# GI Polyps

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# Introduction

- **GI Polyp** is a nonspecific clinical term that describes any projection from the surface of the intestinal mucosa into the bowel lumen regardless of its histologic nature

- **Risk factors :**
  - Advanced age . (>50)
  - gender . (male)
  - **Race**: more common in Black populations
  - People with inflammatory disease of the bowel .
  - Positive family history of colon cancer or polyps .
  - Long standing tobacco and alcohol use .
  - Obesity and sedentary lifestyle .
  - Ureterosigmoidostomy.

- **Presentation : Mostly asymptomatic and discovered incidentally ,** If symptomatic:
  - Rectal bleeding.
  - Change in bowel habits (constipation/diarrhea)
  - Mucus in stool
  - Pallor
  - Palpable rectal polyps on digital rectal examination
  - Bowel obstruction

# Risk of malignant transformation in polyps depends on :

- **Histology**
  - tubular adenoma : most common , low risk
  - villous adenoma : less common , high risk
- **Morphology**
  - higher risk in sessile than in pedunculated
- **Site**
  - left colon : most common , low risk right colon : less common , high risk
- **Size**

| | |
|---|---|
| 1-5 mm | 0.6 % |
| 6-9 mm | 2.1 % |
| 10 mm+ | 13.4 |

# classification

| TABLE 70.1 Classification of intestinal polyps. | | |
|---|---|---|
| **Inflammatory** | Inflammatory polyps (pseudopolyps in UC) | |
| **Metaplastic** | Metaplastic or hyperplastic polyps | |
| **Hamartomatous** | Peutz–Jeghers polyp | |
| | Juvenile polyp | |
| **Neoplastic** | Adenoma | Tubular |
| | | Tubulovillous |
| | | Villous |
| | Adenocarcinoma | |
| | Carcinoid tumour | |

# Inflammatory polyps/ Pseudopolyps

- Occur most commonly in inflammatory bowel disease ( Their occurrence is less common in Crohn's disease than in ulcerative colitis).
- But may also occur after amoebic colitis, ischemic colitis, and Schistosoma colitis

- These lesions are **not premalignant** But they cannot be distinguished from adenomatous polyps based on gross appearance and therefore should be removed.

- **Polyposis may be extensive, especially in patients with severe colitis, and may mimic FAP.**

  - Inflammatory polyps may be pedunculated or sessile and are usually smaller than 2 cm.
  - typically multiple, often filiform, and scattered throughout the involved areas of the colon.

# TREATMENT

- **Medical**

Infliximab has been shown to induce regression of PP in CD.

Topical enema with budesonide use was also reported to induce remission and control of minor bleeding of PP in UC.

- **Endoscopic**

Endoscopic procedures such as argon plasma coagulation, endoscopic loop polypectomy, and ablation with YAG laser have been reported for control of bleeding provoked by ulcerated PP.

Endoscopic resection with electrocautery is another effective means reported for removing symptomatic PPs.

- **Surgical**

- Surgical methods are used when endoscopic therapy fails to manage complicated PP, for example in lower gastrointestinal bleeding or when obstructing phenomena, such as luminal obliteration or intussusception, occur.

