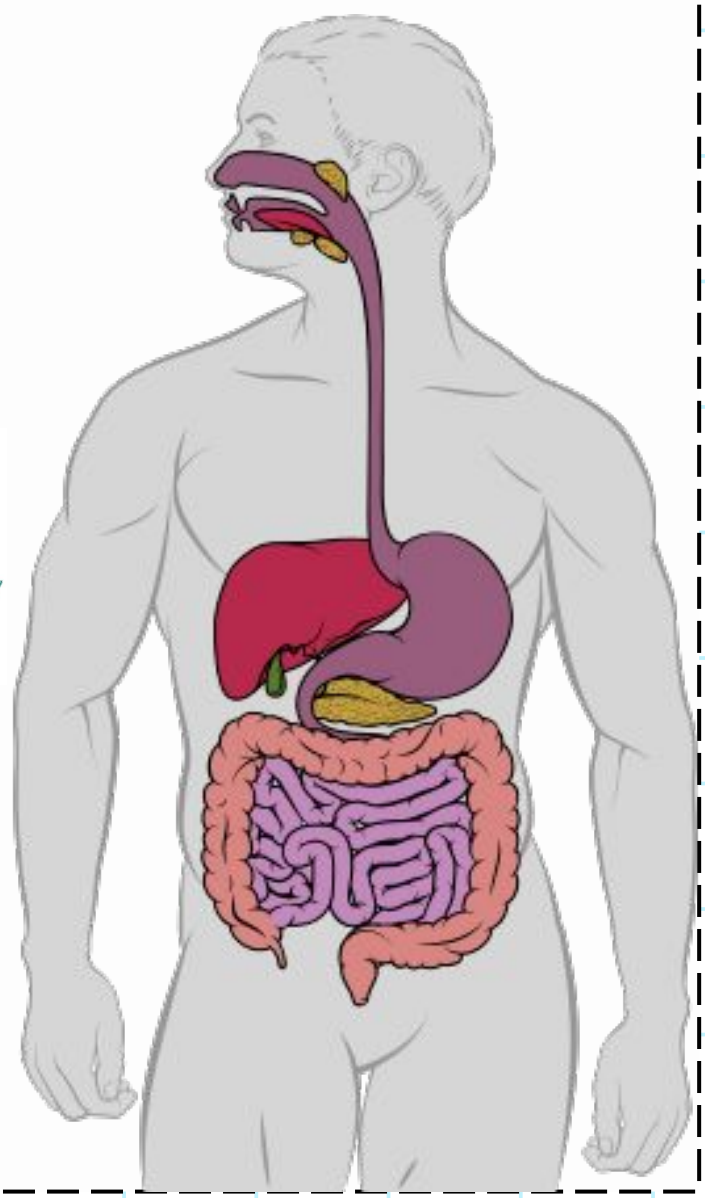
Colonic tumors and polyps



GNT BLOCK

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Editing File

Color index :
Main text (black)
Female Slides (Pink)
Male Slides (Blue)
Important (Red)
Dr's note (Green)
Extra Info (Grey)

OBJECTIVES

- Know the classification of intestinal tumors (small intestine and colon)
- Know the definition of a polyp.
- Compare adenomatous/neoplastic polyps and non neoplastic polyps (hyperplastic polyps, inflammatory polyp and hamartomatous polyp) with respect to pathology (gross and microscopic features).
- Know the three subtypes of adenomatous polyps, eg, tubular adenoma, villous adenoma, tubulovillous adenoma.
- Describe the adenomatous polyp-cancer sequence and the features associated with risk of malignancy, eg, polyp size, histologic architecture, and severity of epithelial dysplasia.
- Describe the classification of the hereditary syndromes involving the GI tract and the syndromes associated with an increased risk of cancer (Peutz-Jeghers syndrome, familial adenomatous polyposis, and hereditary nonpolyposis colorectal carcinoma)
- Know the clinical presentation of left and right sided colon cancer, and the environmental factors that increase its risk

IF YOU WANT TO READ THE LECTURE FROM ROBBINS

IF YOU WANT TO READ THE LECTURE FROM FIRST AID

IF YOU WANT TO WATCH OSMOSIS VIDEO

IF YOU WANT TO READ OSMOSIS SUMMARY

Overview

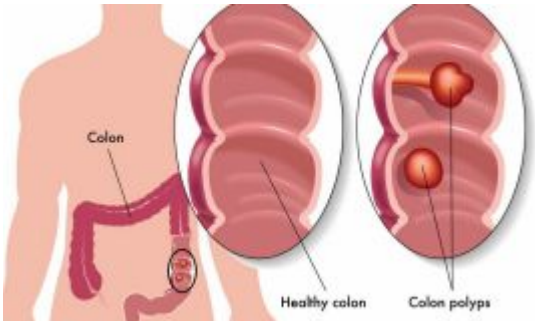
Tumors of the small and large intestines

- Polyps
- Carcinoma
- Carcinoid tumor
- Lymphoma

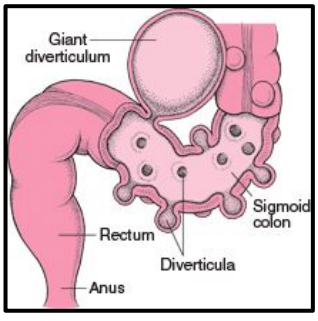
Sigmoid colon: Most common site GI polyps, diverticula and cancer

