

What does a Polyp indicate and what comes next?

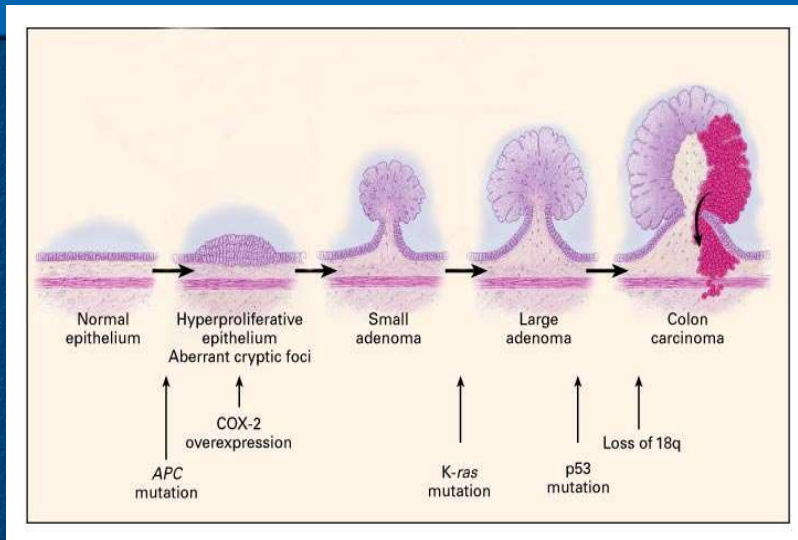
**Kuldip S Banwait, MD
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Dept of Internal Medicine,
Texas Tech University**

Definition

- **The term polyp of the colon refers to a protruberance into the lumen from the normally flat colonic mucosa**
- **Usually asymptomatic but may ulcerate and bleed.**

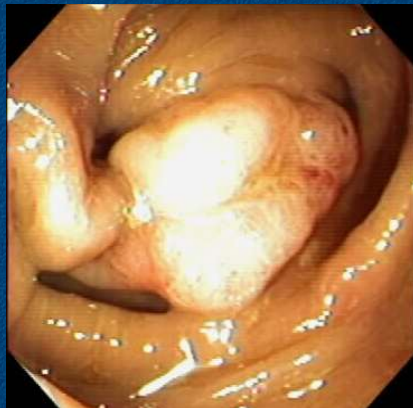


Polyp developing into Colorectal Cancer

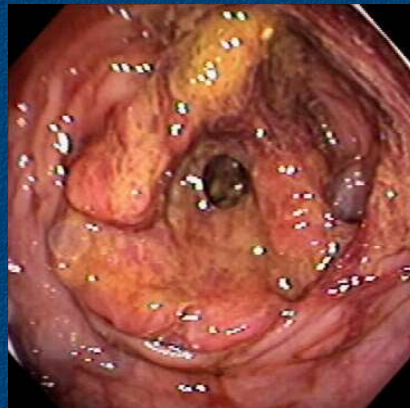


Janne PA, Mayer RJ. N Engl J Med 2000;342:1960.

The Adenoma-Carcinoma Sequence



Pedunculated Adenoma



Obstructing Colon Cancer

Colonoscopy = Gold standard

Colonoscopy Reduces Colorectal Cancer Incidence and Mortality in Patients With Non-Malignant Findings: A Meta-Analysis

Jun Pan, MD¹, Lei Xin, MD¹, Yi-Fei Ma, MD¹, Liang-Hao Hu, MD¹ and Zhao-Shen Li, MD¹

Am J Gastroenterol 2016; 111:355-365. doi:10.1038/ajg.2015.618. published online 12 January 2016

- 11 observational studies
- ~ 1.5 million patients
- Colonoscopy → 61% RR reduction in CRC incidence and mortality in patients with non-malignant findings

