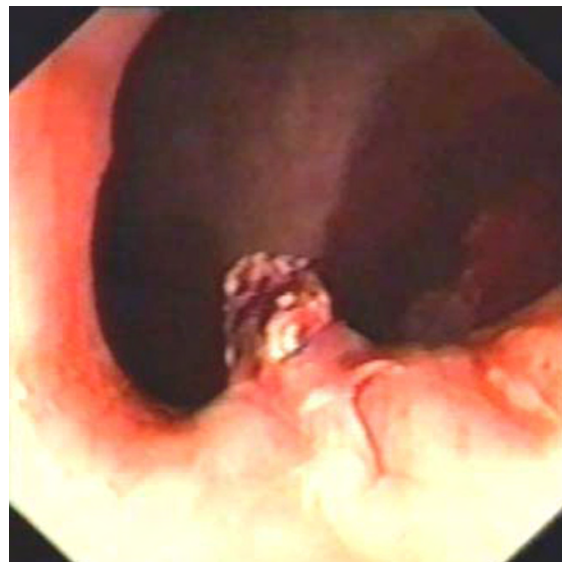
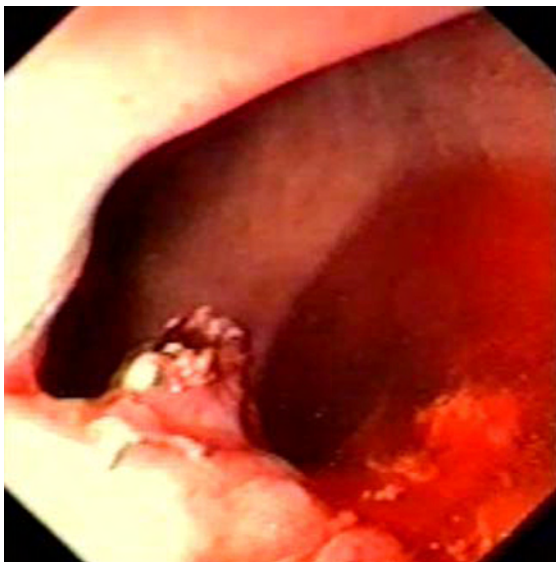


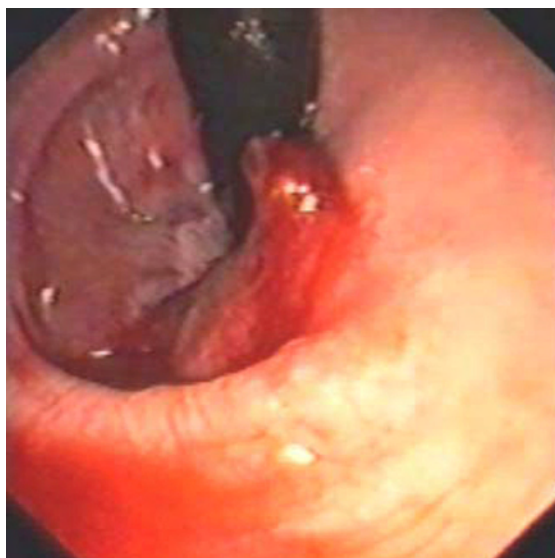
Case 1

Sunthorn Treesaranuwattana, MD.

Rungsun Rerknimitr, MD.

A 72-year-old man with no significant co-morbidity presented with passing of fresh clotted blood per rectum. Hematocrit level was 30%. Proctoscopy demonstrated fresh blood fully occupied in the rectum. A colonoscopy was done as shown.





Endoscopy showed pigmented adherent clot on the elevated tubular structure in the rectum. Wedge excision was done via operating proctoscope. The pathology later was confirmed as **arterio-venous malformation (AVM)**.

Differential diagnoses for a tubular lesion that can cause bleeding are post polypectomy stalk, rectal varix, Dieulafoy's lesion, and isolated hemorrhoid. The typical diameter size of AVM is usually larger than 1 mm.

Discussion:

AVM involving in gastrointestinal tract is a very rare condition. Ever reported AVM areas are; rectum, stomach and pancreas¹⁻³. Presentations are varies but majority of patients present with torrential bleeding. Surgical excision play role as the main option^{1,2}. However, endoscopic treatment is promising.

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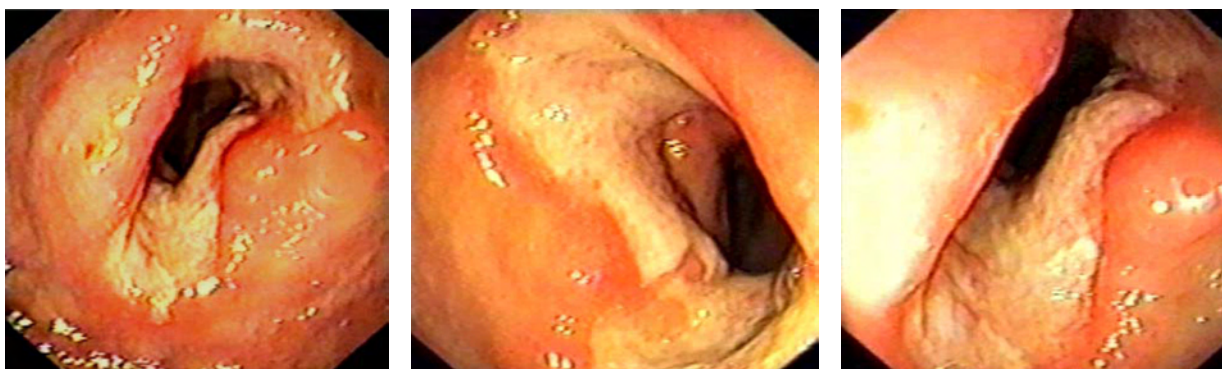


Case 2

Sunthorn Treesaranuwattana, MD.

Rungsun Rerknimitr, MD.

A 63-year-old woman with no significant co-morbidity, presented with a five years history of constipation and occasionally passing of bloody mucous stool without other alarm feature. Per rectum examination felt as hard-thick rectal wall at the finger tip. Colonoscopy founded a large clean base ulcer in the rectum. The ulcer occupied nearly the whole rectal lumen, multiple biopsies were done.



The diagnosis is a **solitary rectal ulcer syndrome (SRUS)**.

Discussion:

The differential diagnosis includes rectal cancer, Crohn's disease, infectious ulcers and the use of non-steroidal, anti-inflammatory suppositories. Typical histopathology usually demonstrates depletion of normal lamina propria, increased area of distorted smooth muscle bundles, collagen, fibrous tissue and thickening of the muscularis mucosa¹⁻³. It is believed that a flap is developed upon contraction of the puborectalis along with increased intra-abdominal pressure (especially during straining), and the anterior rectal wall is pressed on the upper anal canal and lead to occlusion of the outlet. This in turn plus local trauma and ischemia can progress to SRUS. Avoidance of straining at defecation and treating with bulk-forming supplements are the initial management. Biofeedback is helpful by stopping the abnormal pelvic

floor behavior. Surgery is reserved for patients who are refractory to conservative treatment and biofeedback or for patients with full-thickness or significant mucosal rectal prolapse¹.

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Case 3

Sunthorn Treesaranuwattana, MD.

Rungsun Rerknimitr, MD.

A 49-year-old woman came for an annual health check up and was found to have a slightly high CEA level. She reported no GI symptom. A colonoscopy was done, a round submucosal mass (4 cm.) was seen at the ileocecal valve area.



The diagnosis is **IC valve lipoma**.

Differential diagnoses are lymphangioma, gastrointestinal tumor, extrinsic compression from appendiceal abscess and other submucosal tumors.

Discussion:

Lipoma is one of the most frequent benign tumors of the digestive tract and half are located in the colon and nearby area. Most are found submucosally and may vary in their incidence, localization, symptoms and pathogenesis¹. Majority of patients are asymptomatic. However, intussusception and bleeding may occur^{1,2}. Differential lipoma from other submucosal masses is prudent since others require resection³. Pillow sign can be seen after pressing the mass with a hard biopsy forceps. Naked fat can be seen after multiple bite of the mucosa til the protrusions of fat develop⁴.

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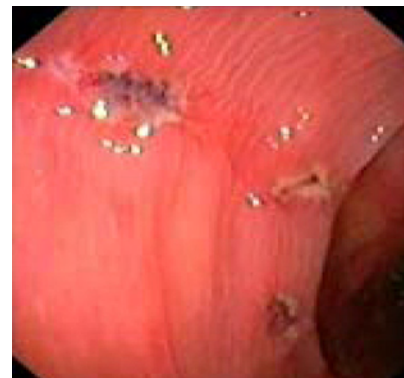
Case 4

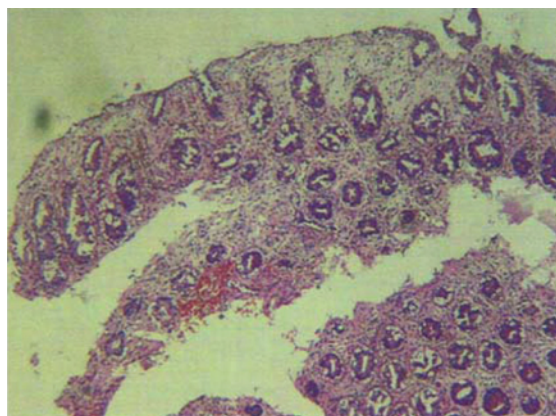
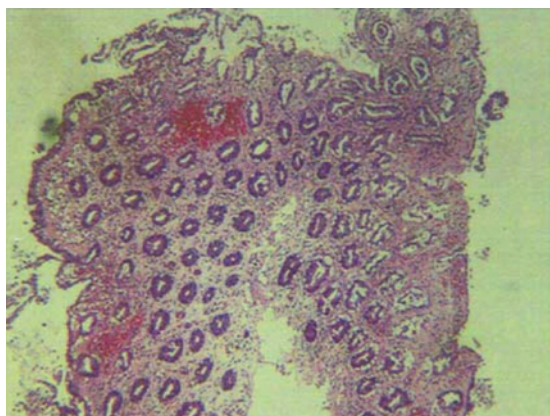
Sunthorn Treesaranuwattana, MD.

Naruemon Klaikaew, MD.

Rungsun Rerknimitr, MD.

A 58-year-old man got admitted because of abdominal pain and constipation for three days, he had underlying of NIDDM and hypertension. Abdominal examination revealed mild tenderness of lower abdomen. Rectal examination demonstrated fecal impaction. During hospitalization, he developed alteration of consciousness, tachycardia and fever. He was diagnosed and treated as sepsis, diabetic ketoacidosis and acute renal failure. Abdominal ultrasonography showed thickening of sigmoid colon. Colonoscopy revealed a large area of ulcerative lesion in descending colon, sigmoid colon and rectum covering with yellowish exudate. Multiple biopsy was performed. Hemoculture grew heavy number of *E.coli*. With aggressive fluid and insulin management plus board spectrum antibiotic coverage, he was discharged within one week.





Histology from colon biopsy demonstrated acute ulcer with neutrophilic infiltration.

The diagnosis is **colonic ischemia**

Differential diagnoses are severe infectious colitis, *C. difficile* colitis¹, tuberculous colitis, fungus infection of the colon, and vasculitis injury of the colon.

Discussion:

In elderly patient who develop severe dehydration the condition called “non-occlusive mesenteric infarction” can occur. This insult leads to colonic ischemia or infarction. Endoscopic findings of the ischemic colitis consisted of minute hemorrhages, edematous and fragile mucosa with contact bleeding, segmental redness, scattered erosion, longitudinal ulcerations, and sharply defined segment of involvement. Occasionally, the mucosa of gangrenous colitis showed cyanotic and pseudopolyps². In this patient, the endoscopy showed the acute stage of ischemic colitis³.

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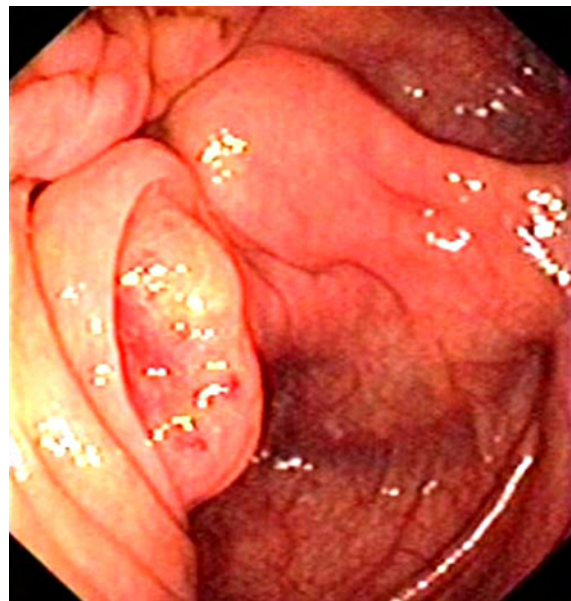
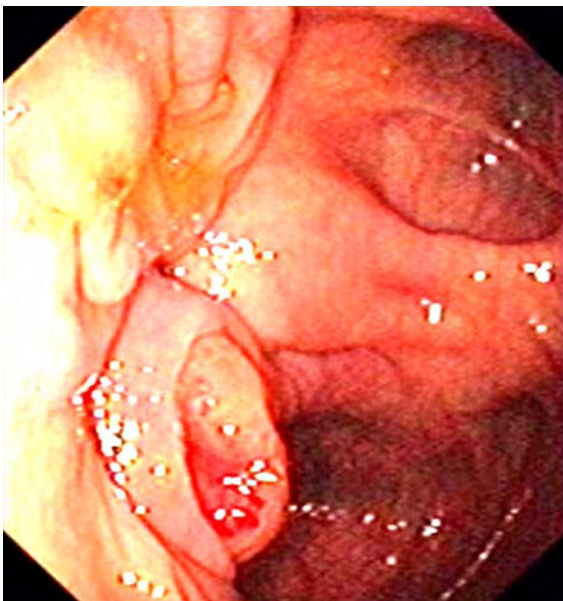


Case 5

Boonlert Imraporn, MD.

Rungsun Rerknimitr, MD.

A 53-year-old man had abdominal pain for four months and significant weight loss. Physical examination showed normal findings except a hard umbilicus. Findings from abdominal ultrasound and esophagogastroduodenoscopy were normal. A colonoscopy was done as figures.