Extra table

Extra definitions for better understanding:	
Polyp	A growth that protrudes from a mucous membrane. (Picture A)
Polyposis	The development of numerous polyps.
Carcinoma	A type of cancer that starts in cells that make up the skin or the tissue lining organs. One of its types is adenocarcinoma.
Diverticula	outpouching of mucosa into the bowel wall. (Sac-like protrusion). (Picture B)
Adenocarcinoma	A malignant neoplasm arising from epithelial cells of the glands or glandular like structures. Adenocarcinoma can arise in multiple sites of the body. Some of the common sites that develop adenocarcinoma are the breast, lung, prostate, gastrointestinal tract like the colon, rectum, pancreas, stomach, esophagus.
Carcinoid tumor	slow-growing tumors arising from neuroendocrine cells and capable of secreting a variety of peptides and neuroamines, such as serotonin, causing carcinoid syndrome.



A



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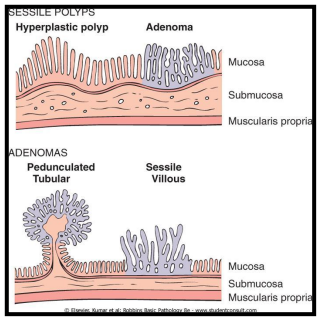
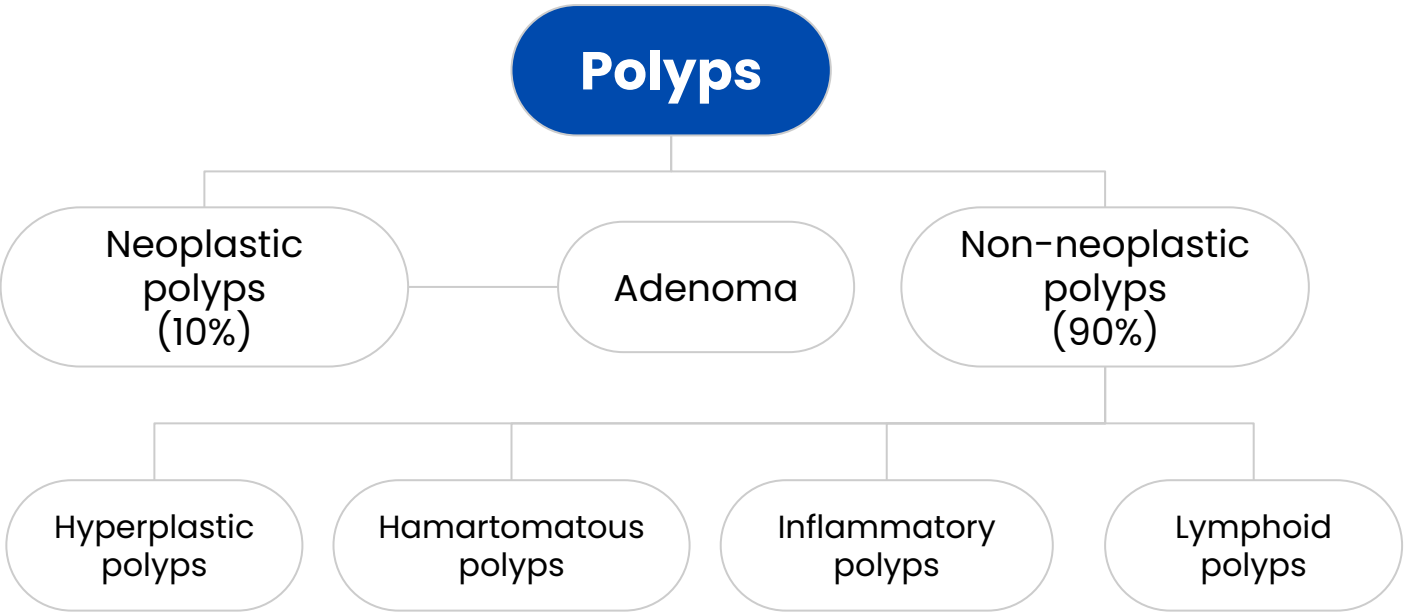