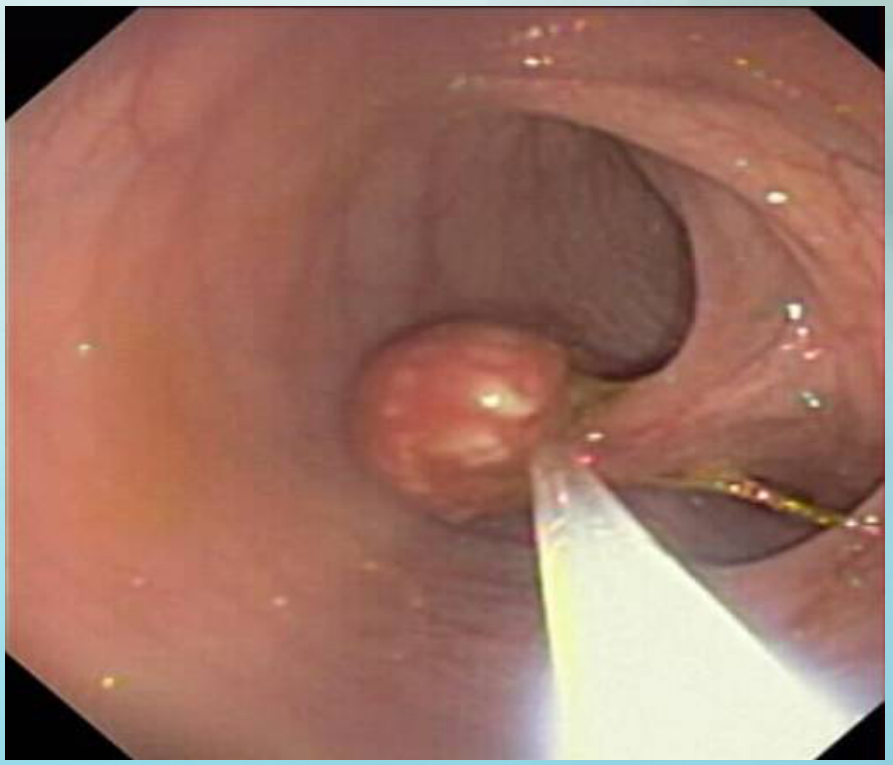
- **Hyperplastic polyps**

- Most common non-neoplastic colonic polyp
- Small (<5 mm) and usually sessile
- are common age-related lesions found in about 1/3 of the population older than 50 years.
- most frequently encountered in the distal colon and rectum
- they cannot be distinguished from adenomatous polyps colonoscopically and are therefore often removed.
- **Treatment**
- **Small hyperplastic polyps are typically biopsied or removed in the process of endoscopy with biopsy forceps because they can be difficult to distinguish from adenomatous polyps .**
- **small left-sided hyperplastic polyps are not a significant marker of colon cancer risk.**
- **Large lesions that contain some histologic features of a SSL, particularly when located in the right colon, should be resected in entirety.**

# Hamartomatous polyps

## ❑ Juvenile polyps

- can occur sporadically or as part of a familial polyposis syndrome.
- Present as pedunculated cherry-red polyp with a smooth surface and contour.
- Approximately 60 to 80 percent of these polyps are in the rectosigmoid, and some of these can be palpated on rectal examination



Endoscopic photograph of a small juvenile pedunculated polyp located in the sigmoid colon.

- juvenile polyps usually are not premalignant.
- These lesions are the characteristic polyps of childhood but may occur at any age.
- often present in the form of hematochezia because they are highly vascularized lesions.
- .
- Because the gross appearance of these polyps is identical to adenomatous polyps, these lesions should also be treated by polypectomy.

# Familial juvenile polyposis

- is an autosomal dominant disorder in which patients develop hundreds of polyps in the colon and rectum.
- Unlike solitary juvenile polyps, these lesions may degenerate into adenomas and eventually carcinoma.
- Annual screening should begin between the ages of 10 and 12 years.

❖ Treatment ; is surgical and depends on the degree of rectal involvement.

- If the rectum is relatively spared, a total abdominal colectomy with ileorectal anastomosis may be performed with subsequent close surveillance of the retained rectum.
- If the rectum is carpeted with polyps, total proctocolectomy is the more appropriate operation. These patients are candidates for ileal pouch–anal reconstruction to avoid a permanent stoma.

# ❑ Peutz-Jeghers Syndrome

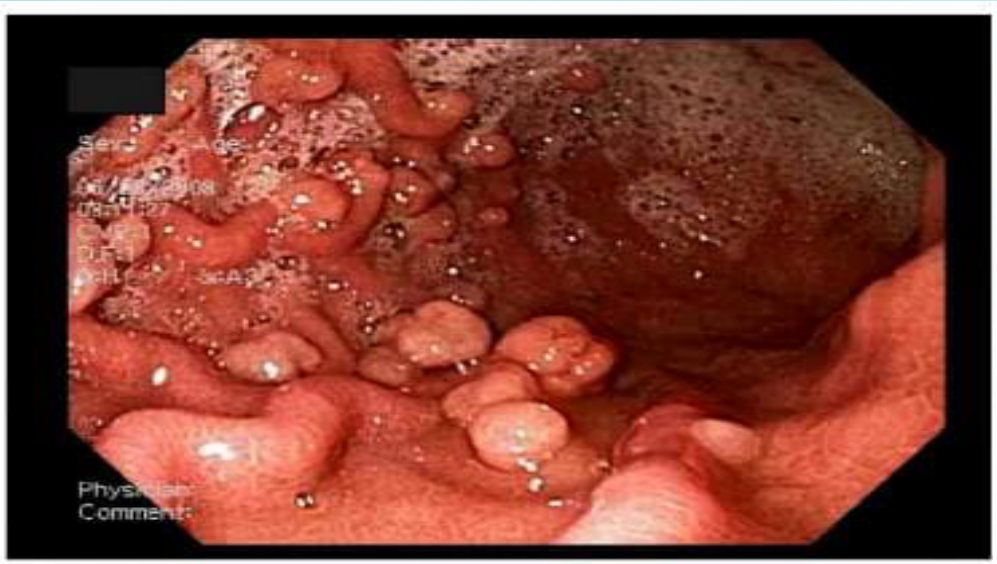
- Peutz-Jeghers syndrome (PJS) is an autosomal dominant inherited disorder characterized by intestinal hamartomatous polyps in association with a distinct pattern of skin and mucosal macular melanin deposition.