Long-Term Colorectal-Cancer Incidence and Mortality after Lower Endoscopy

Reiko Nishihara, PhD, Kara Wu, MD, PhD, Paul Lochhead, MSc, PhD, Teppei Morikawa, MD, PhD, Xiangyun Luo, MD, PhD, Zhi Rong Qian, MD, PhD, Kentaro Inamura, MD, PhD, Sun A. Kim, MD, PhD, Aya Kuchiba, PhD, Mai Yamachi, PhD, Yu Inamura, MD, PhD, Walter C. Willett, MD, DrPH, Bernard A. Rostom, PhD, Charles S. Fuchs, MD, MPH, Edward Giovannucci, MD, ScD, MPH, Shuji Ogino, MD, PhD, and Andrew T. Chan, MD, MPH

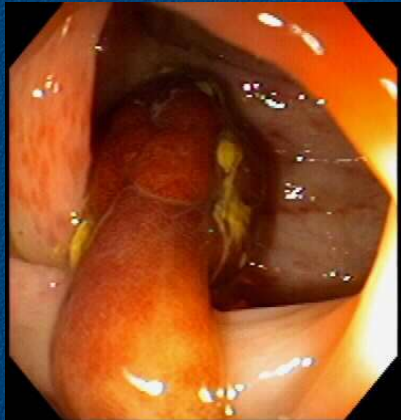
September 19, 2013
N Engl J Med 2013; 369:1095-1105
DOI: 10.1056/NEJMoa1301969

- > 88,000 patients followed over 22 years
- Colonoscopy vs No colonoscopy → multivariate hazard ratios for CRC 0.57 after polypectomy, 0.6 after negative sigmoidoscopy, and 0.44 after negative colonoscopy.

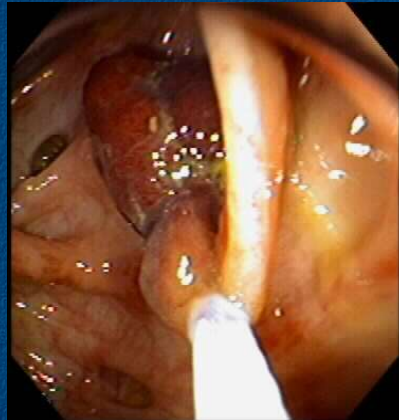
Our usual colonoscopy equipment is down today, so we're going to be using a tapeworm with a GoPro strapped to its head.



Interruption of the Adenoma-Carcinoma Sequence



Pedunculated Adenoma



Snare Polypectomy

Classification of Colon Polyps

Neoplastic Mucosal Polyps

Benign (Adenoma)

Tubular adenoma
Tubulovillous adenoma
Villous adenoma

Malignant (Carcinoma)

Noninvasive carcinoma
 Carcinoma in situ
 Intramucosal carcinoma
Invasive carcinoma (through muscularis mucosae)

Serrated Polyps

Sessile serrated polyp/adenoma
Traditional serrated adenoma

Non-neoplastic Mucosal Polyps

Hyperplastic polyp
Juvenile polyp
Peutz-Jeghers polyp
Inflammatory polyp
Mucosal polyp (normal mucosa in a polypoid configuration)

Submucosal Lesions

Colitis cystica profunda
Pneumatosis cystoides coli
Lymphoid polyps (benign and malignant)
Lipoma
Carcinoid
Metastatic neoplasms
Other rare lesions

Paris Classification

Protruded lesions	Flat elevated lesions	Flat lesions
<p>Ip Pedunculated</p>	<p>0-Ila Flat elevation of mucosa</p>	<p>0-Ilb Flat mucosal change</p>
<p>Isp Subpedunculated</p>	<p>0-Ila + c Flat elevation with central depression</p>	<p>0-Ilc Mucosal depression</p>
<p>Is Sessile</p>	<p>0-Ila + Is Flat elevation with raised broad-based nodule</p>	<p>0-III Excavated</p>