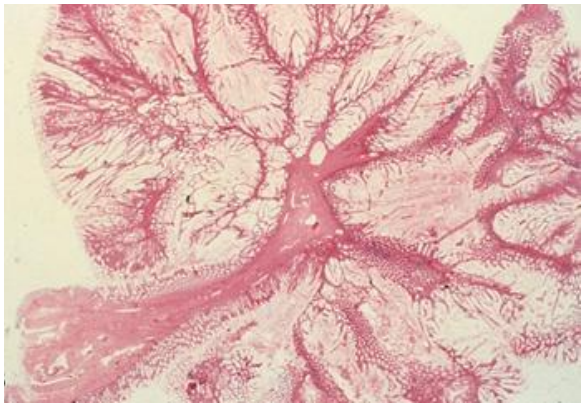
Overview

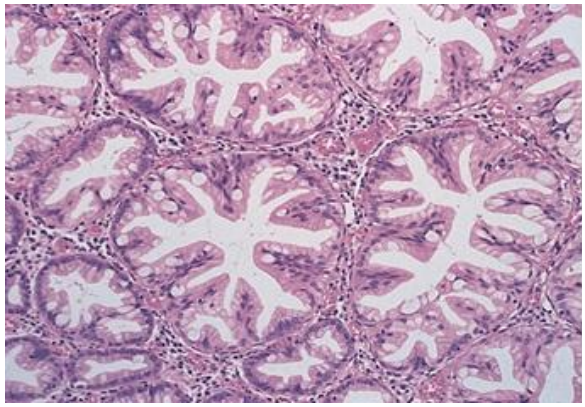
Osmosis Vid



Non-neoplastic polyps

1- Hyperplastic polyps
Asymptomatic, more than 50% are located in the **rectosigmoid**.
Most common type in adults.
Sawtooth (أسنان المنشار) surface & **Star shaped crypts** (As the Increase in cell number leads to infolding of the lining epithelium)
Composed of well-formed glands and crypts lined by differentiated goblet or absorptive cells. (Cells look exactly like the original cells in this area, No neoplastic changes/dysplasia)
No malignant potential or polyposis syndromes.





Non-neoplastic polyps

2- Hamartomatous polyps

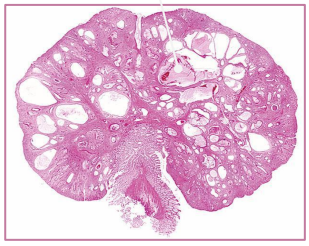
A- Juvenile Polyps

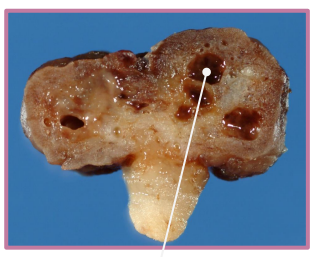
Osmosis Vid

Juvenile Polyps (retention polyp)

- In adult called retention polyp. But in children it's called juvenile polyps.
- **Developmental** malformations affecting the glands and lamina propria.
- Commonly occur in children under 5 years old in the rectum.
- **No malignant potential.**

- Smooth eroded surface with numerous mucus retention cysts, typical of sporadic j





Female Slides

Juvenile polyposis.

Polyposis: Numerous/Multiple polyps.

Autosomal dominant:
- TGF-β (Transforming Growth Factor) signaling pathway abnormalities.
- Juvenile polyps; risk of **gastric, small intestinal, colonic, and pancreatic** adenocarcinoma

Cowden syndrome:
- Abnormality in **PTEN** (A gene involved in the development of the ganglion and neuron)
- Hamartomatous polyps, lipomas, ganglioneuromas, inflammatory polyps; increased risk for colon cancer and cancer of thyroid and breast.

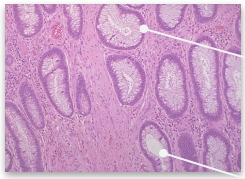
Cronkhite-Canada syndrome:
- Non-Hereditary polyposis syndrome.
- Polyps plus ectodermal abnormalities (Nail atrophy, hair loss, abnormal skin pigmentation) cachexia (Marked weight loss), and anemia.

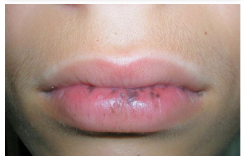
Dr. Maha: For your info , I don't think we will ask you about it

B- Peutz-Jeghers Syndrome

Osmosis Vid

- Rare, **autosomal dominant**
- hamartomatous polyps accompanied by mucosal and **cutaneous pigmentation** around the lips, oral mucosa, face and genitalia, present with red blood in stool because these polyps tend to bleed.
- Polyps tend to be large and pedunculated.
- Increased risk of developing carcinoma of the pancreas, breast, lung, ovary and uterus.
- Mean age at presentation (10-15 years old)
- GI lesions: Arborizing polyps (Small intestine > Colon > Stomach; Colonic adenocarcinoma)
- Selected extragastrointestinal manifestations: Mucocutaneous pigmentation; increased risk for thyroid, breast, lung, pancreas, gonadal, and bladder cancers.
- Mutated genes : **LKB1/STK11** encodes a tumor suppressive protein kinase that regulates cellular metabolism



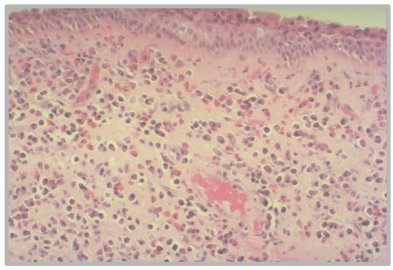


Non-neoplastic polyps

3-Inflammatory polyps

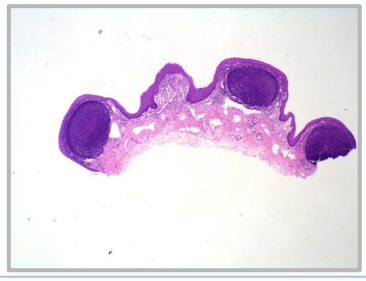
- longstanding IBD (inflammatory bowel disease), especially in **chronic ulcerative colitis.**
- Represent an exuberant reparative response to longstanding mucosal injury called **pseudopolyps**.