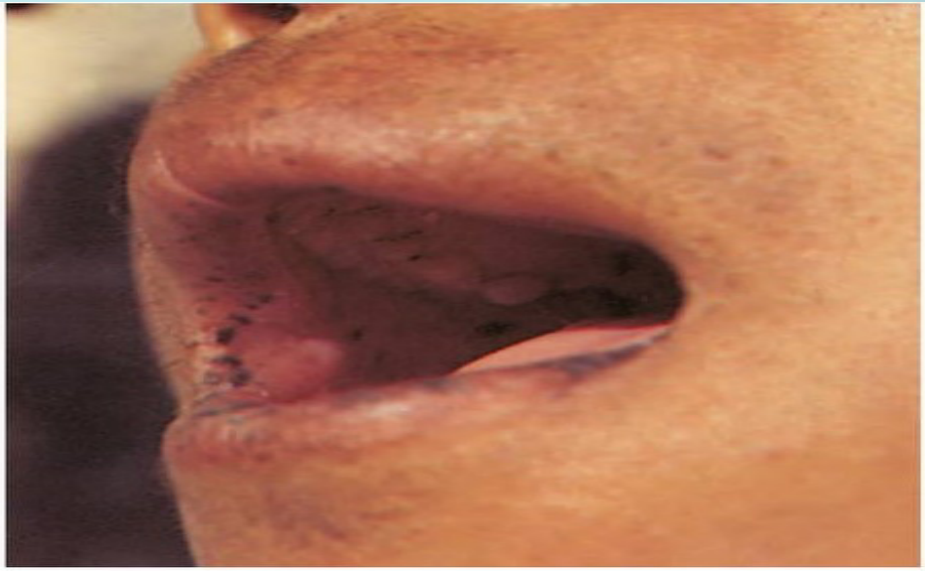
- PJS is rare, with prevalence estimates ranging between 1:50,000–200,000 births .
- GI polyps are non-neoplastic hamartomas
- On gastrointestinal endoscopy, the Peutz-Jeghers (PJ) polyps have no major distinguishing features, and may be sessile, pedunculated, or lobulated
- The number of polyps ranges from 1 to more than 20 per segment of bowel, although some patients have solitary lesions.
- The size of the polyps ranges from 0.1 to more than 5 cm in diameter
-

- Cutaneous manifestations:

➢ Mucocutaneous pigmented macules (melanin spots) are present in more than 95 percent of individuals with PJS and are caused by pigment-laden macrophages in the dermis. They are typically flat, blue-gray to brown spots 1 to 5 mm in size.

➢ consists of dark, macular lesions on the mouth (both on the skin and in the buccal mucosa), nose, lips, hands, feet, genitalia, and anus.





upper endoscopy image shows multiple gastric polyps.

# GI Polyposis Syndromes

## Familial Adenomatous polyposis (FAP)

- Autosomal dominant syndrome , defined clinically by the presence of more than 100 colorectal adenomas, but is also characterized by duodenal adenomas and multiple extraintestinal manifestations .
- Mutations in the adenomatous polyposis coli (APC) gene.
- 50 % of patients have congenital hypertrophy of the retinal pigment epithelium (CHRPE), which can be used to screen affected families if genetic testing is unavailable.
- Accounts for 1 % or less of all colon cancer.
- The risk of colorectal cancer is 100 %
- Surgery : Total proctocolectomy and IPAA

# Hereditary non-polyposis colorectal cancer (HNPCC)

- It is an autosomal dominant condition caused by a mutation in one of the DNA mismatch repair genes. The most commonly affected genes are MLH1 and MSH2.
- It is characterized by an increased risk of colorectal cancer and also cancers of the endometrium, ovary, stomach and small intestine.
- The lifetime risk of developing colorectal cancer is 80%, and the mean age of diagnosis is 45 years.
- Accounts for about 5-10% of all colon cancers.
- Most cancers develop in the proximal colon.
- Several studies have shown that patients with Lynch syndrome have an increased risk of developing multiple **(synchronous and metachronous)** CRCs. Thus, before resection of a colon tumor, it is important to visualize the complete colon, because of the risk of a synchronous tumor.

