located in the proximal colon
  - + Serrated lesion resection sites do not need to be clipped.

49

Virtual Grand Rounds

universe.gi.org

Questions?

Charles Kahi, MD, MSc, FACG

Jennifer K. Maratt, MD, MS

50


CONNECT AND COLLABORATE IN GI
ACG & CCF IBD Circle
ACG Hepatology Circle
ACG Functional GI Health and Nutrition Circle
ACG GI Circle
Connect and collaborate within GI
ACG Women in GI Circle
ACG's Online Professional Networking Communities
LOGIN OR SIGN-UP NOW AT: acg-gi-circle.within3.com

51