It's not a true polyp. There is ulceration in the mucosa due to IBD, the remaining non-ulcerated part protrude above the surface.



4-Lymphoid polyps

Protrusion above the mucosa of the lymphoid follicle.



Deep Focus Question

Which of the following pathologic findings is NOT associated with an increased risk of development of colorectal cancer?

A. Inflammatory bowel disease
B. Crohn disease
C. Familial adenomatous polyposis
D. Hereditary nonpolyposis colorectal cancer
E. Juvenile polyp

Answer: E

Deep Focus Question

Which type of Mendelian pattern does Peutz-Jeghers syndrome follow?

A. Autosomal dominant
B. Y-linked dominant
C. X-linked recessive
D. Autosomal recessive
E. X-linked dominant

Answer: A

Neoplastic polyps (Adenomas)

Definition

- Occur mainly in **large bowel,** Sporadic (Acquired, few) and familial
- Vary from small pedunculated to large sessile
- Epithelium proliferation , **dysplasia**

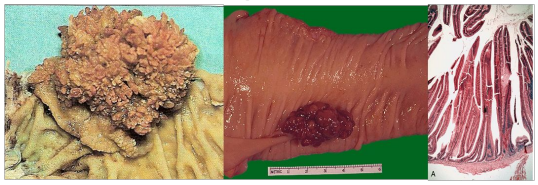
Divided into three types IMPORTANT

Tubular adenoma

- **< 25%** villous architecture
- Represents 75% of all neoplastic polyps.
- 75 % occur in the distal colon and rectum.
- Sigmoid colon most common site

Villous adenoma

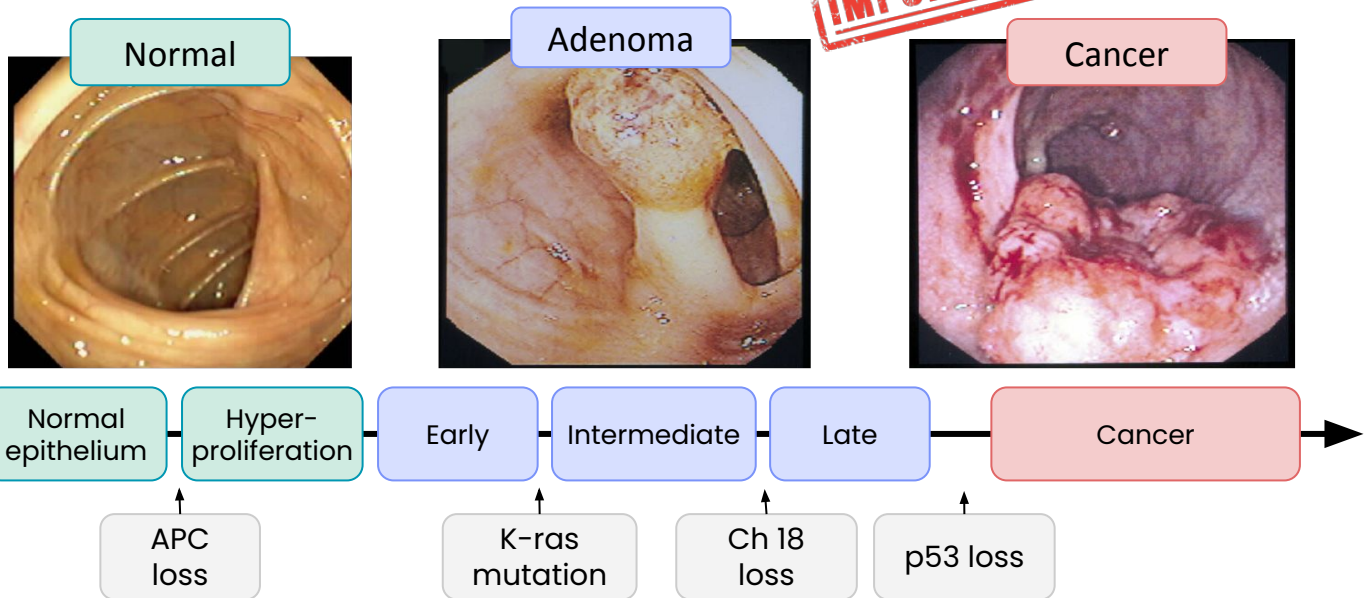
- villous architecture **over 50%**
- **Least common**, largest, most ominous of epithelial polyps **(most likely to undergo malignant transformation).**
- Age: 60 to 65 years, 75% located in rectosigmoid area
- Present with rectal bleeding or anemia, large ones may **secrete** copious amounts of **mucoid material rich in protein and potassium**
- Large tumors can produce **hypoalbuminemia, hypokalemia** (causes secretory diarrhea).



Tubulovillous adenoma

- villous architecture between **25 and 50%.**
- **20%–30% of polyps**
- Intermediate in size, degree of dysplasia and malignant potential between tubular and villous adenomas.