Lateral Spread

Granular Non-Granular

“High risk” for superficial SMI

- LST-G mixed-sized nodular
- LST-NG pseudo-depression

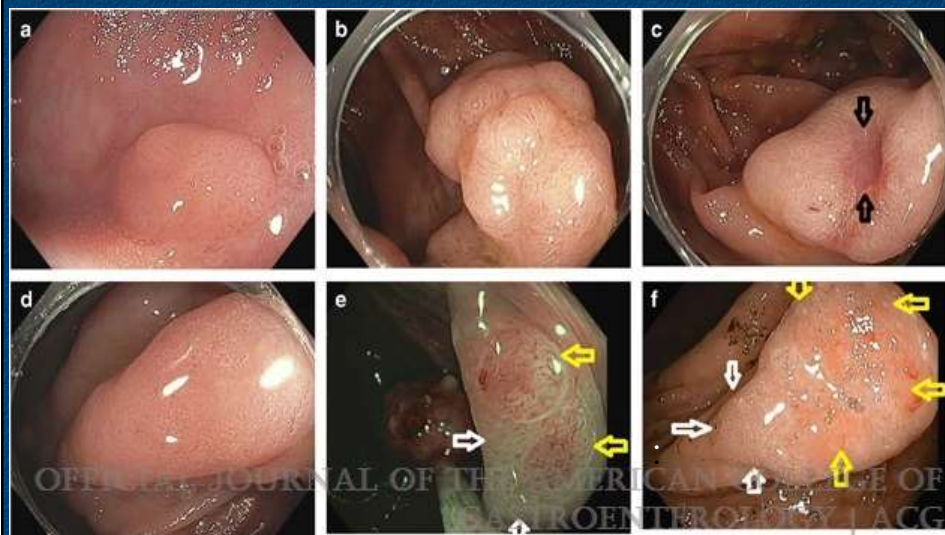
The NICE Classification

	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

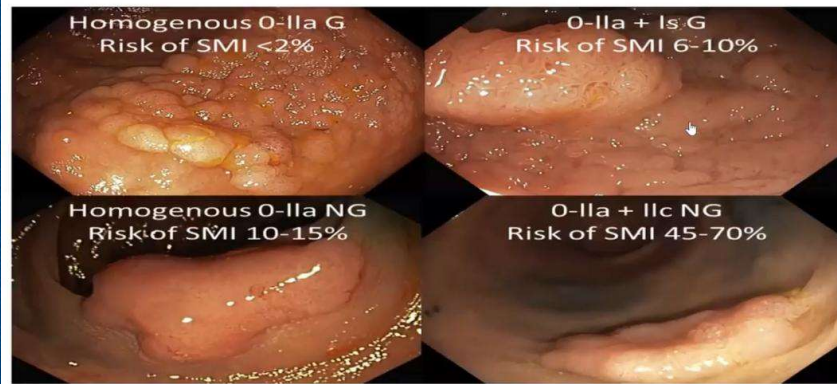
Kudo classification

I		Round pit (normal pit)		Normal mucosa
II		Asteroid pit		Type II pit pattern is specific for hyperplasia. Also, superficial type serrated adenoma and SSA/P show this pit like pattern.
III _s		Tubular of round pit that is smaller than the normal pit (type I)		Regular pattern -- intramucosal lesion
III _l		Tubular of round pit that is larger than the normal pit (type I)		
IV		Dendritic or gyrus-like pit		
V _i		Irregular arrangement and sizes of III _s , III _l , IV type pit pattern		Irregular pattern -- mucosal-submucosal deep invasion
V _s		Loss or decrease of pits with an amorphous structure		Nonstructure pattern -- Submucosal deep invasion

Endoscopic photographs of conventional adenomas and sessile serrated polyps

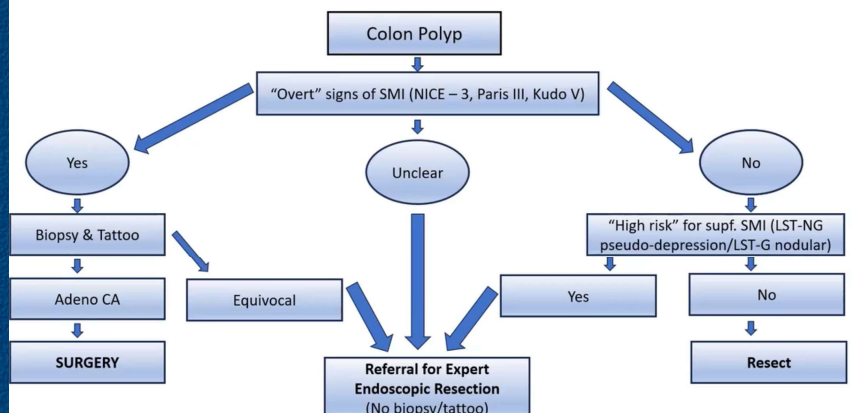


Sub-mucosal Invasion (SMI)