# Diagnosis

- HNPCC can be diagnosed by genetic testing or by the Amsterdam II criteria:

## Lynch Syndrome - Amsterdam Criteria II (1999)

- At least three family members with a Lynch Syndrome-*associated cancer*, two of whom are first-degree relatives.
- At least two generations represented.
- At least 1 individual younger than 50 years at diagnosis.
- FAP should be excluded.
- Tumors should be verified by pathologic examination.

Vasen et al, Gastroenterology 1999;116:1453-56

# Screening

- People with a genetic or clinical diagnosis of hereditary nonpolyposis colorectal cancer (HNPCC), or who are at increased risk for HNPCC should have colonoscopy every 1-2 years beginning at age 20 to 25 years, or 10 years earlier than the youngest age of colon cancer diagnosis in the family, whichever comes first.

# Treatment

**Colon neoplasia**

- segmental colectomy or total abdominal colectomy with ileorectal anastomosis .

**Rectal neoplasia**

- total proctocolectomy with an ileal pouch anal anastomosis

**Recently, the Colorectal Adenoma/Carcinoma Prevention Program 2 (CAPP2) study found that in the long term, LS patients who took aspirin daily for over two years were less likely to develop colorectal cancer and other Lynch-associated cancers than LS patients who did not take aspirin.**

# Gastric Polyps

- Gastric polyps have many subsets, the most commonly seen and described are the triad of :

- gastric hyperplastic polyps (GHP) The development of GHPs is thought to be related to chronic inflammation commonly associated with *H. pylori* infection and atrophic gastritis.

- fundic gland polyps (FGP) characterized by dilated and irregularly budded fundic glands predominantly lined by parietal cells with smaller proportion of chief cells .

- several studies have indicated an association with chronic PPI usage

- adenomatous polyps characterized by low-grade glandular dysplasia.

- Presentation:

- The vast majority of gastric polyps are asymptomatic, with over 90% being found incidentally on endoscopy.

- The most common complaints associated with the finding of gastric polyps are dyspepsia, acid reflux, heartburn, abdominal pain, early satiety, gastric outlet obstruction, gastrointestinal bleed, iron deficiency anemia and fatigue.

# Management

- As it is difficult to discern the underlying histopathology of a gastric polyp from visualization under endoscopy alone, biopsy and en-bloc resection are required to guide management.
- It is well known that malignant potential increases with an increased size of the lesion, and as such, it is advised that **all lesions greater than 10 mm be removed by endoscopic mucosal resection (EMR).**

- **Management and follow-up after biopsy is guided by the histopathologic findings of the polyps removed during esophagogastroduodenoscopy (EGD):**

- For GHPs removed by EGD without finding dysplasia, a single repeat EGD is recommended at one year of follow-up.

- If *H. Pylori* is found in biopsies associated with GHP, then a repeat EGD is often performed in 3-6 months for repeat biopsy to confirm eradication of infection and to track the regression of gastric polyps.

- For FGP, if there is a history of chronic PPI use, then discontinuation when possible is recommended.
- 1-year follow-up EGD is performed when lesions greater than 5 to 10 mm were found on initial EGD and to track response to therapy.
- The finding of adenoma on microscopic evaluation of gastric polyp indicates the need for 1-year follow-up EGD.
- In a patient less than 40 years old where multiple adenomas are seen on EGD, extensive family history taking and colonoscopy is recommended to rule out FAP.
- If dysplasia or early adenocarcinoma is detected on microscopic evaluation of a gastric polyp, repeat EGD is performed at 1 year and again at 3 years from initial endoscopy.

# Small Bowel polyps

## • Adenomas

Adenomas are the most frequently encountered polyps in the small intestine.

These neoplasms have a predilection for the distal duodenum, ampullary and periampullary region, but can be found throughout the entire small intestine

small-bowel adenomas tend to have a more pronounced villous or tubulovillous architecture than adenomas in the colorectum.

## • Brunner gland hyperplasia/hamartoma/adenoma

association with peptic duodenitis,and therefore mostly limited to the duodenal bulb.
At endoscopy, appears as nodular duodenitis.