The colonoscopic findings showed a large appendiceal orifice with abnormal irregular mucosa plus contact bleeding. Biopsy from the appendiceal orifice rim was performed. The pathological diagnosis was compatible with **appendiceal epithelial cancer with well differentiated adenocarcinoma cell type.**

Differential diagnoses are appendiceal abscess, carcinoid tumor of the appendix, mesenteric adenitis involving appendix and mucinous tumor of the appendix.

Discussion:

Appendiceal epithelial cancer mainly composes of mucinous cystadenocarcinoma and colonic-type adenocarcinoma. The incidence of primary adenocarcinoma is about 0.1% of appendectomy specimens¹. Generally, mucinous type is more common than colonic type. The clinical symptoms usually mimic acute appendicitis. Other uncommon presentations include right lower quadrant mass, perforation and pseudomyxoma peritonei. The diagnosis by colonoscopy before surgical interventions is rare and colonoscopic features include cecal submucosal tumor overlying with mucin³. However colonoscopy with biopsy rarely yields a diagnosis of appendiceal carcinoma⁴. Right half colectomy is recommended due to possible risk of lymph node metastasis and better survival than appendectomy².

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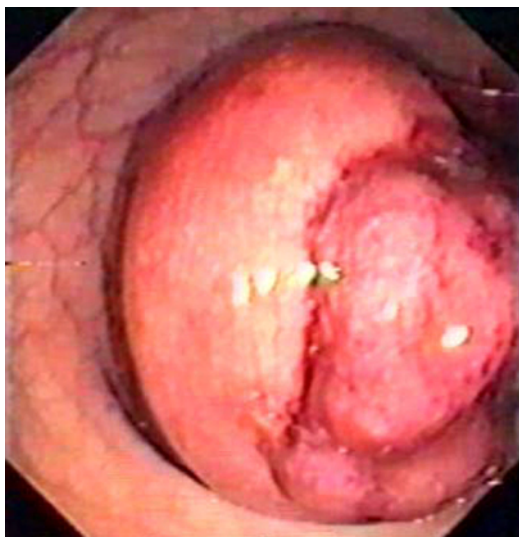
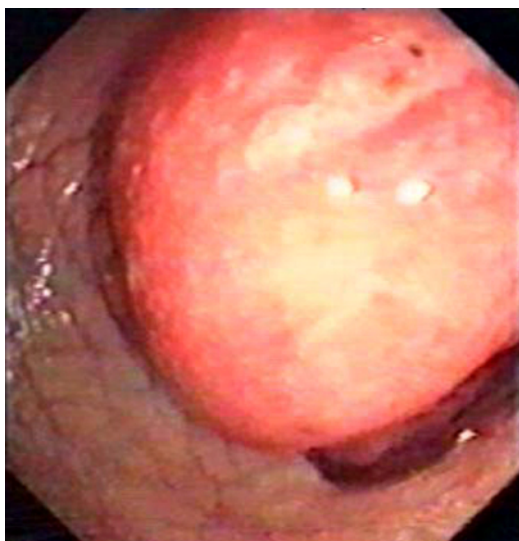
Case 6

Sunthorn Treesaranuwattana, MD.

Boonlert Imraporn, MD.

Rungsun Rerknimitr, MD.

A 66-year-old woman developed acute abdominal pain followed by a bloody bowel movement. A large mass protruding through the anus was found. She was transferred to the hospital after the reduction of the prolapsed mass. Digital rectal examination in the emergency room revealed a round and smooth surface mass in her rectum. An emergent colonoscopy was done as shown.



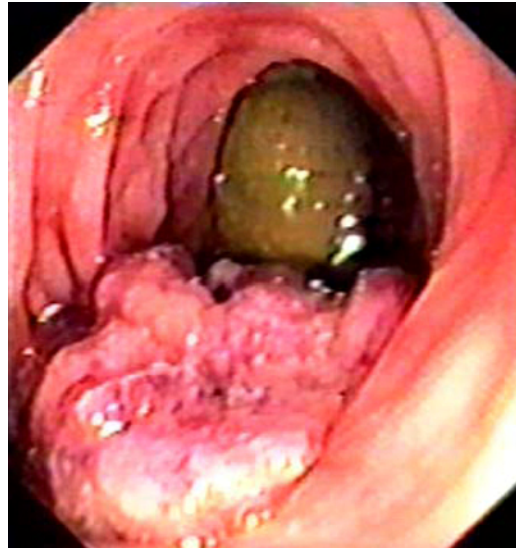
Her diagnosis was **acute colonic intussusception**. The endoscopic treatment with air insufflation and forceful water irrigation was successfully performed in order to release intussusception. The endoscopic finding after reduction was shown as figure below.

The polypoid mass was seen after reduction. An elective sigmoidectomy was done later. Well differentiated adenocarcinoma of the rectum was diagnosed.

Discussion:

Intussusception occurs when a proximal part of the bowel (intussusceptum) moves into the lumen of the adjacent distal part (intussusciens). Intussusception in adults is a rare condition. Most colonic intussusceptions in adults involve primary adenocarcinoma of colon¹.

The causes of intussusception are usually identified in 70-90% of patients and the definite treatment is mainly surgical resection².



References

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Case 7

Chatporn Kittitrakul, MD.

Rungsun Rerknimitr, MD.

A 71-year-old male patient, presented with hematochezia for 1 day.

A colonoscopy was done as shown.



Endoscopic findings:

There were 3 ulcers with swollen border in the terminal ileum, of which one contained nonbleeding visible vessel.

Diagnosis:

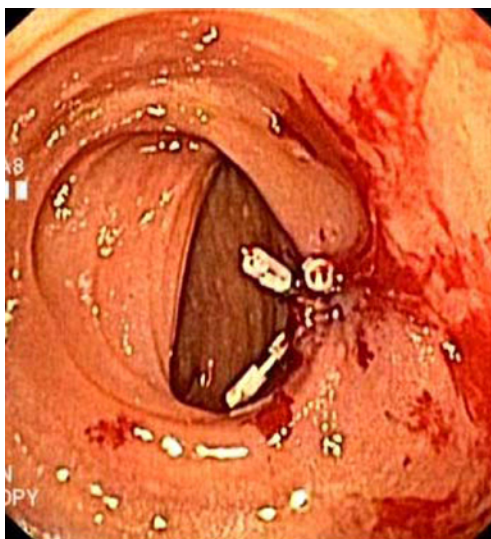
Ileal ulcers

Discussion:

Small intestinal ulcers are uncommon causes of lower GI bleeding.¹ Causes of small intestinal ulcers can be classified as either primary or secondary. Primary ulcers are rare with an incidence of 4/100,000 population (25% are bleeding²). The causes of secondary ulcers include **tuberculosis**, **NSAIDs**,

Celiac disease, Crohn's disease, lymphoma, idiopathic ulcerative jejunoileitis, vasculitis, heterotopic gastric mucosa and infection (*Salmonella typhi*, *Campylobacter jejuni*, and Cytomegalovirus).^{1,2} Hence the history of previous NSAIDs used and associated symptoms such as fever, weight loss and bowel habit changes are required to point out the diagnosis.

Biopsy of non-bleeding ileal ulcers was done. Hemoclips were placed on the visible vessel in one of the ulcer and hemostasis was achieved.



Pathological report was mild chronic and acute ileitis which was not specific. He had recurrent bleeding from these ulcers and more ulcers were detected. After treatment with infliximab, he had neither recurrent ulcer nor bleeding. Thus the most likely diagnosis is Crohn's disease.

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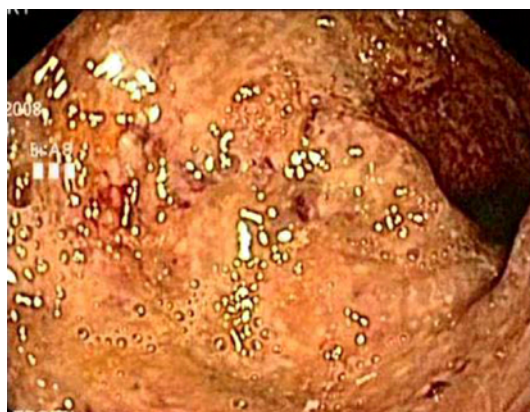


Case 8

Chatporn Kittitrakul, MD.

Rungsun Rerknimitr, MD.

A 46-year-old male patient, presented with chronic diarrhea. A colonoscopy was done as shown.



Endoscopic findings:

Colonic mucosa showed diffuse swelling with erythematous mucosa covered with yellowish membrane. The normal haustration was lost. Terminal ileum appeared normal.

Diagnosis:

Ulcerative colitis

Discussion:

Differential diagnoses of pancolitis are **infectious colitis caused by bacteria (Salmonella, Shigella, Campylobacter, Yersinia, C. difficile, Entamoeba histolytica), tuberculosis, virus and inflammatory bowel disease (IBD)**. Histologic and bacteriologic investigations for pathogenic bacteria, bacterial toxins (eg, *C. difficile* toxin), ova, parasites, or viruses in stools or mucosal biopsies can often be useful in differentiating infectious colitis from IBD.

In this case, random biopsies were done. Pathological reports showed mild chronic and acute ileitis. Chronic and acute colitis without organism were confirmed. GMS stain was negative for abnormal organism. Stool pathogenic bacteria, *C. difficile* toxin, ova or parasites were not found. Therefore, the most likely diagnosis is ulcerative colitis.

Endoscopy can help to differentiate between ulcerative colitis (UC) and Crohn's disease (CD).¹ Patients with UC typically present with continuous inflammation extending proximally from the rectum, but limited to the colon. In some cases if the entire colon is involved, a "backwash-ileitis" can be seen. At diagnosis, 25-55% of lesions were limited to the rectum, 50-70% limited to the splenic flexure. In contrast with UC, inflammation in CD can involve any segment of GI tract. Small bowel involvement in CD is more frequent than UC. Other endoscopic findings that favor CD are longitudinal, polycyclic ulcers ("snail track"), cobblestone appearance of ileum, skip lesions, stricture and deep ulcer.

Reference

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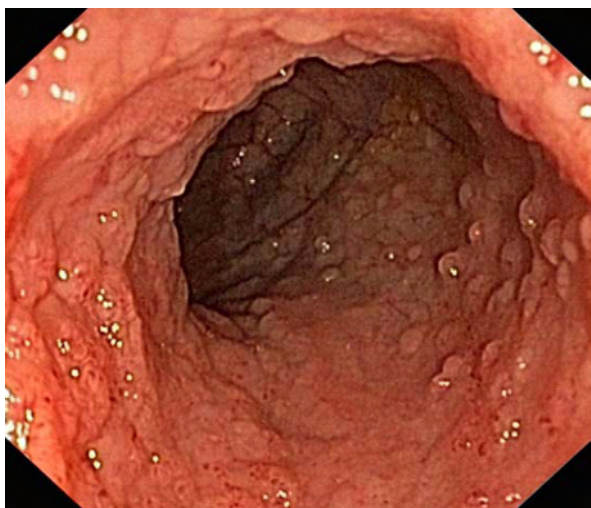


Case 9

Chatporn Kittitrakul, MD.

Rungsun Rerknimitr, MD.

A 37-year-old male patient, presented with chronic diarrhea for 1 month. He also had a 5 kgs weight loss. A colonoscopy was done as figures.



Endoscopic findings:

- Terminal ileum: patchy subepithelial hemorrhage with multiple small nodules distribute diffusely in the terminal ileum.

Diagnosis:

**Ileitis with lymphoid hyperplasia
(Reactive Payer 's patch).**

Pathology report:

- Terminal ileum biopsy: non-specific ileitis with lymphoid hyperplasia. No organism was detected.

Discussion:

Chronic diarrhea is a frequently problem that all gastroenterologists have to encounter. Many investigations can be performed to identify the cause of chronic diarrhea and colonoscopy is often used to evaluate colonic lesion. Retrograde ileoscopy is a useful procedure in chronic nonbloody

diarrhea because of its ability to detect alterations in the terminal ileum. In a prospective, case-control study, alterations of the terminal ileum were detected more frequently in patients than in controls (47/138 vs 15/138; $p < 0.0001$).¹ In addition, Crohn's disease (9/138 vs 0/138; $p = 0.007$) and nonspecific ileitis (18/138 vs 2/138; $p = 0.0009$) were significantly more frequent in patients than in controls. Likewise, nodular lymphoid hyperplasia was more common in patients than controls (33/138 vs 16/138; $p = 0.008$).

In this case, nonspecific ileitis was reported along with lymphoid hyperplasia. Benign lymphoid hyperplasia is best described in children and is often associated with viral infections.² When present in adults, it has been linked to a variety of conditions such as giardiasis, familial adenomatous polyposis, Gardner's syndrome, food allergens and diseases of immunodeficiency such as immunoglobulin A deficiency.³ The other malignant cause as a differential diagnosis of lymphoid hyperplasia is primary lymphoma of small intestine.

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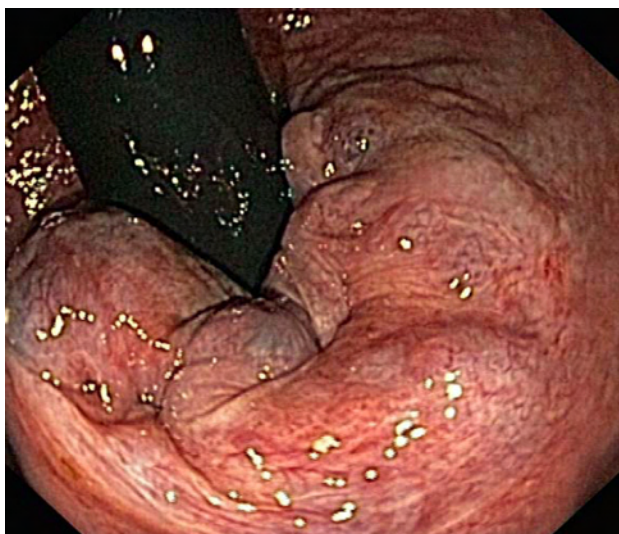


Case 10

Chatporn Kittitrakul, MD.

Rungsun Rerknimitr, MD.

A 57-year-old male patient with family history of colorectal cancer underwent a surveillance colonoscopy. He had intermittent minimal bleeding per rectum following defecation without pain. A colonoscopy was done as figure.



Endoscopic findings:

Non-bleeding internal hemorrhoids (retroflex view)

Diagnosis:

Internal hemorrhoids

Discussion:

This patient presented with painless bleeding per rectum following defecation which is more likely anal canal bleeding. **Differential diagnoses are hemorrhoids, tumor, polyps, anal warts and rectal prolapse.** Initial examination involves inspection of the perineum followed by rectal examination.