Colon Polyp

Colon Polyp Management Algorithm



Surgery for Benign Adenomas

Surgery for benign adenomas

Morbidity and Mortality After Surgery for Nonmalignant Colorectal Polyps

A 10-Year Nationwide Analysis

Ma, Christopher MD, MPH^{1,2}; Teriaky, Anouar MD, MPH³; Sheh, Steven MD⁴; Forbes, Nauzer MD, MSc^{1,5}; Heitman, Steven J. MD, MSc^{1,5}; Jue, Terry L. MD⁴; Munroe, Craig A. MD⁴; Jairath, Vipul MD, PhD^{2,3,6}; Corley, Douglas A. MD, MPH, PhD^{4,7}; Lee, Jeffrey K. MD, MPH, MAS^{4,7}

American Journal of Gastroenterology; November 2019 - Volume 114 - Issue 11 - p 1802-1810

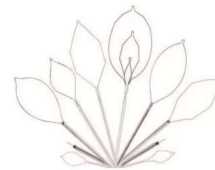
- National Inpatient Sample 2005-2014
- > 262,843 surgeries for non-malignant colorectal polyps.
- **In-hospital mortality 0.8%, morbidity 25.3%**
- Mortality by age:
 - 0.2% in 50-59 y/o
 - 0.6% in 60-69 y/o
 - 1.0% in 70-79 y/o
 - 2.5 % in 80 and greater
- In patients developing a postoperative adverse event:
 - 106% increase in mean hospital LOS(10.3 vs 5.0 days; P < 0.0001)
 - 91% increase in mean hospitalization cost (\$77,015.24 vs \$40,258.30; P < 0.0001).



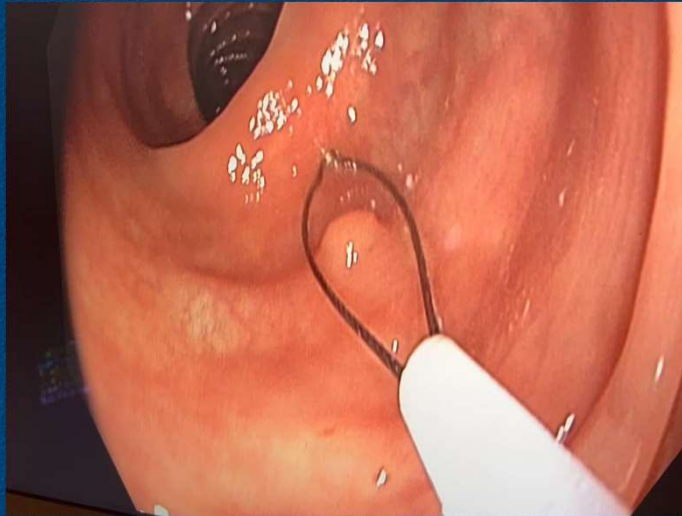
Removal techniques

1. Cold snare polypectomy-diminutive (≤ 5 mm) and small (6–9 mm) lesions.
2. Don't use cold forceps polypectomy to remove diminutive (≤ 5 mm).
3. Jumbo or large-capacity forceps -diminutive lesions ≤ 2 mm.
4. Recommend against the use of hot biopsy forceps for polypectomy of diminutive (≤ 5 mm) and small (6-9 mm) lesions due to high incomplete resection rates, inadequate histopathologic specimens, and complication rates.