Relationship of neoplastic polyps to carcinoma : IMPORTANT



Neoplastic polyps

Osmosis Vid

The probability of carcinoma occurring in a neoplastic polyp is related to:

1. size of polyp
2. The relative proportion of its villous features
3. The presence of significant cytologic atypia (dysplasia) in the neoplastic cells.
4. Multiple polyps

Familial polyposis syndrome

Introduction

- Patients have genetic tendencies to develop neoplastic polyps.
- Caused by Mutated Gene: **APC** - GI lesion: **Multiple Adenomas**.

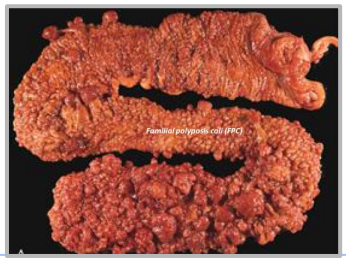
IMPORTANT

divided into three types

Familial polyposis coli (FPC)

- Genetic defect of Adenomatous polyposis coli (APC).
- **APC** gene located on the long arm of chromosome 5 (**5q21**).
- **APC gene is a tumor suppressor gene**
- Innumerable neoplastic polyps in the colon (500 to 2500)
- Polyps are also found elsewhere in alimentary tract
- The **risk of colorectal cancer** is **100%** by midlife
- Classic FAP : 10-15 years old (congenital RPE hypertrophy)
- Attenuated FAP : 40-50 years old.

We respect the colon as prophylaxis & leave some of the rectum to keep person's anal function & screen regularly



Gardner's syndrome

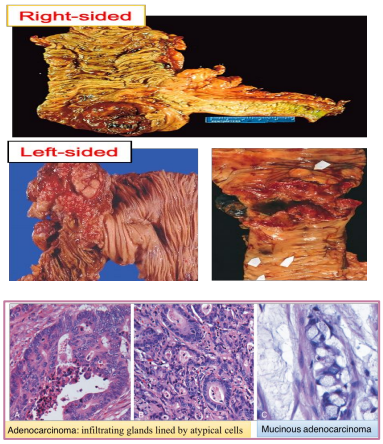
- **Mean age at presentation**: 10-15 years old
- FAP with Fibromatosis, osteomas
- **Selected extragastrointestinal manifestations:** Polyposis coli, **Multiple osteomas** (benign tumor of the bone usually arising in the skull), Desmoids (tumor like fibroma in the soft tissues) , Skin (Epidermal) cysts, **Fibromatosis**.

Turcot syndrome

- **Mean age at presentation**: 10-15 years old
- **FAP with CNS Tumors**
- **Selected extragastrointestinal manifestations:** Polyposis coli, **CNS tumors** (Medulloblastoma, Glioma), Fibromatosis.

Adenocarcinoma

(colorectal carcinoma=colon cancer=Malignant Tumors of Large Intestine)

Introduction	• Adenocarcinoma of the colon is the most common malignancy of the GI tract and is a major cause of morbidity and mortality worldwide. • Constitutes 98% of all cancers in the large intestine. • Incidence peaks at 60 to 70 years age
Predisposing factors	• **IBD** (ulcerative colitis) , adenomas (more villous) , polyposis syndrome. • Diet appears to play an important role in the risk for colon cancer: -Alcohol -Reduced intake of vit A, C & E. -Low fibre diet. - High fat content why? **The reason:** It is theorized that reduced fiber content leads to **decreased stool bulk** and altered composition of the intestinal microbiota. This change may increase synthesis of potentially toxic oxidative by-products of bacterial metabolism, which would be expected to remain in contact with the colonic mucosa for longer periods of time as a result of reduced stool bulk. High fat intake also enhances hepatic synthesis of cholesterol and bile acids, which can be converted into carcinogens by intestinal bacteria.
Prevention	Several epidemiologic studies suggest that aspirin or other NSAIDs have a protective effect. This is consistent with studies showing that some NSAIDs cause polyp regression in FAP patients in whom the rectum was left in place after colectomy.
Morphology	70% are in the **rectum**, **rectosigmoid** and **sigmoid colon.** **Left-sided** carcinomas tend to be annular, encircling lesions with early symptoms of obstruction **Right-sided** carcinomas tend to grow as polypoid, fungating masses, obstruction is uncommon (presents with bleeding ,iron deficiency anaemia, vague pain) Adenocarcinoma: consist of infiltrating glands lined by atypical cells Mucinous adenocarcinoma secret abundant **mucin** that may dissect through cleavage planes in the wall. 
Signs and symptoms	• If located closer to the anus: change in bowel habit, feeling of incomplete defecation, PR bleeding. • A tumor that is large enough to fill the entire lumen of the bowel may cause bowel obstruction • **Right-sided lesions** are more likely to **bleed** while **left-sided tumors** are usually detected later and could present with **bowel obstruction**.
Colorectal carcinoma	Serum levels of carcinoembryonic antigen (CEA) - A tumor marker , oncofetal protein are related to tumor size and extent of spread. They are helpful in **monitoring** for recurrence of tumor after resection not used in **diagnosis**