An anoscopy can be helpful to make a diagnosis. Older patients with suspected hemorrhoidal bleeding generally require additional flexible sigmoidoscopy, colonoscopy, or barium enema to exclude colorectal carcinomas. Therefore, a colonoscopy was performed in this patient and the endoscopic diagnosis was internal hemorrhoids.

Hemorrhoids are enlarged vascular cushions within the anal canal. They are related to engorgement of the venous plexuses (which are the normal anal cushions) and to redundancy of the epithelium. They can be classified according to their relations to the dentate (pectinate) line, which demarcates the transition from the squamous epithelium below the columnar epithelium. Internal hemorrhoids originate above the dentate line, whereas external hemorrhoids originate below this line. The more widely used Goligher classification system describes four grades, which are based on the degree of prolapse, but this system fails to reflect the severity of the symptoms.¹ First degree hemorrhoids are hemorrhoids which bleed without a prolapse. Second degree hemorrhoids are prolapsed hemorrhoids that reduced spontaneously. Third degree hemorrhoids are prolapsed hemorrhoids that have to be reduced manually. Fourth degree hemorrhoids are permanently prolapsed one. Regarding the treatment, first and second degree hemorrhoids can be treated by rubber band ligation, injection sclerotherapy and/or fiber supplementation.¹ For the third degree hemorrhoids, stapled hemorrhoidectomy or doppler guide hemorrhoidal artery ligation can be done if rubber band ligation are failed. The fourth degree hemorrhoids required surgical hemorrhoidectomy. In the recent systematic review, stapled hemorrhoidectomy offers some short-term benefits over conventional operation such as shorter inpatient stay and operation time but the total complication rates are similar for both techniques.² In addition, stapled hemorrhoidectomy is associated with a higher rate of recurrence.

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Case 11

Phonthep Angsuwatcharakon, MD.

Rungsun Rerknimitr, MD.

A 75-year-old woman presented with bowel habit change. A colonoscopy was done as shown.



The colonoscopy showed whitish, mobile worm with threadlike end penetrating the mucosa.

The diagnosis is *Trichuris trichiura* (Whip worm) infestation. In this case, the parasite was female.

Discussion:

Whip worm is transmitted by feco-oral route, the habitat of parasites is in human cecum¹. Majority of patients are asymptomatic; the symptoms include abdominal pain, diarrhea, weight loss, and anemia². The

diagnosis is usually made by stool identification of the parasite's egg, which is lantern-shaped brown egg with bipolar plugs³. But in some cases stool exam may be negative, and colonoscopy may aid for diagnosis^{1,2,4}. Endoscopic findings typically reveal a white worm, 30-50 mm. long, with long threadlike anterior end embeds in colonic mucosa and thicker posterior end protrudes into colonic lumen¹.

References

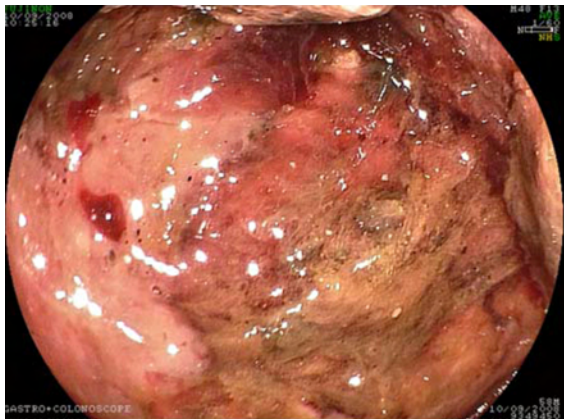
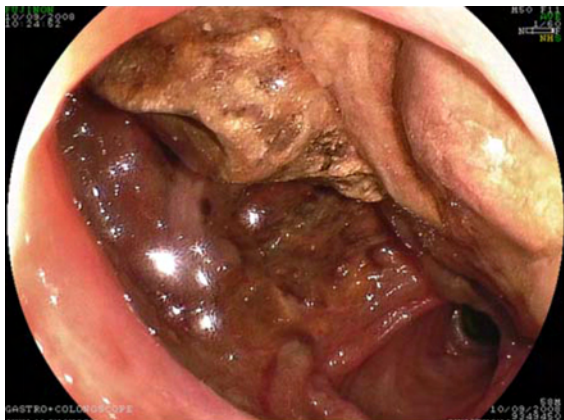
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Surachai Amornsawadwattana, MD.

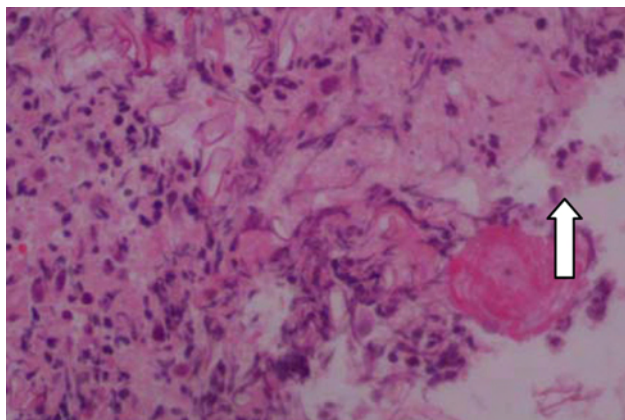
Naruemon Klaikaew, MD.

Rungsun Rerknimitr, MD.

A 58-year-old male with underlying scleroderma and restrictive cardiomyopathy was admitted to the intensive care unit due to post cardiac arrest. He developed hematochezia and hypovolemic shock. A colonoscopy was performed as shown below.



Colonoscopic findings were swelling of the ileocecal valve, large circumferential ulcer at the terminal ileum with necrotic tissue and exudate. Mucosal friability and blood clot also was also seen, then biopsy from the ulcer was obtained. The patient continued to have a recurrent lower GI bleeding. Due to the grave prognosis of the underlying disease, conservative treatment was managed. Eventually the patient expired. Histological findings from ileal ulcer revealed deposition of broad non-septated hyphae (white arrow) intermingled with numerous acute inflammatory cells, morphologically consistent with *Mucor* species. The final diagnosis is **ileal mucormycosis**.



Discussion:

Mucormycosis is the common name of pathogenic fungi of the order Mucorales¹. Organ involvement can be divided into at least 6 clinical categories: 1) rhinocerebral, 2) pulmonary, 3) cutaneous, 4) gastrointestinal, 5) disseminated, and 6) miscellaneous². Gastrointestinal mucormycosis is rare and mainly occurs in extremely malnourished patients (especially infants and children)². Acquisition of fungus is suspected from ingestion². Most of patients are premature neonates and rarely found in other immune-compromised condition, including AIDS, SLE and organ transplantation. Most of organs involvements in GI tract are stomach, colon and ileum². Symptoms are varied and depended on the affected site including nonspecific abdominal pain, nausea, vomiting, abdominal distention, fever and hematochezia^{2,3}. The diagnosis can be made by biopsy and often diagnosed postmortemly due to its acute and fatal in nature. Aggressive surgical therapy and administration of amphotericin B are the treatments of choice^{2,3}.

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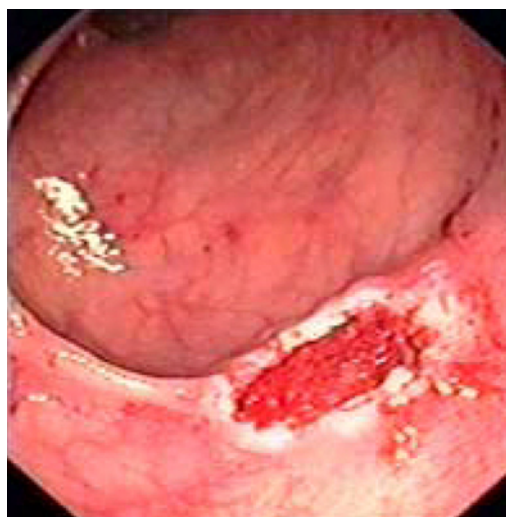
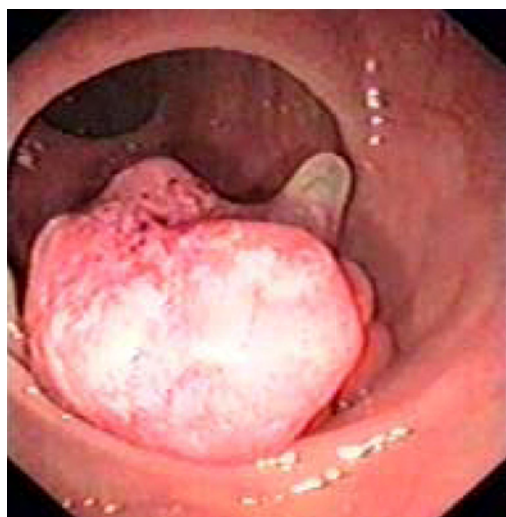
Case 13

Sunthorn Treesaranuwattana, MD.

Surachai Amornsawadwattana, MD.

Rungsun Rerknimitr, MD.

A 58-year-old man presented with bleeding per rectum for one week. He had no other comorbidity. Physical examination was unremarkable. Colonoscopy founded a large polyp in the upper rectum (about 12 cm. from anal verge). Polypectomy was successfully performed.



Pathological result:

Tubulovillous adenoma (3x2.5x2 cm.) with focal high grade dysplasia. No fibrovascular core invasion.

Discussion:

Colorectal cancer (CRC) is a major cause of death in developed countries. Most colorectal cancer are believed to arise from benign adenomatous polyp. A concept referred to as the adenoma-carcinoma sequence, which has accounted for the preventive screening and removal of adenomatous polyps using colonoscopy. Earlier studies suggest that adenoma with severe dysplasia, carcinoma in situ, and minimally invasive (within the submucosa) carcinoma act as pathological bridges between benign adenoma and invasive advanced carcinoma¹. The risk of colon cancer with high grade dysplasia are rising with the number of adenoma present and approach 100% in patient with FAP. Because negative biopsy results from fractional sample of a polyp cannot exclude cancer, total excision of polyp is the only method that provides the accurate histological diagnosis². For larger polyps piecemeal excision may be required, and for sessile growths, injection of saline into the polyp base can assist the complete endoscopic resection.

A consensus statement for postpolypectomy surveillance³ agreed that all complete colonoscopy should be performed at the time of polypectomy, clearing the colon of all existing adenoma, this may take more than one session for large of multiple polyps. The interval before the next surveillance colonoscopy is based on the patient's category of recurrent adenoma risk (Table).

Risk factors for developing an adenoma with advanced pathology or a colorectal cancer after colonoscopic polypectomy

Low risk	High risk
1 or 2 small (<1cm.) tubular adenoma	Multiple (≥ 3) adenomas
No family history of colorectal neoplasia	Large adenoma (>1 cm.)
	Adenoma with a villous component
	Adenoma with a high grade dysplasia
	First degree relative with colorectal cancer

In patient with high risk for adenoma recurrence, repeat colonoscopy need to be performed in 3 years to evaluate for metachronous adenomas. After one negative follow up surveillance colonoscopy, the subsequent surveillance interval can be increased to 5 years. For low-risk patients, repeat colonoscopy can be performed at 5 years.

References

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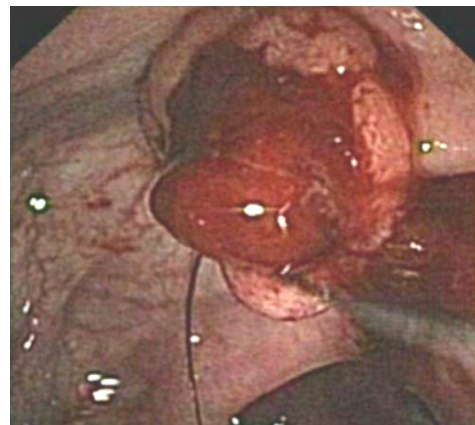
Nathawut Sirimontaporn, MD.Rungsun Rerknimitr, MD.

A 75-year-old male, presented to the emergency room with lower GI bleeding

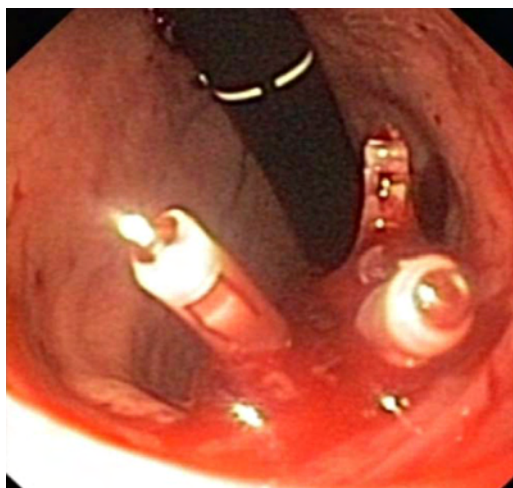
A colonoscopy was performed as shown.



Colonoscopic findings: An approximately 2 cm. in diameter sigmoid polyp located behind the fold was detected. The polyp was not clearly visualized with a forward viewing colonoscope. With a side-viewing duodenoscope, a complete examination of the polyp was possible. The pictures below showed the same polyp depicted by a side-view endoscope (left) and side-view polypectomy by a snare was performed (right).



Polypectomy was done successfully, post polypectomy bleeding developed but later was stopped by endoscopic hemoclipping.



Diagnosis and technique:

Colonoscopic polypectomy with a side-viewing endoscope.

Discussion:

Colonoscopy and colonoscopic polypectomy are the procedures of choice for diagnosing and treating colorectal polyps. Forward-viewing colonoscope is the most commonly used instrument for the procedures¹, however, polyps may be situated behind the colonic fold or at a bend where visibility of the

whole polyp is poor and the polyp can not be snared for polypectomy, adaptation to this approach, such as changing the patient's position, using the retroflexion view of the scope may assist the endoscopist in performing polypectomy². However since the majority of the patients are children, using retroflexed scope is difficult. Side-viewing endoscope may ease all those problems, polyp that located behind the folds or proximal to sharp bends can be clearly visualized, so ensnaring and polypectomy is no longer a problem.

The skill required to perform colonoscopy using a side-viewing endoscope is acquired easily after a couple of procedures³ and it usually is effective and safe with minor complication if being done by experienced endoscopists.

Advantage and disadvantage of a side-viewing endoscope for polypectomy

Advantage of side-viewing endoscope	Dis-advantage of side-viewing endoscope
Polyp located behind the fold or at a bend can be easily seen	Right side colonic polyp is difficult to perform polypectomy
	Performing hemoclipping with side-viewing endoscope will be somewhat difficult.