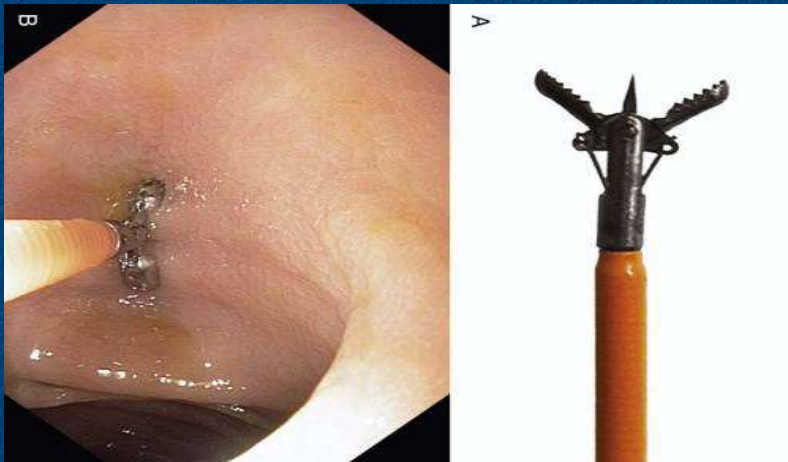
What do we need before polypectomy?



Cold Snare Polypectomy

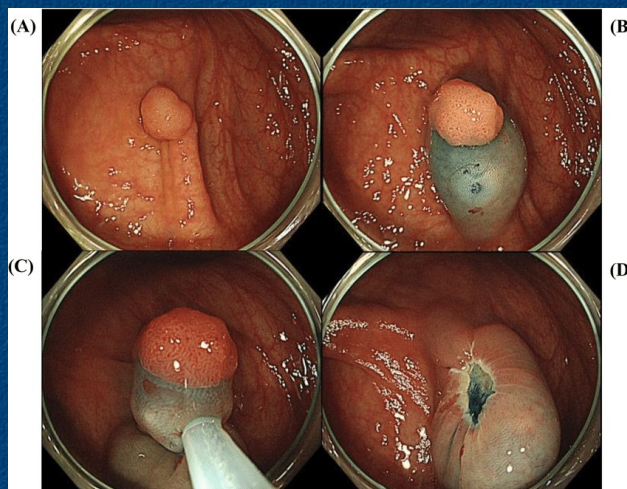


Cold Biopsy Polypectomy



4. Cold or hot snare polypectomy (with or without submucosal injection) -10–19 mm non-pedunculated lesions.
5. EMR as the preferred treatment method of large (≥ 20 mm) non-pedunculated colorectal lesions.
6. Recommend an endoscopist experienced in advanced polypectomy to manage large (≥ 20 mm) non-pedunculated colorectal lesions.