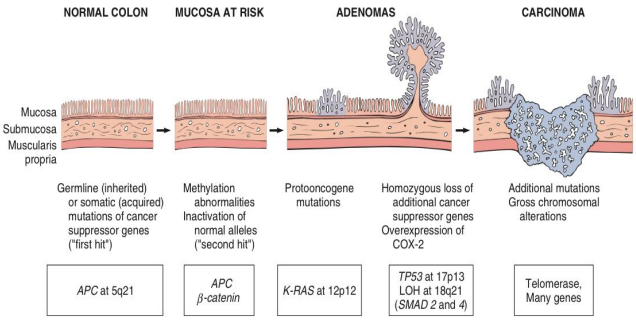
Carcinogenesis

Two pathogenetically distinct pathways for the development of colon cancer, both seem to result from accumulation of multiple mutations:

1-The APC/B-catenin pathway (85%)

-Chromosomal instability that results in stepwise accumulation of mutations in a series of oncogenes and tumor suppressor genes.

-Familial Adenomatous Polyposis (FAP): Hereditary mutation of the APC gene is the cause of familial adenomatous polyposis, where affected individuals carry an almost 100% risk of developing colon cancer by age 40 years.

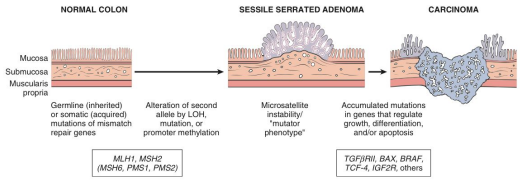


Adenoma-carcinoma sequence

2-DNA mismatch repair genes pathway

IMPORTANT

These are referred to as MSI high, or MSI-H, tumors:
-10%-15% of sporadic cases.
- There is accumulation of mutations (as in the APC/B-catenin schema)
,Five DNA mismatch repair genes (MSH2, MSH6, MLH1, PMS1,AND PMS2)
- Give rise to the hereditary non polyposis colon carcinoma (HNPCC) syndrome.
- This result in microsatellite instability and permit accumulation of mutations in numerous genes.
- If these mutations affect genes involved in cell survival and proliferation, cancer may develop.
- It progress from normal to sessile serrated adenomas to adenocarcinoma
- May produce abundant mucin that accumulates within the intestinal wall, and these carry a poor prognosis



+ Malignant small intestinal neoplasm

- The small intestine accounts for 75% of the overall length of the GI tract, is an uncommon site for benign and malignant tumors.
- Among malignant small intestinal tumors, adenocarcinomas and well-differentiated neuroendocrine (carcinoid) tumors have roughly equal incidence, followed by lymphomas and sarcomas.

In descending order of frequency:

1. Carcinoid
2. Adenocarcinomas
3. Lymphomas
4. Leiomyosarcomas
5. Gastrointestinal stromal tumor

TNM Staging

Female Slides

TNM Staging of Colon Cancers is used for staging, Tumor-Node-Metastasis (TNM) classification of colorectal carcinoma	
tumor	
Tis	carcinoma in situ, intramucosal carcinoma
T1	tumor invades submucosa
T2	tumor invades into but not through muscularis propria
T3	tumor invades through the muscularis propria
T4	tumor invades adjacent organs or visceral peritoneum
Regional lymph nodes	
NX	regional lymph nodes cannot be assessed
N0	no regional lymph node metastasis
N1	metastasis in 1 - 3 regional lymph nodes
N2	metastasis in 4 or more regional lymph nodes
Distant metastasis	
MX	Distant metastasis cannot be assessed
M0	no distant metastasis
M1	Distant metastasis or seeding of abdominal organs

Colorectal staging and survival

Stage	Tumor-Node-Metastasis (TNM) criteria			5-Year survival (%)
	T	N	M	
I	T1, T2	N0	M0	74
II				
IIA	T3	N0	M0	67
IIB	T4	N0	M0	59
III				
IIIA	T1,T2	N1	M0	73
IIIB	T3,T4	N1	M0	46
IIIC	Any T	N2	M0	28
IV	Any T	Any N	M1	6

Small intestine neoplasms

Carcinoid tumors

- Neoplasms arising from endocrine cells found along the length of GIT mucosa.
- The peak incidence: sixth decade, but they may appear at any age.
- They compose less than 2% of colorectal malignancies
- Almost half of small intestinal malignant tumors: 60 to 80% appendix and terminal ileum and 10 to 20% rectum.

Behavior

Female Slides

Aggressive behavior correlates with:
1. Site of origin: Appendiceal and rectal carcinoids infrequently metastasize, even though they may show extensive local spread
2. 90% of ileal, gastric, and colonic carcinoids that have penetrated halfway through the muscle wall have spread to lymph nodes and distant sites at the time of diagnosis, especially those larger than 2 cm in diameter.

Depth of local penetration

Size of the tumor

Morphology		Clinical features	
Grossly	**Microscopically**	**Asymptomatic**	**Hormone elaboration**
A solid, yellow-tan appearance	The cells are monotonously similar, having a scant, pink granular cytoplasm and a round-to-oval stippled nucleus. **Ultrastructural features :** neurosecretory electron dense bodies in the cytoplasm	May cause obstruction, intussusception or bleeding.	Zollinger-Ellison (secretes gastrin), Cushing's carcinoid or other syndromes.