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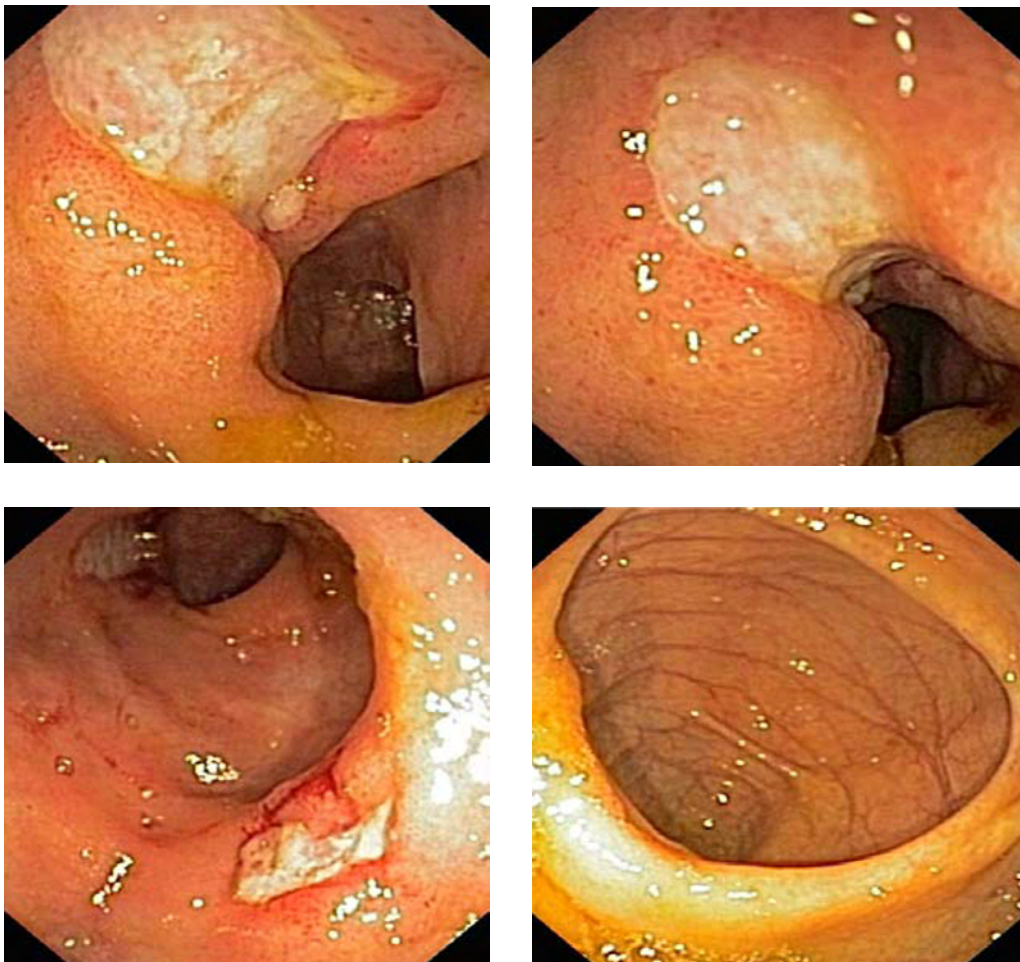
Case 15

Nathawut Sirimontaporn, MD.

Rungsun Rerknimitr, MD.

A 54-year-old Thai female, presented with bright red blood in stool for 1 week. She had a history of painful right knee and received the treatment from a nearby clinic.

A colonoscopy was done.



Colonoscopic findings:

Terminal Ileum: Three clean base ulcers 0.8-2 cm. in diameter found at 5-8 cm. from the ileocecal valve. Other parts of the colon appeared normal.

Pathological report: The ileal biopsy revealed an edematous intestinal mucosa with focal erosion, mixed with acute and chronic inflammatory cells infiltration in lamina propria. No organism was detected.

Diagnosis:

NSAID induced ileal ulcers

Discussion:

NSAIDs have been associated with different of adverse effects on the small bowel distal to the duodenum. The most common appears to be an NSAID enteropathy which characterized by occult blood loss and anemia and sometimes associated with malabsorption and/or protein-losing enteropathy¹. Small bowel ulcers may not be associated with the presence of gastric or duodenal ulcers but may be more common with slow-release NSAIDs preparations. Complications of small bowel ulcers include bleeding, stricture formation and perforation. Stricture formation appears to be uncommon although the presence of focal strictures called intestinal diaphragms may be pathognomonic of NSAIDs damage. Treatments with cimetidine and sucralfate have no effect in reducing NSAIDs induced ulcer. Misoprostal has been shown to decrease small intestinal inflammation. COX2 selective inhibitor may be substituted in some patients injured by non-selective NSAIDs² but avoidance of NSAID is the best recommendation.

References

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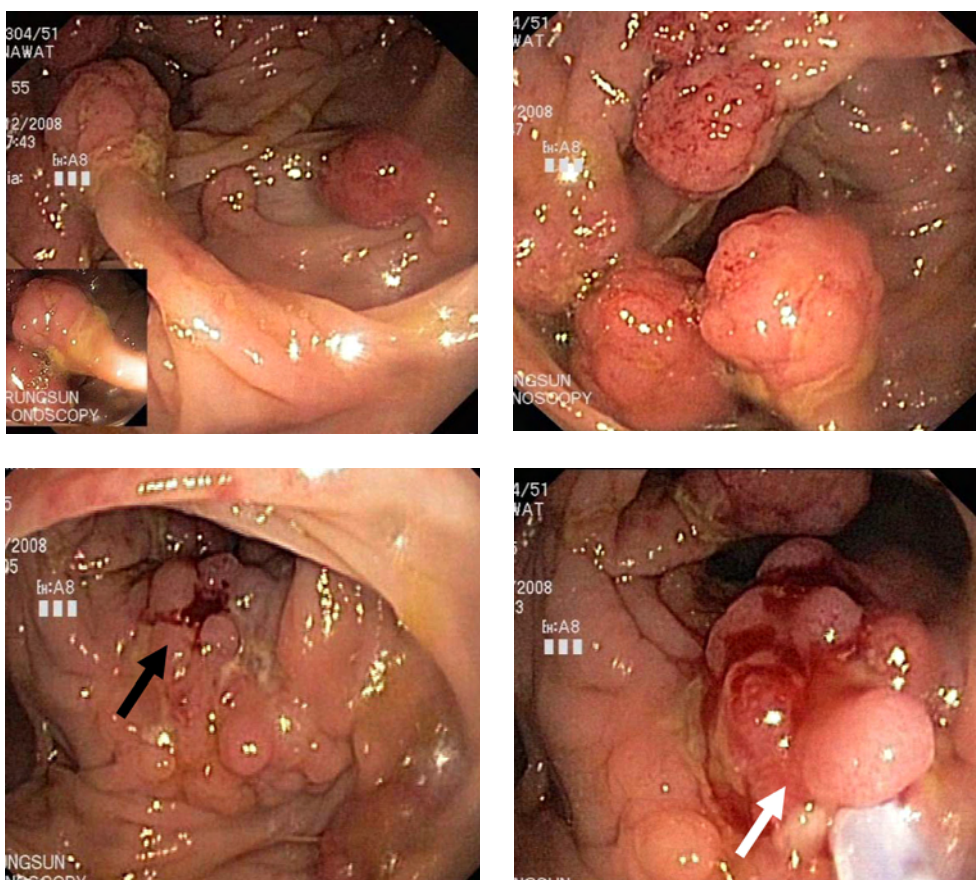


Nathawut Sirimontaporn, MD.

Naruemon Klaikaew, MD.

Rungsun Rerknimitr, MD.

A 55-year-old male, with no history of bowel habit change or lower GI bleeding, came to the hospital for a further evaluation after abnormal barium enema result. The barium test was done as a routine screening for colon cancer from an outside hospital. The colonoscopic pictures are shown as below.



Colonoscopy findings:

Ascending colon: Multiple sessile and pedunculated polyp (size 1-3 cm.). One depressed lesion with contact bleeding and ulcer (black arrow) was detected. Rectum, sigmoid, descending, transverse colons and cecum were normal. A chunk biopsy using a snare loop (white arrow) was done.

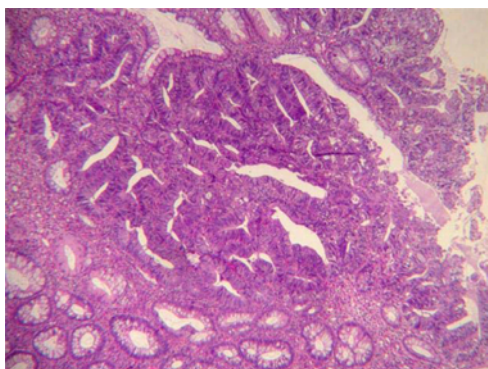


Figure A:

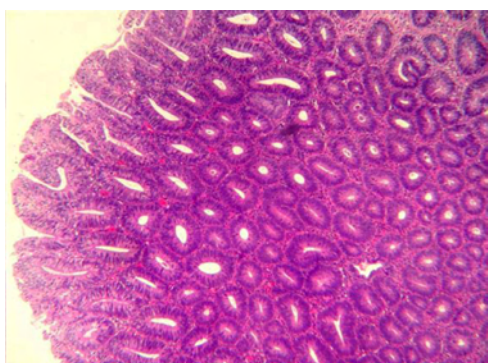


Figure B:

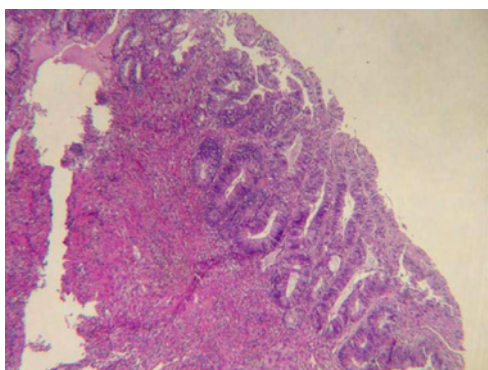


Figure C:

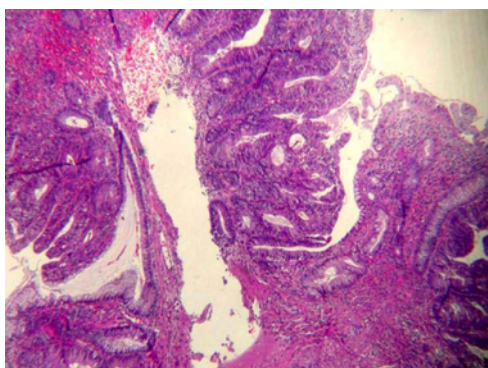


Figure D:

Figure A: Section showing polypoid lesion with focal high grade dysplastic change.

Figure B: Similar lesion of a polyp comprising groups of glands lining with low grade dysplastic epithelium.

Figure C, D: There is a focal area of **malignant transformation** with minimally invasion to the adjacent lamina propria.

Diagnosis:

Multiple pedunculated and sessile polyp at right side of colon with focal area of malignant transformation. The possibility of sporadic carrier of hereditary non-polyposis colon cancer syndrome (HNPCC) related gene is high.

Discussion:

Most colorectal carcinomas are believed to originate in an preexisting adenoma. This reflects adenoma-carcinoma sequence. There are evidence supports that the prevalence of colorectal neoplasm increases with age and varies with countries and lifestyle¹. If this is the case, the right-side shift with aging can be expected, not only in colorectal cancers but also in benign adenomas. The mechanism of the right-side shift is uncertain. Changes in diet, fecal bulk, colonic motility, are suspected as shown from prior studies². As for cancers, a different mechanism of carcinogenesis in the right-side colon from rectosigmoid cancer has been suggested. Recent studies have shown that there is a specific occurrence of microsatellite instability (MSI) and the presence of abnormal transforming growth factor beta type II receptor or other suppressor genes in the proximal type colon cancer, especially in older patients.

MSI is a characteristic phenotype of cancers in patients with hereditary nonpolyposis colorectal cancer who

has congenital mutation of DNA mismatch repair genes, such as hMLH1 or hMSH2. Patients who carry these genes are susceptible to proximal colon cancers³. Sporadic colon cancers with MSI have frequently shown hypermethylation in the promoter region of hMLH1 gene instead of mutation of the gene itself⁴. It can be supposed that a considerable percentage of right-side cancers in older subjects originates through the accumulation of genetic mutations because of these mechanisms.

Patients who should be considered for genetic evaluation of HNPCC include those who meet the Amsterdam I criteria or the revised Bethesda criteria⁵. If the gene is positive, counseling should include screening for colorectal, endometrial, and ovarian cancer⁶. The evidence to support screening for cancer in other organs is insufficient but should be considered based upon types of presented malignancies within the family.

In HNPCC case, when colon cancer or numerous advanced adenomas are detected on colonoscopy, consideration should be given to total colectomy with ileorectal anastomosis instead of segmental colectomy because metachronous colorectal cancer is reported up to 50% and the risk of cancer in the remaining rectum warrants lifelong, annual surveillance⁷.

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7. Lee JS, Petrelli NJ, Rodrigues-Bigas MA. Rectal cancer in hereditary nonpolyposis colorectal cancer. *Am J Surg* 2001;181:207-10.



Case 17

Boonlert Imraporn, MD.

Rungsun Rerknimitr, MD.

A 51-year-old woman came for colon cancer screening. A colonoscopy with magnifying NBI was done as figures.



Figure A



Figure B



Figure C

White light image (Figure A) showed a 0.5 cm. sessile polyp in the sigmoid colon. After magnification (Figure B) and Narrow Band Imaging (NBI) (Figure C) were applied to the lesion, Kudo pit pattern type II and normal vascular pattern intensity appeared. The pathological report revealed a hyperplastic polyp.

Discussion:

Diminutive polyps (size ≤ 5 mm.) have 50% chance of being neoplastic polyps but rarely carcinoma. In addition, ninety percents of

detected polyps during colonoscopy have size less than 10 mm. Narrow band imaging can be used to classify such small polyps into neoplastic or non-neoplastic by Kudo pit pattern and vascular pattern intensity. With a combination of pit pattern and vascular pattern intensity, NBI has a perfect diagnostic accuracy to characterize small polyps¹. The vascular pattern intensity (VPI) is divided into strong VPI, normal VPI and weak VPI according to a subjective assessment of the darkness of the lines between colonic crypts or pits compared with the adjacent normal mucosa. However when compared to white light colonoscopy, NBI does not improve the missed rate of colorectal cancer and advanced adenoma².