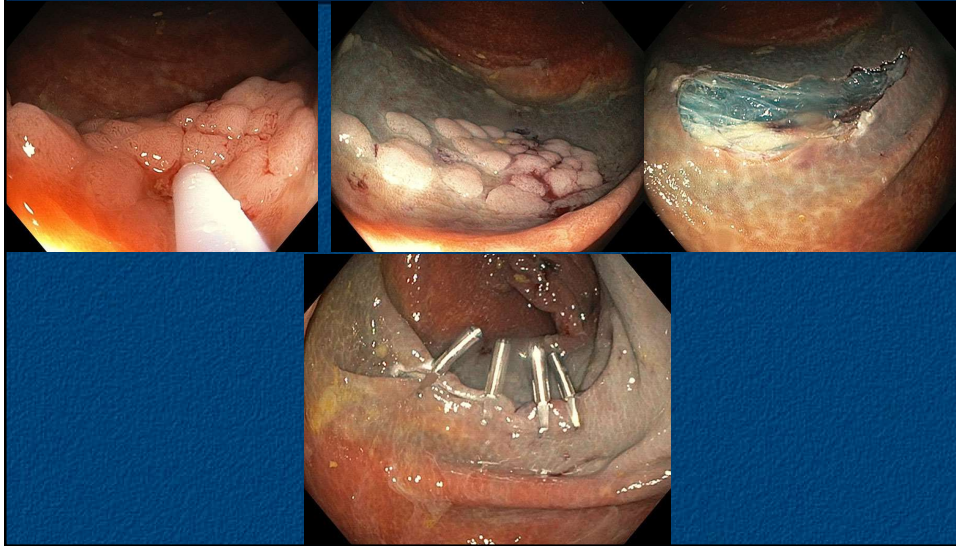
Endoscopic Mucosal resection



- 7. Suggest the use of a contrast agent, such as indigo carmine or methylene blue, in the submucosal injection solution to facilitate recognition of the submucosa from the mucosa and muscularis propria layers.
- 8. Recommend against the use of tattoo, using sterile carbon particle suspension, as the submucosal injection solution. The carbon particle suspension may result in submucosal fibrosis, and can thus reduce the technical success of future endoscopic resection of residual or recurrent lesion.

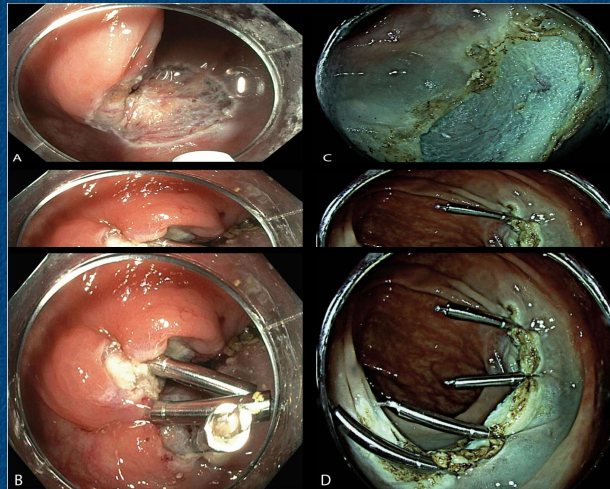
- 11. Suggest the use of a viscous injection solution (eg, hydroxyethyl starch, Eleview, ORISE Gel) for lesions ≥ 20 mm to removal the lesion in fewer pieces and less procedure time compared to normal saline.
- 11. Recommend against the use of ablative techniques (eg, argon plasma coagulation [APC], snare tip soft coagulation) on endoscopically visible residual tissue of a lesion, as they have been associated with an increased risk of recurrence.
- 12. Suggest the use of adjuvant thermal ablation of the post-EMR margin, where no endoscopically visible adenoma remains despite meticulous inspection. There is insufficient evidence to recommend a specific modality (ie, APC, snare tip soft coagulation) at this time.

Endoscopic mucosal resection

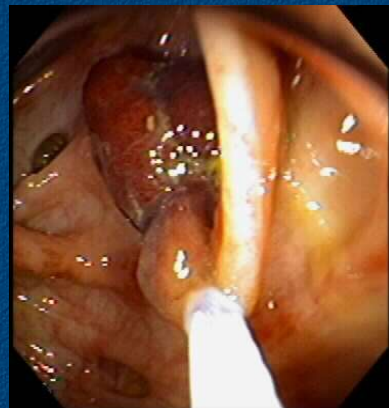


- 13. Recommend detailed inspection of the post-resection mucosal defect to identify features for immediate or delayed perforation risk, and perform endoscopic clip closure, accordingly.
- 14. Suggest prophylactic closure of resection defects ≥ 20 mm in size in the right colon, when closure is feasible.
- 15. Suggest treatment of intraprocedure bleeding using endoscopic coagulation (eg, coagulation forceps or snare-tip soft coagulation) or mechanical therapy (eg, clip), with or without the combined use of dilute epinephrine injection.