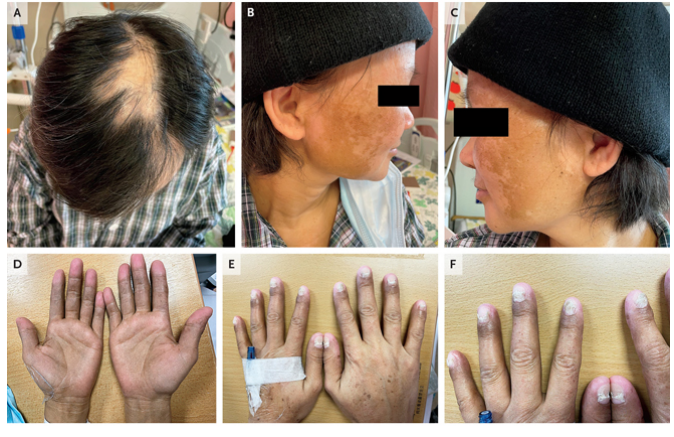
# • Periampullary myoepithelialhamartoma/adenomyoma

- **Small myoepithelial hamartomas composed of dilated gland elements and surrounded by muscle occur in the duodenum usually in relation to the ampulla of Vater.**
- **Most cases are asymptomatic and discovered incidentally**
- **larger pedunculated lesions may cause intermittent biliary or pancreatic obstruction.**
- **The macroscopic appearance is usually of an umbilicated, sessile polyp.**

## • Cronkhite–Canada syndrome

This rare syndrome combines diffuse polypoid thickening of the small-bowel mucosa with ectodermal changes that include alopecia,hyperpigmentation and atrophy of the nails.

occurs primarily in patients between 50 and 70 years of age , male to female ratio is 2:1



# Clinical Presentation of small intestinal polyps

- found incidentally onesophagogastroduodenoscopy (EGD)

Symptoms that have been attributed to small bowel polyps :

1. Dyspepsia.
2. abdominal pain.
3. overt gastrointestinal bleeding.
4. Intussusception.
5. Obstruction.

**There are certain anatomic characteristics of the duodenum that make endoscopic resection of duodenal lesions challenging. These factors include:**

1. a narrow lumen
2. a “C-loop”
3. Brunner’s glands in the submucosal layer
4. a thin deep muscle layer
5. The duodenum has an extensive vascular network supplied by the gastroduodenal artery that increases the risk of bleeding, which can be severe and potentially life-threatening.

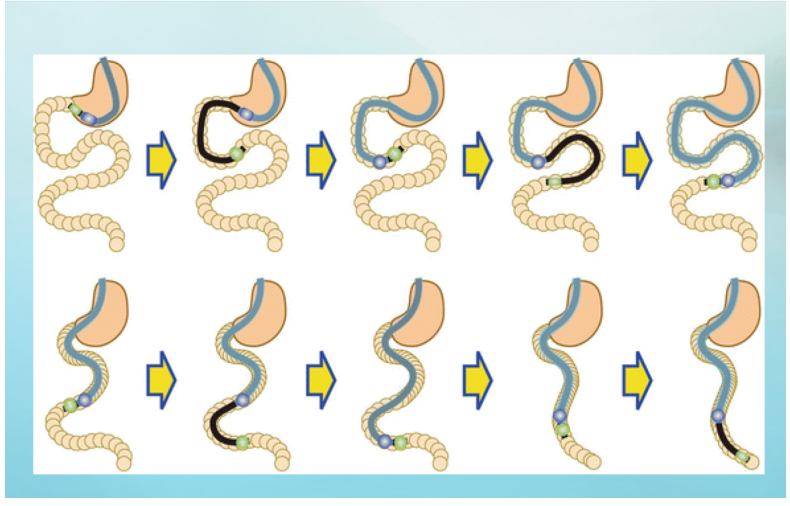
# Management

- **1- Double balloon enteroscopy**

  called push-and-pull enteroscopy or balloon-assisted enteroscopy.

  It can be **anterograde** or **retrograde** , The choice of either the **oral** or the **anal** route depended on the suspected location of the lesions within the small bowel based on the clinical manifestations, results of laboratory radiological and previous radiological and endoscopic examinations.

  **Complication of it :**
  1. Pancreatitis
  2. perforation
  3. bleeding
  4. others (aspiration pneumonia, esophageal trauma)



# ENDOSCOPIC MUCOSAL RESECTION (mucosectomy)

- technique used for the staging and treatment of superficial neoplasms of the gastrointestinal (GI) tract.
- submucosal injection 10 to 40 mL of **hydroxypropyl methylcellulose (HPMC)** is often used to separate mucosal and submucosal lesions from the muscularis propria , create an undermining **submucosal fluid cushion(SFC)** may decrease the incidence of perforation during EMR.

**suction (suck-and-cut)**

suctioned up and resected after lifted away

performed with a transparent cap affixed to the tip of the endoscope(cap-assisted EMR).

drawing the lesion into the cap. The lesion is then resected with a snare placed through the endoscope into the cap

**Non-suction methods**

grasping device to pull the lesion away from the muscularis propria, after which a snare is used to resect the specimen.