References

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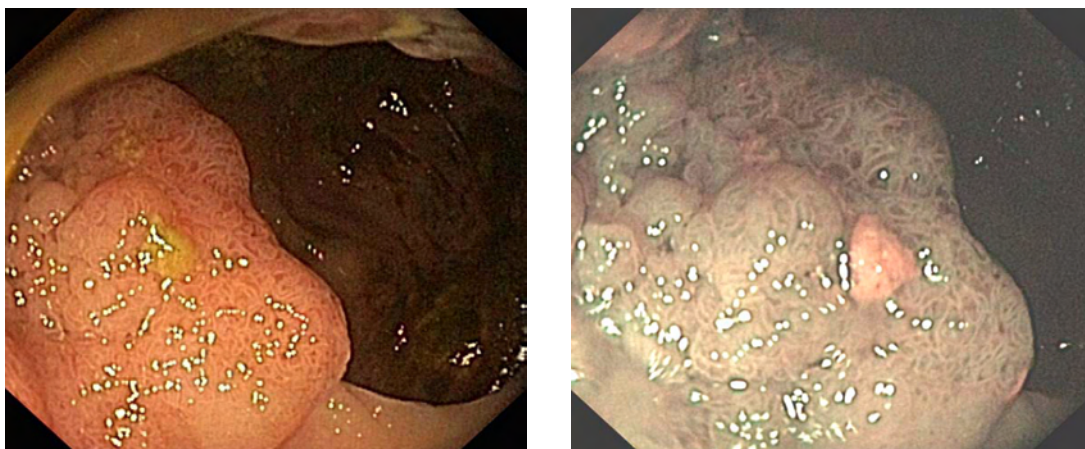


Case 18

Boonlert Imraporn, MD.

Rungsun Rerknimitr, MD.

A 84-year-old woman presented with bowel habit change and iron deficiency anemia. A colonoscopy was done as figures.



Colonoscopy showed a **large sessile polyp** 5 cm. in size at ileo-cecal valve area and NBI revealed Kudo pit pattern type IV. Endoscopic mucosal resection was performed. The pathological diagnosis was **tubulo-villous adenoma**.

Discussion:

Kudo verified the feasibility of examining the pit pattern of colonic polyps for differentiation of two kinds of polyps via magnifying endoscopy with indigo carmine dye contrast 1 as shown in the table below¹. Narrow Band Imaging (NBI) with magnification can be applied as well with a good comparability and high diagnostic yields². However these tools cannot yet replace the biopsy which is known as a gold standard.

Table represents Kudo pit pattern classification

Type I	Round pits	Non-neoplastic
Type II	Stellar or papillary pits	Non-neoplastic
Type IIIs	Small tubular or round pits that smaller than normal pits	Neoplastic
Type IIIL	Tubular or round pits that are larger than normal pits	Neoplastic
Type IV	Branch-like or gyrus-like pits	Neoplastic
Type Vi	Irregularly arranged pits with type IIIs, IIIL, IV pit pattern	Neoplastic (invasive)
Type Vn	Non-structural pits	Neoplastic (massive submucosal invasive)

References:

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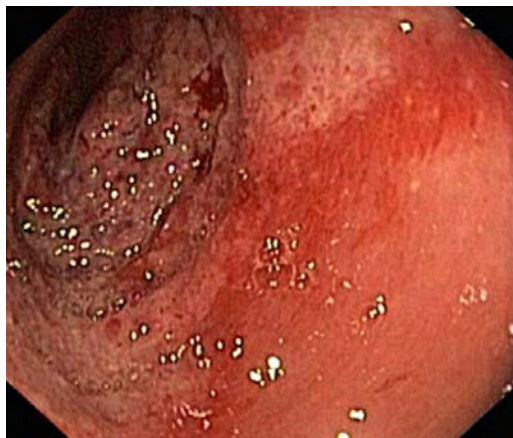
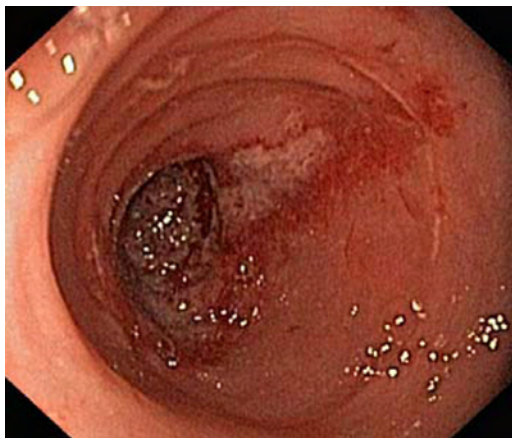


Case 19

Sukprasert Jutaghokiat, MD.

Rungsun Rerknimitr, MD.

A 72-year-old woman presented to the hospital with hypertensive encephalopathy. She received intravenous antihypertensive drug to control her blood pressure. However, it was complicated by the development of hypotension. Two days later she developed hematochezia. An urgent colonoscopy was performed and showed as figures.



Figures A and B: 15 cm. from the anal verge



Figure C: Lesion extend up to 30 cm. from the anal verge **Figure D:** Beyond figure C lesion

The colonoscopic findings showed segmental circumferential ulcer with bluish discoloration, friability, swelling, loss of submucosal vessels and haustration extending from 15 to 30 cm. from anal verge with sharply demarcated line. Biopsy was done from the ulcer and pathological report showed patchy acute colitis with ulcer and focal pseudomembrane. **Ischemic colitis** is the most likely diagnosis. The pathogenesis was hypothesized as secondary to **non-occlusive mesenteric ischemia (NOMI)**.

Discussion:

Non-occlusive mesenteric ischemia (NOMI) is defined as a condition with gastrointestinal ischemia with normal vessels. Two weak points (watershed areas) including splenic flexure and rectosigmoid junctions are prone to develop ischemia during hypotension. The clinical manifestations are varies depending on the extent and duration of ischemia. The symptoms include mild to severe abdominal pain and rectal bleeding or bloody diarrhea. The colonoscopic findings in the acute setting frequently reveal pale mucosa with petechial bleeding. Bluish hemorrhagic nodules may be seen and representing submucosal bleeding. These are equivalent to thumb-printing sign detected on radiological studies. More severe disease is marked by cyanotic mucosa and hemorrhagic ulcerations. Pseudomembranous colitis with yellowish plaques or confluent membranes is occasionally found¹. The diagnosis of ischemic colitis usually requires either sigmoidoscopy or colonoscopy with minimal air insufflation. Treatment in case without gangrene or perforation includes aggressive fluid resuscitation, avoidance of alpha-adrenergic agonist, empirical antibiotics and bowel decompression. The prognosis relies on the disease severity and co-morbid conditions.

Reference

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Case 20

Sukprasert Jutaghokiat, MD.

Rungsun Rerknimitr, MD.

A 70-year-old man with diabetes mellitus type 2 and chronic renal failure presented to the hospital with fresh blood hematochezia. An urgent colonoscopy showed multiple deep clean base ulcers, varying in size, distributed the entire colon (Figures A, B). There was one ulcer containing active oozing visible vessel (Figure C). Hemoclip was applied to stop bleeding (Figure D). Pathological report of the specimen taken from ulcers was compatible with acute organizing ulcer with few atypical cells and the immunohistochemistry study was also confirmed as **cytomegalovirus (CMV) infection causing colonic ulcer**.

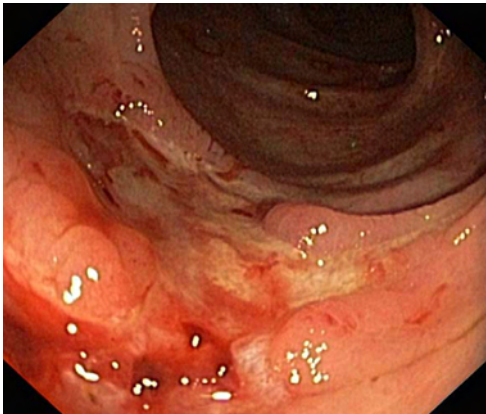


Figure A

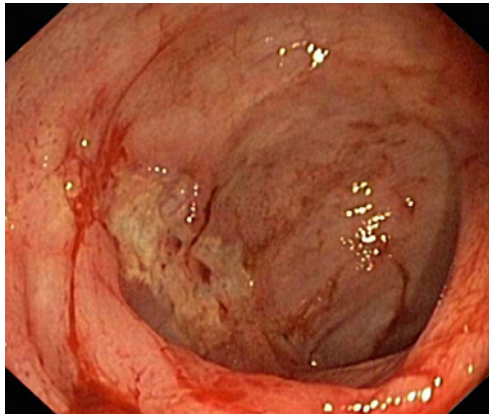


Figure B

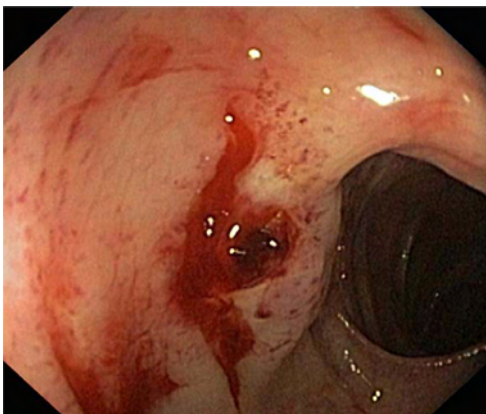


Figure C

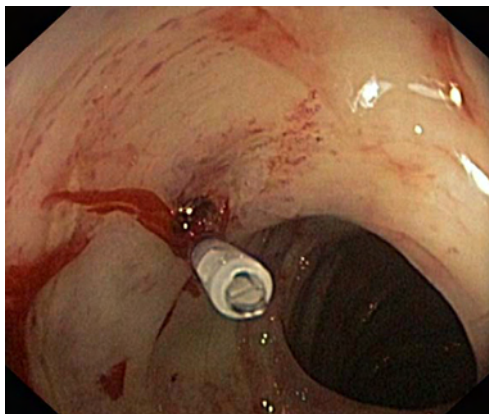


Figure D

Discussion:

While CMV colitis is almost secondary to reactivation of latent infection in immunosuppressed patients, CMV colitis in the immunocompetent host can occur in the setting of primary infection. Gastrointestinal involvement with CMV is uncommon in immunocompetent hosts. In one review¹ of 15 cases of CMV colitis among patients without underlying immunosuppression, affected patients were generally older 69 ± 15 year-old. Presenting manifestations included diarrhea, fever, gastrointestinal bleeding and abdominal pain. Complications included massive hemorrhage, toxic megacolon and perforation. The mortality rate in this series was 26.7%¹.

Currently, there are several agents available for the systemic therapy of CMV infection, including ganciclovir, foscarnet. The efficacy and toxicities of these agents have been evaluated extensively only in immunocompromised patients. The clinical utility of these agents in the immunocompetent host remains unproven.

Reference

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Case 21

Sukprasert Jutaghokiat, MD.

Rungsun Rerknimitr, MD.

A 70-year-old man with end stage renal disease experienced acute diarrhea with hypovolemic shock. Subsequently he developed hematochezia during hospitalization. A colonoscopy was done as figures.



The colonoscopic findings showed severe necrosis of colonic mucosa from mesenteric infarction involving the ascending colon and cecum. His diagnosis was **colonic infarction from non-occlusive mesenteric ischemia (NOMI)**. The patient expired from severe septic shock rapidly after diagnosis.

Discussion:

Ischemic colitis is the most common type of intestinal ischemia and has a clinical spectrum of injury that ranges from mild and transient ischemia to acute fulminant colitis/infarction. Patients with underlying of cardiovascular diseases are prone to develop severe ischemia. NOMI involving right sided colon is unusual because watershed areas of colon locate predominantly in the left side. The patients with isolated right sided ischemic colitis have worse prognosis than other areas of colonic involvement¹. An emergent surgical treatment should be considered in case of gangrenous ischemic colitis. However most patients usually are moribund and carry very high risk for operation.

Reference

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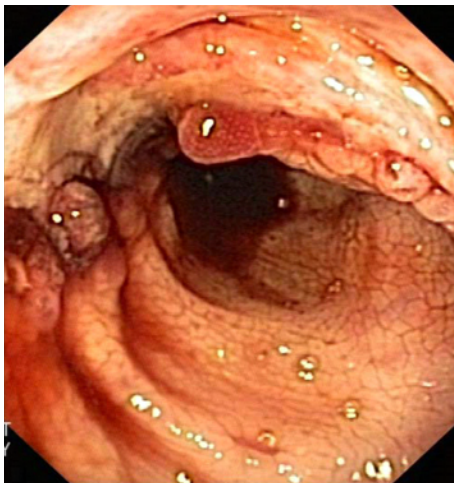
Surachai Amornsawadwattana, MD.

Naruemon Klaikaew, MD.

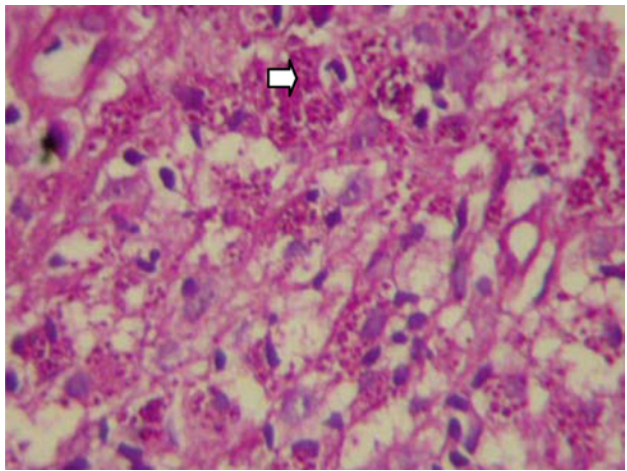
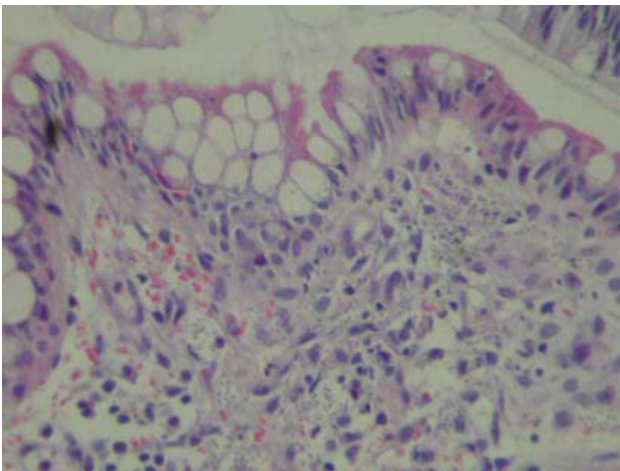
Nathawut Sirimontaporn, MD.