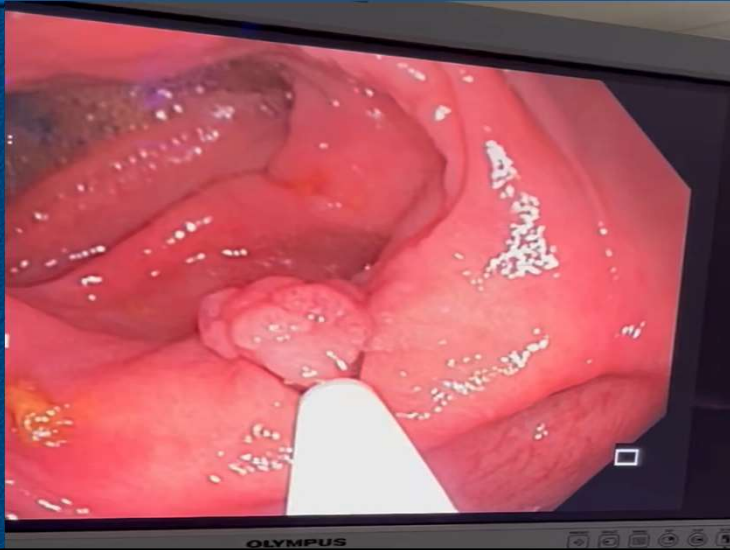
EMR defects with prophylactic clip closure



- 16. Recommend hot snare polypectomy to remove pedunculated lesions ≥ 10 mm.
- 17. Recommend prophylactic mechanical ligation of the stalk with a detachable loop or clips on pedunculated lesions with head ≥ 20 mm or with stalk thickness ≥ 5 mm to reduce immediate and delayed post-polypectomy bleeding.



Hot Snare Polypectomy

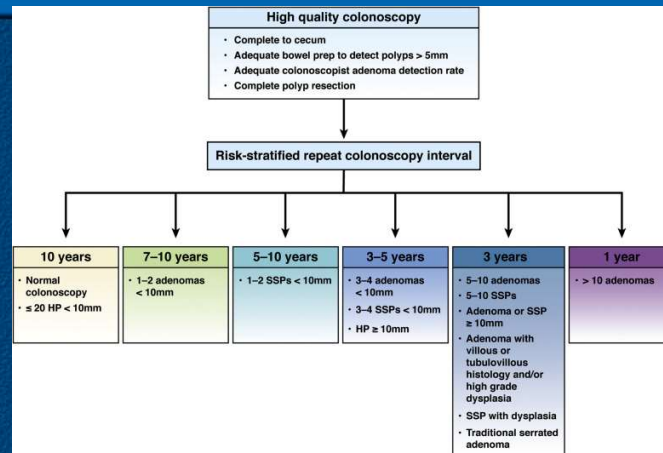


Questions for patients to ask prospective colonoscopists to help ensure a high quality examination

- Adenoma Detection Rate ? (Should be $\geq 25\%$ overall or M $\geq 30\%$, F $\geq 20\%$).
- Cecal Intubation rate(Screening $\geq 95\%$, Overall $\geq 90\%$).
- Split dosing of bowel prep.
- Report- Photograph of the appendiceal orifice and IC valve/Terminal ileum.
- Bowel preparation-quality described

Colorectal Cancer Screening: Recommendations for Physicians and Patients from the U.S. Multi-Society Task Force on Colorectal Cancer
Rex, Douglas K; Boland, Richard C; Dominitz, Jason A; Giardiello, Francis M; Johnson, David A; Kaltenbach, Tonya; Levin, Theodore R; Lieberman, David; Robertson, Douglas J
Official journal of the American College of Gastroenterology | ACG112(7):1016-1030, July 2017.

Follow-up after colonoscopy and polypectomy



Recommendations from the U.S. Multi-Society Task Force on Colorectal Cancer (CRC) for follow-up after normal colonoscopy among individuals age-eligible for CRC screening, and post-polypectomy among all individuals with polyps. Published July 2, 2020
 Samir Gupta, David Lieberman, Joseph C. Anderson, Carol A. Burke, Jason A. Dominitz, Tonya Kaltenbach, Douglas J. Robertson, Aasma Shaukat, Sapna Syngal, Douglas K. Rex on behalf of the U.S. Multi-Society Task Force on Colorectal Cancer

Hope you Guys had a sphincter-riffic time!

THANK YOU!