IMPORTANT

Carcinoid Syndrome

Introduction	• 1% of carcinoid tumor & in 20% of those of widespread metastasis • Paroxysmal flushing, episodes of asthma-like wheezing, right-sided heart failure,attacks of watery diarrhea, abdominal pain • The principal chemical mediator is serotonin • The syndrome is classically associated with ileal carcinoids with hepatic metastases
Clinical Features Female Slides	• Due to serotonin and other bioactive compounds (e.g., histamine, bradykinin) - Flushing of the skin (75%-90% of cases) - Due to vasodilation; may be triggered by emotion, alcohol, other foods - Diarrhea (>70% of cases) Increased bowel motility from serotonin - Intermittent wheezing and dyspnea (25% of cases) Due to bronchospasm Facial telangiectasia, Tricuspid regurgitation and pulmonary stenosis. Serotonin increases collagen production in the valves
Serotonin and Diarrhea Female Slides	Patients with carcinoid syndrome often suffer from diarrhea, which has both a secretory and a motor component . The secretory component of carcinoid diarrhea is attributable to excessive serotonergic stimulation of submucosal secretomotor neurons; the motor component includes faster small bowel and colon transit and an exaggerated tonic response of the colon to ingestion of a meal.

Clinical Note

Patient with Peutz-Jeghers syndrome may present with Mucocutaneous pigment and melanin macules in lips, perioral area, buccal mucosa, eyes, nostrils, fingertips, palms, soles, and perianal areas:
1–5 mm macules Present in more than 95% of cases ,Small, flat, brown, or dark-blue spots, Similar in appearance to freckles Rectal polyps may be found during a rectal examination., Gynecomastia and growth acceleration (due to Sertoli-cell tumor) , Testicular mass

Lymphoma

Lymphoma

- Most often low-grade lymphomas arising in mucosal-associated lymphoid tissue (MALT) lymphoma or high-grade non-Hodgkin's lymphomas of B cell type.
- May occur in any part of the intestine
- the ileocecal region is a favored site for Burkitt's lymphoma.

Tumors Marker

Male Slides

- A tumor marker is a substance found in the blood , urine or body tissues that can be elevated in cancer, among other tissue types.
- Duke classification is used for staging

IMPORTANT

Useful to assess disease recurrence (late stage)

Carcinoembryonic antigen (CEA)

- CEA levels may also be raised in some non-neoplastic conditions like ulcerative colitis pancreatitis, cirrhosis COPD, Crohn's disease as well as in smokers

Carbohydrate antigen (CA19-9)

- CA19-9 are raised in in patients with colon cancer and pancreatic cancer, esophageal cancer and hepatocellular carcinoma. Apart from cancer, elevated levels may also occur in pancreatitis, cirrhosis

Tissue inhibitor of metalloproteinases 1 (TIMP1) → Early as well as late stage disease

Keywords

NON-NEOPLASTIC POLYPS	Hyperplastic polyps		• Asymptomatic in rectosigmoid • Sawtooth, Star shaped crypts • No malignant potential
	Juvenile Polyps		• affect glands & lamina propria. • Commonly occur in children under 5 • Smooth eroded surface ، mucus retention cysts • Autosomal dominant: TGF-β abnormalities • Cowden syndrome: PTEN abnormalities • Cronkhite-Canada syndrome:ectodermal abnormalities
	Peutz-Jeghers Syndrome		• autosomal dominant • mucosal and cutaneous pigmentation around the lips • red blood in stool • Increased risk of developing carcinoma • (10-15 years old) • Mutated genes : LKB1/STK11
	Inflammatory polyps		• longstanding IBD • pseudopolyps.
NEOPLASTIC POLYPS	Adenomatous Polyp (Adenoma)	Tubular	• distal & colon colon and rectum. • Sigmoid colon most common site
		Villous	• most likely to undergo malignant • rectal bleeding or anemia • hypoalbuminemia,hypokalemia • Finger like projection
		Tubulovillous	Between both
	Familial Polyposis Syndrome (FAP)	Familial polyposis coli (FPC)	• APC mutation on chromosome 5 (5q21). • APC gene is a tumor suppressor gene • risk of colorectal cancer is 100% (أي جابها بالرقم)
		Gardner's syndrome □	• Polyposis coli, Multiple osteomas
		Turcot syndrome	• Polyposis coli, CNS tumors
	Adenocarcinoma		• IBD especially ulcerative colitis (last lecture , remember?) • rectum, rectosigmoid and sigmoid colon. • Left-sided carcinomas : early symptoms of obstruction , • Right-sided carcinomas : polypoid, fungating masses, obstruction is uncommon , bleeding • anus: change in bowel habit , PR bleeding. • Monitoring by CEA • The APC/B-catenin pathway (polyposis) • DNA mismatch repair genes pathway : mismatch repair genes (MSH2, MSH6, MLH1, PMS1, AND PMS2) (non polyposis) Give rise to the hereditary non polyposis colon carcinoma (HNPCC) syndrome.
	Carcinoid Syndrome		• serotonin • Terminal ileum (mostly) • Neurosecretory electron dense body • cells are monotonously similar • round-to-oval stippled nucleus. • intussusception or bleeding. • hepatic metastases • Flushing , Facial telangiectasia • Wheezing , bronchospasm , shortness of breath • Abdominal cramp , diarrhea (remember MID lecture ?)
	Lymphoma		• arising in MALT • Burkitt's lymphoma.