Rungsun Rerknimitr, MD.

A 36-year-old female with an underlying of HIV infection presented with hematochezia. Her CD4 count was $10/\text{mm}^3$ (2%). A colonoscopy was performed as figure below.



Colonoscopic findings showed multiple clean base ulcers with nodular rims scattering along colon and terminal ileum. Edematous and pale mucosa was also noted. Biopsy was performed. Histological findings revealed the presence of small round organism in histiocyte (white arrow).



Diagnosis:

Histoplasmosis of the colon

Differential diagnoses:

Tuberculosis, CMV colitis, other deep fungi infection, and colonic lymphoma.

Discussion:

GI involvement caused by *Histoplasma capsulatum* is not uncommon, it can be found in 70-90% of patients with progressive disseminated histoplasmosis who undergo an autopsy¹. However, it is hardly recognized during life and thought to cause clinical symptom in only 3-12% of patients. Gastrointestinal histoplasmosis (GIH) can occur in different ways such as parts of disseminated forms or a local symptom caused by infection and/or healing process. It can cause disease in both immunocompromised and immunocompetent states. Most of patients present in the fifth decade and 68-76% are male. GI involvement can be classified into 3 forms. 1) acute infection of histoplasmosis causes mediastinal adenitis resulting impingement on the esophagus. A late sequel produce fibrosis in mediastinum and is known as 2) fibrosing mediastinitis. Finally, it can occur in progressive 3) disseminated histoplasmosis. Any lymphoid tissue can be involved along GI tract, where terminal ileum is the most common, probably because of Peyer patch. Intestinal involvement can be present with GI bleeding, perforation, and obstruction. GI hemorrhage is more frequent in AIDS patients compared to incompetent patients (18% vs 9%). Endoscopic finding is nonspecific. Patchy or continuous superficial mucosal ulcerations with accompanying erythema or edema, deep ulcer with or without frank perforation were described. Amphotericin B can decrease mortality rate from 80% to less than 25% in disseminated histoplasmosis.

Reference

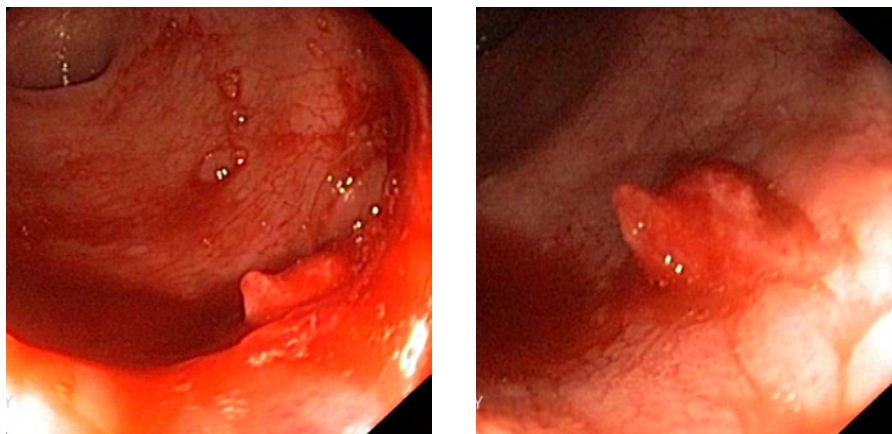
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Surachai Amornsawadwattana, MD.

Rungsun Rerknimitr, MD.

A 70-year-old female with end stage renal disease was admitted in the ICU. During hospitalization, she developed massive hematochezia. A colonoscopy was performed and revealed as figure.



Colonoscopic findings reveal a bleeding visible vessel at approximately 3 cm. above the anal verge. Adrenaline injection and bipolar coaptation were applied and bleeding was stopped. The final diagnosis was **rectal Dieulafoy's lesion.**

Discussion:

Dieulafoy's lesion is the submucosal artery that protrudes through a small mucosal defect into the lumen¹. It was initially described and most common occurred in the stomach, but also can be found in other GI tract including the colon and rectum^{1,2}. Histology is typically describes as: solitary mucosal ulceration extended no deeper than the upper submucosal layer, absence of inflammation and hypertrophic submucosal artery, curving toward mucosa². Endoscopic finding of Rectal Dieulafoy's lesion is an isolated protruding vessel with normal surrounding mucosa¹ like this patient. Clinical presentation is usually massive lower GI bleeding. Treatment options are endoscopic therapies with epinephrine injection, band ligation, heater probe coagulation, sclerosing agents injection, laser photocoagulation, acrylic resin injection, and hemoclip application^{2,3}. Alternative choices are arterial embolization and surgery².

References

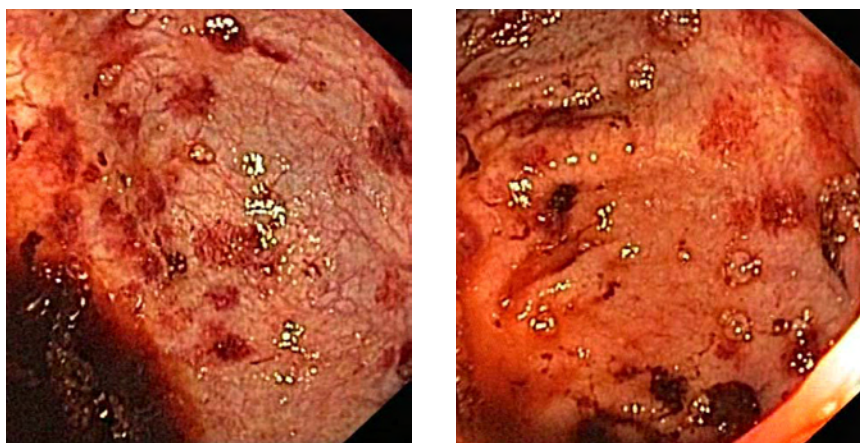
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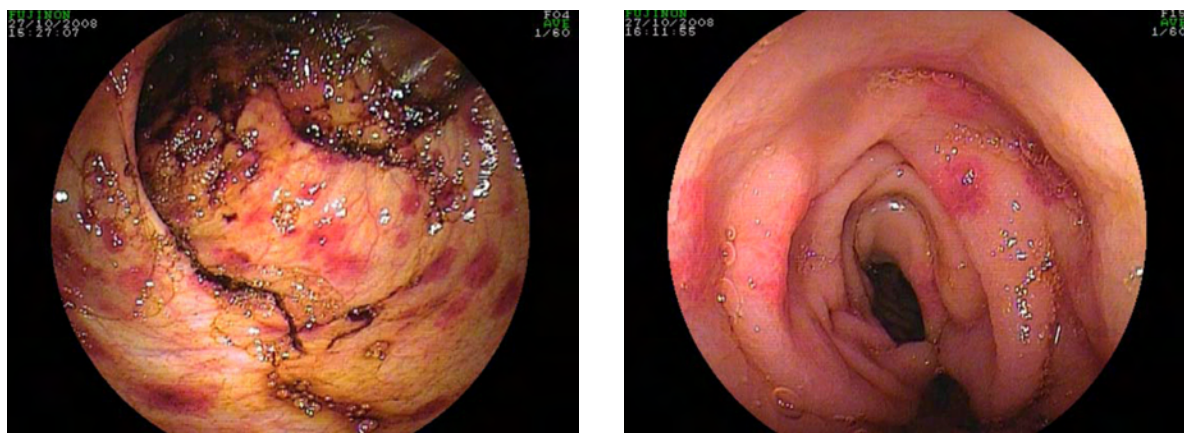
Surachai Amornsawadwattana, MD.

Rungsun Rerknimitr, MD.

A 34-year-old female with underlying SLE presented with acute lower GI bleeding while hospitalization for an active lupus. A colonoscopy was performed as figures.



Colonoscopic findings revealed multiple round shape erythematous mucosal lesions prominently in the right-sided colon. Terminal ileal mucosa was also stained with blood clot. Further, a double balloon endoscopy was performed and the findings of lesions were similar to colonoscopy.



Diagnosis:

Lupus vasculitis of small bowel and colon.

Discussion:

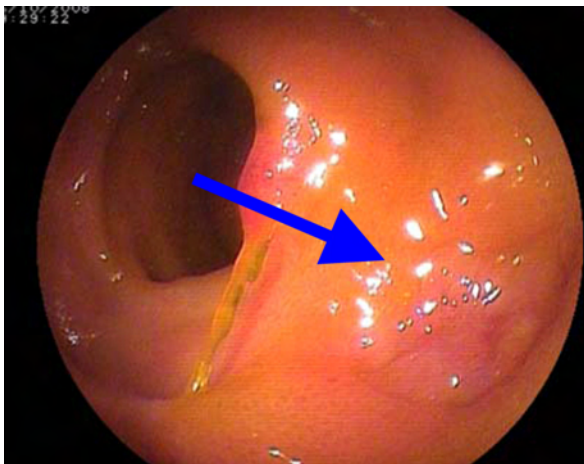
GI manifestations of SLE occur in approximately 25 to 40% of cases and can involve any part of GI tract¹. The exact prevalence of intestinal vasculitis in SLE patients is not known (range 0.2-53% from literature reports^{1,2}). These figures may be an overestimation due to over-diagnosis of GI vasculitis suggested by Sultan, et al². The patients usually have abdominal pain, nausea and vomiting, but massive GI hemorrhage can also occur. GI vasculitis commonly accompany with active disease in other organs². Histopathology involve small vessels in both artery and venule². Transmural inflammation with fibrinoid necrosis is caused by vasculitis¹. It is most often found in bowel supplied by superior mesenteric artery (terminal ileum and cecum), but it can occur throughout small and large bowel¹. No pathognomonic signs from macroscopic findings are suggested². Endoscopically, thickening, friable, hemorrhagic bowel wall with ulceration are noted¹. Focal or diffuse ulcers, ischemic colitis, perforation secondary to arteritis, or colonic diverticula can be found in colon¹. Focal submucosal hemorrhage and edema are also seen by colonoscopy in ischemic colitis¹.

References

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2. Sultan SM, Ioannou Y, Isenberg DA. A review of gastrointestinal manifestations of systemic lupus erythematosus. *Rheumatology* 1999;38:917-32.



A 55-year-old female with an underlying SLE who had been taking prednisolone 5 mg/day complained with fever and abdominal pain. A colonoscopy was done and showed normal examination. Later a double balloon enteroscopy via anal route was done as shown.



Endoscopic findings:

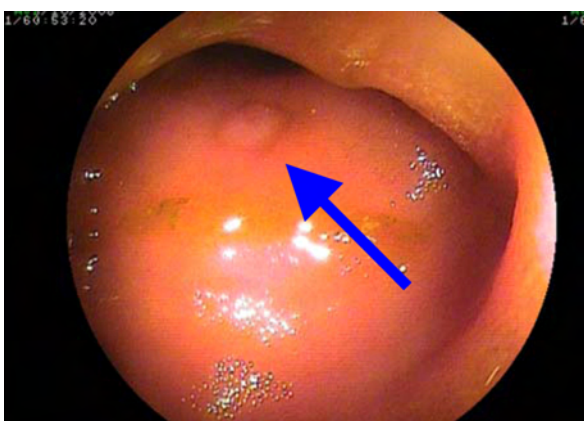
There were 3 shallow clean base ileal ulcers (blue arrow) with swollen surrounding mucosa. The lumen was patent but very narrow. Pathology from the ulcers showed moderately acute erosive ileitis with positive intranuclear inclusion body structure.

Diagnosis:

Cytomegalovirus (CMV) ileitis with luminal narrowing.

Discussion:

CMV infections of the gut are often erosive, resulting in enterocolitis, hemorrhage, or intestinal perforation, but inflammatory mass formation is rare. There was a case of infant with AIDS presented with massive gastrointestinal hemorrhage and subsequent fatal small bowel



obstruction¹. Gross findings at laparotomy found diffuse, large yellowish plaques along the entire length of the small bowel with central ulceration. There was partial narrowing of bowel resulting in refractory small bowel obstruction. Biopsy from lesions showed many cells with typical cytomegalic inclusion bodies.¹ Another report showed a patient with AIDS presented as bowel obstruction due to a discrete CMV-induced pseudotumor.²

References

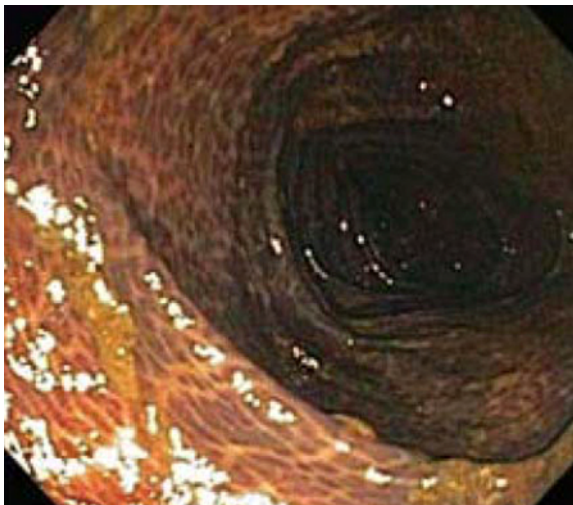
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Chatchai Kriengkirakul, MD.

Rungsun Rerknimitr, MD.

A 72-year-old male with constipation had taken many chronic laxative agents. He went to GI clinic for CA colon colonoscopy screening. A colonoscopy was done as shown.



Findings:

Dark hyperpigment discoloration of the colonic mucosa with intervening white streaks was observed.

Diagnosis:

Melanosis coli

Discussion:

Melanosis coli was described first by Virchow in 1857. It occurs from chronic use of anthraquinone laxative drugs. Majority of anthraquinone laxatives (cascara sagrada, aloe, senna, rhubarb, and frangula) users reported duration of using these agents for at least an average of 4 months. It is benign and reversible lesion. The disappearance of the pigment generally occurs within 1 year after stopping laxative drugs. Endoscope finding is brownish to black discoloration of the colonic mucosa caused by the accumulation of pigment (lipofuscin) in macrophages of the lamina propria layer. The stain usually spares the co-existent nodules and polyps.¹

Reference

1. Freeman HJ. Melanosis coli. World J Gastroenterol 2008;14:4296-9.



Case 27

Chatchai Kriengkirakul, MD.

Rungsun Rerknimitr, MD.

A 77-year-old female with an underlying of pseudogout complained with dyspnea for 3 months. Her CBC was shown a hematocrit of 23%. The iron study confirmed a diagnosis of iron deficiency anemia. An EGD was done as shown.

Endoscopic findings:

multiple clean base duodenal ulcers (size 0.5 cm.). Two living parasites with red color were found. They adhered to the anterior wall of duodenal bulb, and later parasites were removed.

Diagnosis:

Hookworms Infestation.

Discussion:

Hookworms are found worldwide in the tropics and subtropics including Southeastern US.

They are two species, *N. americanus* (new world hookworm) and *A. duodenale* (old world hookworm). Clinical manifestations are varies; many cases are asymptomatic. Symptoms include; ground itch at the site of larval penetration, pneumonitis, intestinal malabsorption, and iron deficiency anemia. Laboratory usually demonstrates anemia, eosinophilia. Stool samples typically show the characteristic “thin-shelled” eggs. The treatment is one time oral albendazole 400 mg. or mebendazole 500 mg.¹

Reference

1. Keiser J, Utzinger J. Efficacy of current drugs against soil-transmitted helminth infections: systematic review and meta-analysis. JAMA 2008;3;299:1937-48.



Case 28

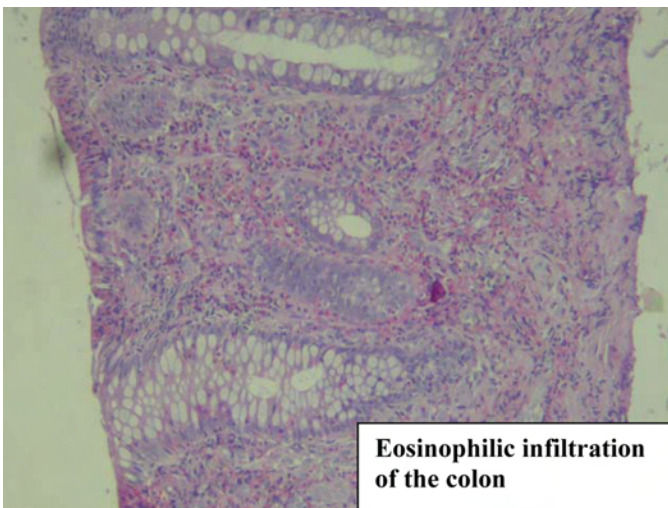
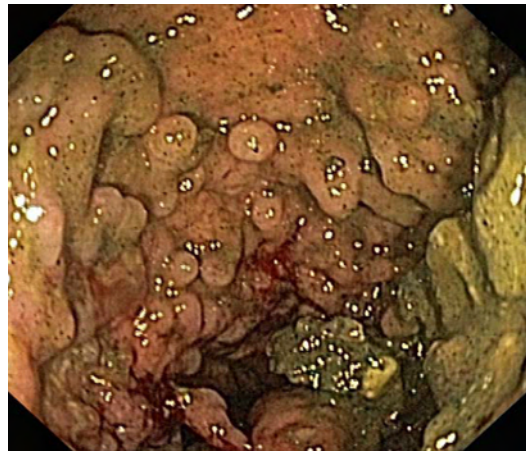
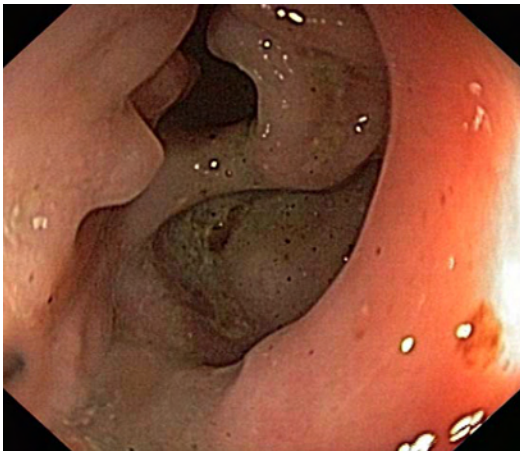
Chatchai Kriengkirakul, MD.

Naruemon Klaikaew, MD.

Rungsun Rerknimitr, MD.

A 33-year-old male complained with chronic diarrhea for 3 years. He had been investigated with a colonoscopy including colonic biopsy and was diagnosed as ulcerative colitis.

Recently his diarrhea recurred after he had been maintained with azathioprine for 2 years. A colonoscopy was performed as shown.



**Eosinophilic infiltration
of the colon**

Endoscopic findings:

There were diffuse small ulceration with intervening mucosal atrophy, friability, and loss vascularity. There were also multiple pseudopolyps and mucosal bridges detected in the entire colon with predominant involvement in the sigmoid colon. The ileocecal valve and terminal ileum were normal.

Multiple colonic biopsies were done and showed moderate chronic and acute colitis with significant increased eosinophilic infiltration. This was consistent with clinically treated ulcerative colitis (UC). However, the degree of eosinophil infiltration was too heavy than standard case for UC. Stool concentration for parasite found strongyloides larvae 22/field.

Diagnosis:

Chronic ulcerative colitis with super imposed strongyloidiasis.

Discussion:

Ulcerative colitis (UC) is a chronic inflammatory disorder of the gastrointestinal tract that affects the large bowel and is a major disorder under the broad group of inflammatory bowel diseases (IBD). Its etiology remains controversial, however, infectious and psychosomatic origins are considered as the primary causes. UC may have a broad spectrum of clinical presentations including extraintestinal manifestations. In Thailand, UC is more common than CD. Medical treatment for ulcerative colitis is considered by disease distribution, severity, prior treatment response. Consensuses on the management of ulcerative colitis for Asia-Pacific region and other regions suggested that those not responding to the conventional treatment but (still) lacking a clear surgical indication for colectomy may be given one attempt of either cyclosporine A or infliximab.¹⁻⁶ Interestingly, similar to this case, *Strongyloides stercoralis* infestation was reported in patient with acute severe ulcerative colitis who was on long term immunosuppressive drugs.⁷ In the regions with high endemic of parasites, it is advisable that clinicians should perform microscopic examination of the stool to exclude strongyloidiasis infestation before starting a high dose corticosteroids therapy in patients with IBD.⁸ However, sensitivity of a single stool microscopy to diagnose intestinal strongyloidiasis is only 30%. Therefore stool examination over three consecutive days is advised to improve the sensitivity.

References

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Case 29

Apichart Suramethakul, MD.

Rungsun Rerknimitr, MD.

A 57-year-old male patient, presented with anemia. His stool exam, gastroscopy and colonoscopy results were unremarkable. Subsequently, he underwent a capsule endoscopy.



Pictures revealed movable, round parasite in the jejunum. There was an active blood oozing from the mucosa that attached by the parasite. The most likely organism is “hook worm on duty”.

Discussion:

Hook worm; *Ancylostoma intestinalis* and *Americana duodenale* are two species that infested in human. Majority of patient presented with anemic symptoms. The standard test is stool exam for parasite and ova. For unknown reason, this patient had a negative study from this stool test. Recently, the role of capsule endoscopy to investigate small bowel diseases and the etiology caused by hook worm infestation has emerged^{1,2}.

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Surasak Aekpongpaisit, MD.

Rungsun Rerknimitr, MD.

A 79-year-old female presented with severe hematochezia requiring blood transfusion. After adequate bowel preparation, a colonoscopy was performed (Figure A).



Figure A: A giant vascular network compatible with **angiodysplasia** was seen in the cecum.



Figure B: Argon plasma coagulation treatment for angiodysplasia

There was no evidence of active bleeding, however, an argon plasma coagulation was applied to wipe out the lesion (Figure B).

Discussion:

Colonic angiodysplasias of the colon locate predominately in the right side and are difficult to identify but usually easy to treat. Colonoscopy is the most sensitive and specific method for detection, but angiography, endoscopic ultrasound, and nuclear medicine techniques are sometimes useful¹. Argon plasma coagulation (APC) has been accepted as a standard therapy since the lesion is mainly superficially located¹. However, due to the thin wall of right sided colon a saline adrenaline solution (1:200,000) 2 to 3 mL injecting beneath the angiodysplasia before application of APC has been reported as a possible safer technique².

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Case 31

Surasak Aekpongpaisit, MD.

Rungsun Rerknimitr, MD.

The same case, 3 days later developed acute hematochezia again, repeat colonoscopy was done.

The previous are that treated by APC developed an ulcer with visible vessel (NBVV). This time a hemoclip (Olympus, Tokyo, Japan) was applied over the vessel stump. No bleeding was reported since.

Diagnosis:

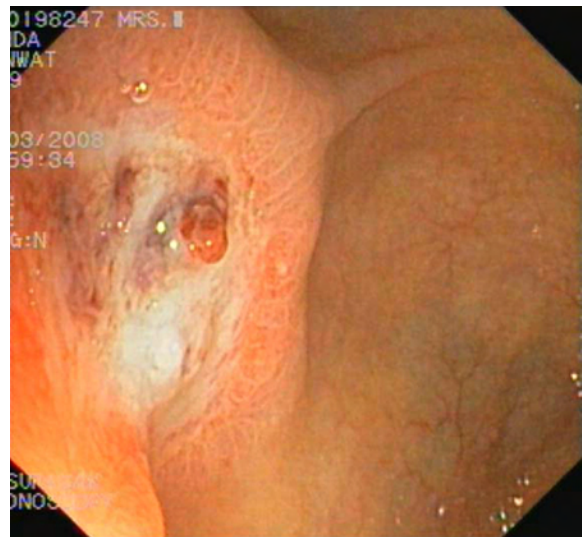
Colonic ulcer with non bleeding visible vessel.

Discussion:

The most popular non-contact mode to stop bleeding nowadays is APC. It seems to be safe and efficacious. However, it contains some risks including perforation and post treatment ulcer development^{1,2}. In this case, NBVV of the colonic ulcer is a hint for the cause of rebleeding. The most appropriate treatment in this thin area is to apply a hemoclip³ since it causes the least chance of injury and perforation.

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Naichaya Chamroonkul, MD.

Supot Pongprasobchai, MD.

Sathaporn Manatsathit, MD.

A 27-year-old woman presented with chronic mucous bloody diarrhea for 2 months without abdominal pain or fever. She had lost her weight for 8 kgs within 2 months.

On physical examination, she had temperature of 38°C, pulse rate 80 beats/min and BP 110/70 mmHg. She was mildly pale and cachectic without oral candidiasis, oral hairy leukoplakia or lymphadenopathy. Abdominal examination was unremarkable. Rectal examination revealed mucous stool.

A complete blood count showed hematocrit of 25%, WBC of 11,000/mm³ (N 78%) and platelets of 350,000/mm³. Stool exam showed WBC 2-3/HP and RBC 5-10/HP.

Colonoscopy was performed and shown as pictures.

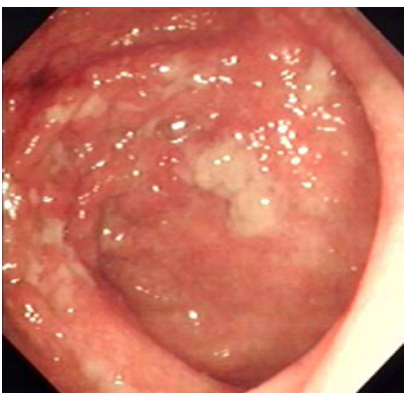


Figure A: Rectosigmoid colon

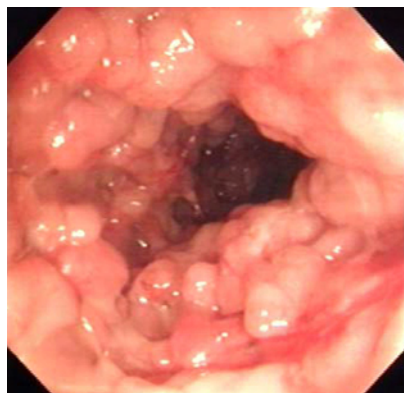


Figure B: Sigmoid colon

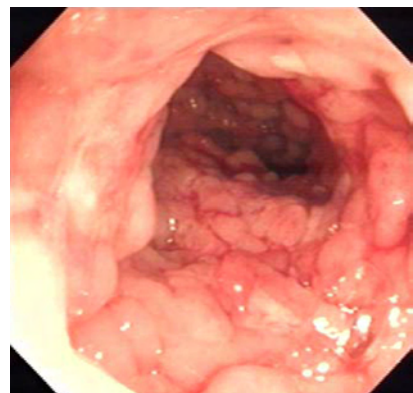


Figure C: Ascending colon

Colonoscopic findings (Figures A-C) revealed an extensive mucosal ulceration surrounding the inflammatory mucosa described as pseudopolyp lesions. A total loss of normal vasculature started from rectosigmoid region and continuously extended to right-sided colon without skipping.

Colonic biopsy demonstrated acute colitis without granuloma. Her diagnosis was active ulcerative colitis.

Discussion:

Ulcerative colitis (UC) is an inflammatory disease of the colon of unclear etiology characterized by a remitting and relapsing phase. UC primarily involves mucosal layer and occasionally submucosal layer of the colon. The hallmark symptoms of UC include abdominal cramping, diarrhea and bloody stools. UC almost always affects the rectum (more than 95%), with contiguous involvement that can include the entire large intestine. The extent of disease is defined by the following:

Extensive disease: evidence of UC proximal to the splenic flexure.

Left-sided disease: UC presents in the descending colon up to, but not proximal to, the splenic flexure.

Proctosigmoiditis: disease limited to the rectum with or without sigmoid involvement.

Endoscopically, UC is characterized by a uniform inflammatory reaction limited to the colon by extending from the rectum without intervening area of normal mucosa to part or the whole colon.

Histologically, most of the pathology is limited to the mucosa and submucosa. In fulminant cases, the muscularis propria can be affected. Typical pathologic features include intense infiltration of the mucosa and submucosa with neutrophils and crypt abscesses, lamina propria with lymphoid aggregates, plasma cells, mast cells and eosinophils. The crypt glands were shortened, distorted and branching and occasionally, crypt abscesses were seen. These features are not unique to UC. Except for crypt distortion, the cellular response can be found in acute infectious colitis or Crohn's disease.

Treatment of patients with extensive or pancolitis varies according to the severity of symptoms. Initial therapy in those with mild to moderate symptoms is the combination of oral 5-ASA or sulfasalazine and topical therapy with either 5-ASA or steroid enemas. The addition of oral prednisone (40-60 mg/day) should be considered in those with more severe symptoms and those who fail to respond to oral 5-ASA and topical therapy. Once the patient has achieved remission, long-term maintenance therapy should be considered with a standard maintenance dose of an oral 5-ASA agent or azathioprine depended upon the severity¹.

Reference

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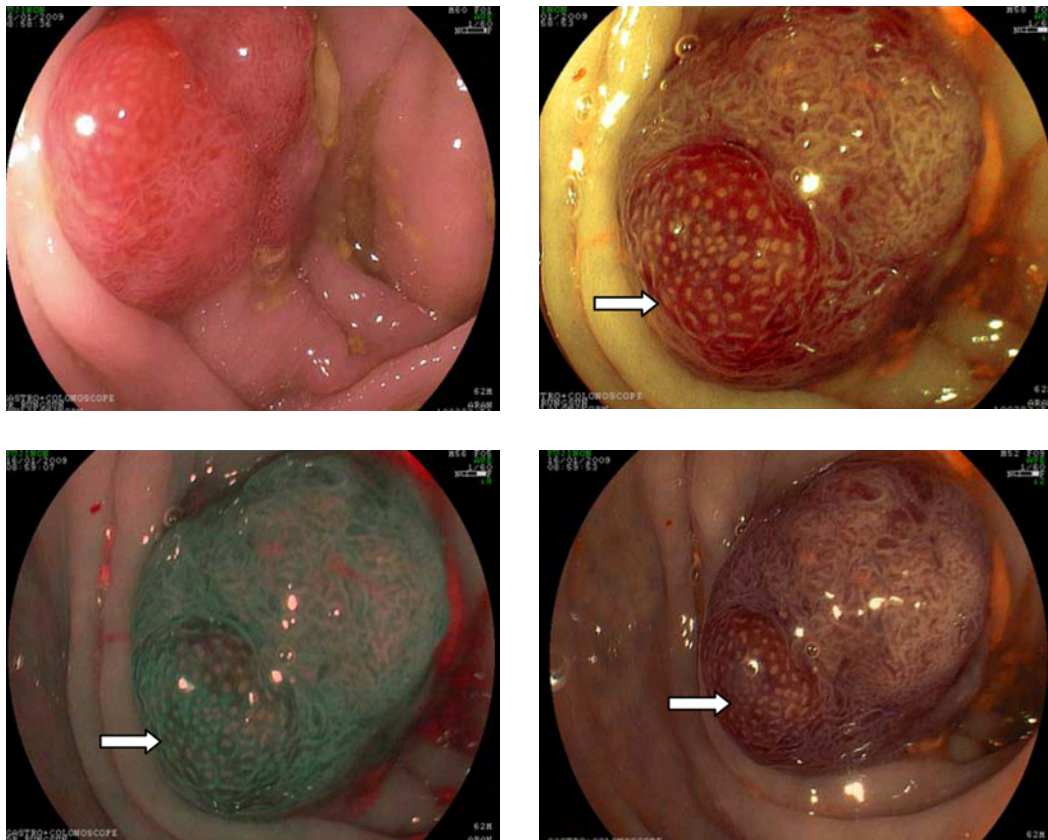


Nathawut Sirimontaporn, MD.

Naruemon Klaikaew, MD.

Rungsun Rerknimitr, MD.

A 62-year-old male without history of bowel habit change and no family history of malignancy comes to the hospital for a screening colonoscopy. The colonoscopic pictures are shown.



Colonoscopic findings:

Sigmoid colon: Large colonic polyp, pedunculated type, 1.5 cm. in diameter found at 30 cm. from anal verge. Pictures 2,3,4 [using Fujinon Intelligence Chromoendoscopy (FICE) in different stations of wavelengths to visualize polyp] showed type IV pit pattern (Kudo classification) with some lymphatic congestion (white arrow).

Polypectomy was done with a snare. Due to a large residual stalk containing visible vessel (white arrow), post-polypectomy prophylaxis to prevent bleeding was done with hemoclips.

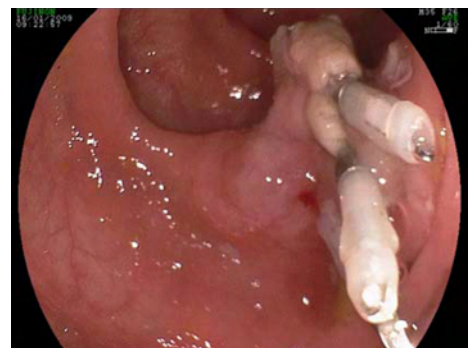
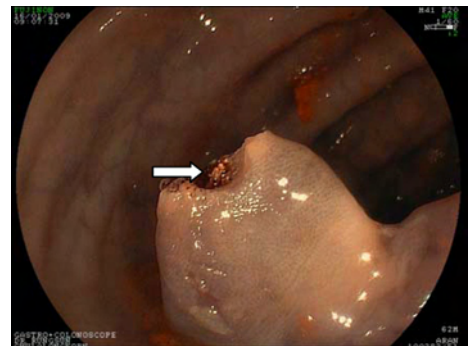
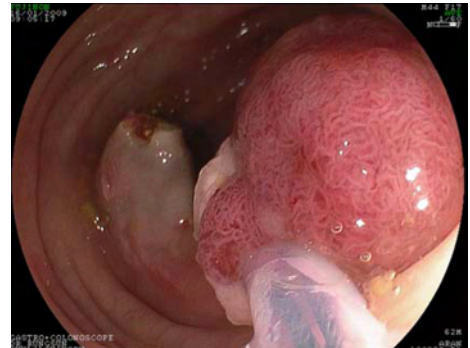
Diagnosis:

Large pedunculated polyp at sigmoid colon with post polypectomy prophylaxis by hemoclips.

Discussion:

The most common major complication after colonoscopic polypectomy is bleeding which is reported to occur after approximately 1-6% of polypectomies¹, less than 50% of the episodes of bleeding occur immediately after the procedures, most occurs several days to 2 weeks later¹, risk factors for hemorrhage include large polyp size(>2 cm.) and location in the proximal colon^{2,3}. Hemoclips have been clearly effective in arresting immediate postpolypectomy hemorrhage and delayed bleeding when applied to visible vessels in either sessile or pedunculated polyps⁴ but for the prophylaxis of post polypectomy hemorrhage, prophylactic clip application has been recommended by either clamping the base of a polyp⁵ or by closure of mucosal defects after polypectomy or endoscopic mucosal resection (EMR)⁶, however whether clip application significantly decreases the occurrence of delayed bleeding after colonoscopic polypectomy has not been determined.

Several endoscopic techniques have been developed to prevent bleeding. Injection of the stalk with



epinephrine solution or sclerosants before transection is recommended to diminish the risk of postpolypectomy hemorrhage. However, epinephrine injection may prevent only procedural bleeding, whereas sclerosant injection may increase the risk of perforation⁷

From the preliminary study⁸, it showed that there was no bleeding in 15 patients who had endoloop treatment to prevent bleeding after polypectomy of large polyps. It is also reported that no blood flow immediately after polypectomy detected, and no delayed bleeding at a 1-month follow-up assessment. However the type of lesion chosen for endoloop application appears to be essential. Of note, underlying colonic disease and polyps with extremely thin stalks and semipedunculated lesions are inappropriate for endoloop placement⁹.

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Case 34

Thawee Ratanachu-ek, MD.

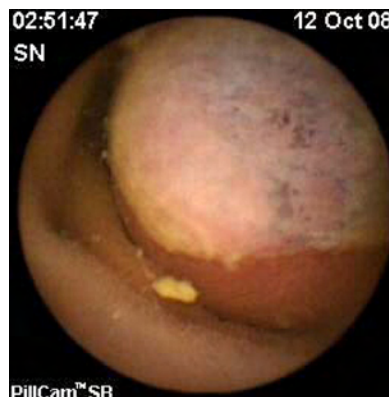
Apichat Sangchan, MD.

Chanchai Nimitrvanich, MD.

Panas Chalermksanyakorn, MD.

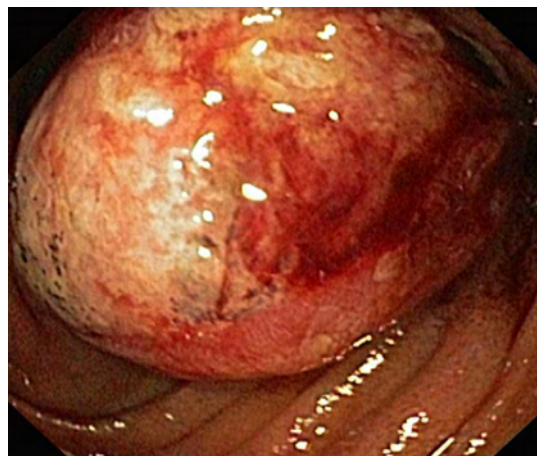
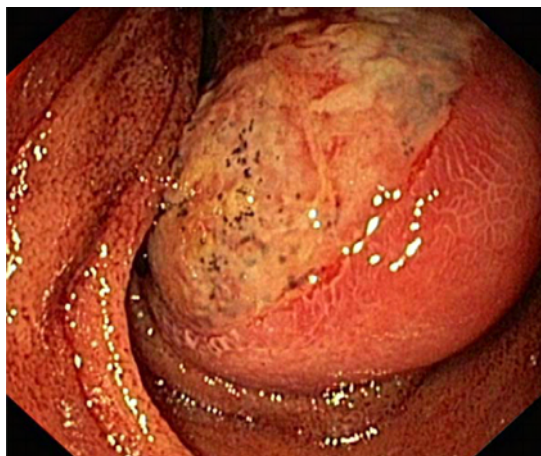
A 31-year-old female presented with obscure GI bleeding over a few month, She had negative bidirectional endoscopy. A capsule endoscopy was performed as shown. An intraluminal mass with some erosion was detected.

The capsule images (PillCam)

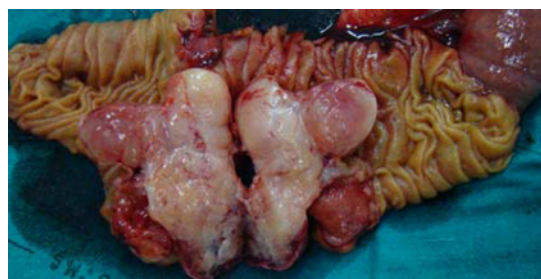


Subsequently patient underwent a small bowel enteroscopy by using a single balloon endoscope (Olympus, Tokyo, Japan)

The endoscopic images from enteroscopy showed more prominent of the same submucosal mass with ulceration in the jejunum.



Resected specimen



Tumor cells showing spindle shape cells in fascicle x 400 Tumor beneath the small intestinal mucosa x 100

Patient underwent surgical resection. The tumor was removed along with a short segment of jejunum. Pathology showed spindle cell tumor (4x4x3 cm.) of the intestinal wall. An immunohistochemistry stain for CD117 was positive.

Diagnosis:

Gastrointestinal stromal tumor (GIST) of the small bowel.

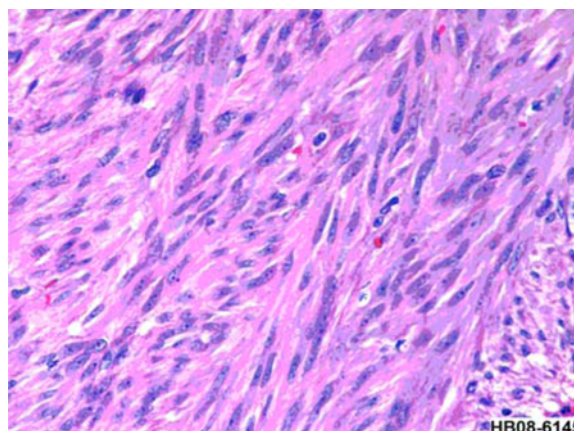
Discussion:

Majority of small bowel tumor detected by capsule endoscope was gastrointestinal stromal tumor (GIST) (32%) followed by adenocarcinoma (20%) and carcinoid (15%)¹ and obscure GI bleeding was the main indication for this capsule study^{1,2}. Over a few years, balloon assisted enteroscopy has been applied for detecting and targeting biopsy of this tumor. Majority of reports used a double balloon system since a single balloon system has just been introduced less than 2 years³⁻⁵.

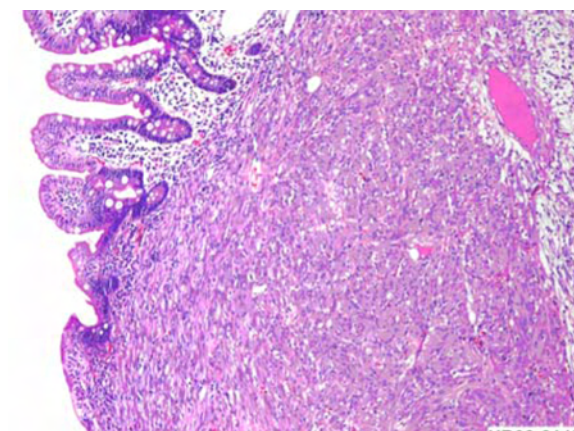
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Resected specimen



Tumor cells showing spindle shape cells in fascicle x 400



Tumor beneath the small intestinal mucosa x 100



Thawee Ratanachu-ek, MD.

Siriboon Attasaranya, MD.

A 40-year-old female presented with obscure bleeding from time to time. After multiple times of negative bidirectional endoscopy (esophagogastroduodenoscopy and colonoscopy) a capsule endoscopy was performed. It showed one polyp with smooth surface in the proximal to mid ileum). Thereafter, a double balloon enteroscopy was performed via anal route and showed an elongated polyp in mid to distal ileum. During the same session, polypectomy was performed with clip applied after the stalk. The pathologic report showed as **heterotopic pancreas**.

The capsule images (PillCam)



The endoscopic images showed polypectomy with clipping
(Double balloon enteroscopy, Fujinon, Saitama, Japan)

Discussion:

Typically, balloon assisted endoscopy (BEA) can be used to facilitate an unreachable small bowel polypectomy. The most common resected lesions are adenomatous polyposis syndrome and hamartomas¹. Heterotopic pancreas is a rare lesion that detected by a capsule endoscope since it is more commonly found in the stomach². This is the first case that BEA was used for a snare removal of polypoid appearance pancreatic heterotopia.

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