YOU Vs MCQs

1

Which syndrome is characterized by hamartomatous polyps, lipomas, and an increased risk of colon cancer and cancer of the thyroid and breast?

A- Cowden syndrome

B- Peutz-Jeghers syndrome

C- Cronkhite-Canada syndrome

D- Familial adenomatous polyposis

2

Carcinoid tumors arise from which type of cells?

A- Epithelial cells

B- Neuroendocrine cells

C- Lymphoid cells

D- Smooth muscle cells

3

Which genetic mutation is associated with Peutz-Jeghers syndrome?

A- TGF-β pathway abnormalities

B- APC loss

C- PTEN abnormality

D- STK11

4

Which type of polyp has the highest risk of malignant transformation?

A- Hyperplastic polyp

B- Tubulovillous adenoma

C- Tubular adenoma

D- Villous adenoma

1-A / 2-B / 3-D / 4-D

YOU Vs MCQs

5

Carcinoembryonic antigen (CEA) is used as a marker for?

A- Polyp size

B- Recurrence following tumor resection

C- Malignant potential of polyps

D- Severity of epithelial dysplasia

6

A Patient who was diagnosed to have colon carcinoma showing no polyp , his Auntie was diagnosed with the same condition , which of the following genes is affected?

A- PMS2

B- APC

C- PTEN

D- LKB1

7

Which of the following cases have a guaranteed chance of colorectal cancer ?

A- Turcot syndrome

B- Familial polyposis coli

C- Gardner's syndrome

D- Hyperplastic polyp

8

In late adenoma which of the following genes is lost?

A- APC

B- Chromosome 18

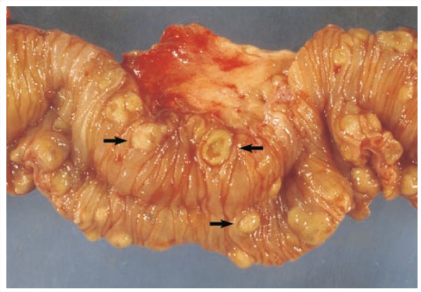
C- p53

D- K-ras

5-B / 6-A / 7-B / 8-B

YOU Vs CASES

1. A 45-year-old woman presents with sudden attacks of wheezing, shortness of breath, and episodic hot flashes. She also reports abdominal cramps and diarrhea. Physical examination shows facial redness, pitting edema of the lower legs, and a murmur of tricuspid regurgitation. A 24-hour urine specimen contains elevated levels of 5-hydroxyindoleacetic acid (5-HIAA). A CT scan of the abdomen demonstrates multiple 1- to 2-cm nodules in distal ileum. A small bowel resection is performed (shown in the image). The arrows point to submucosal tumors. Microscopic examination shows nests of cells with round and uniform nuclei. Which of the following is the most likely diagnosis?

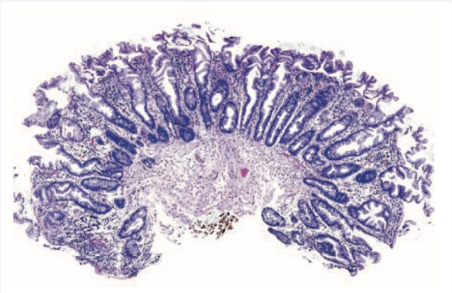


A.Carcinoid tumor	B.Mediterranean intestinal lymphoma	C.Peutz-Jeghers syndrome	D.Whipple disease

2.A 5-year-old girl is brought to the physician after her parents noticed red blood in her stool. Physical examination reveals mucocutaneous pigmentation. Small bowel radiography discloses multiple, small- to medium-sized polyps that are diagnosed pathologically as hamartomas. Which of the following is the most likely diagnosis?

A.Villous adenoma	B.Hyperplastic polyp	C.Peutz-Jeghers polyp	D.Tubular adenoma

3.A 55-year-old man undergoes routine colonoscopy. A small, raised, mucosal nodule measuring 0.4 cm in diameter is identified in the rectum and resected. The surgical specimen is shown in the image. Microscopic examination reveals goblet cells and absorptive cells with exaggerated crypt architecture, but no signs of nuclear atypia. Which of the following is the most likely diagnosis?



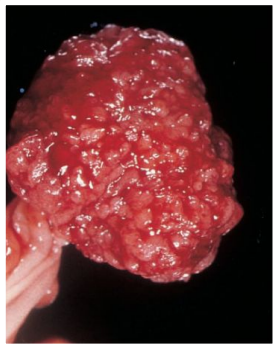
A.Adenocarcinoma	B.Hyperplastic polyp	C.Peutz-Jeghers polyp	D.Villous adenoma

1-A / 2-C / 3-B

NEED EXPLANATION ? CLICK HERE

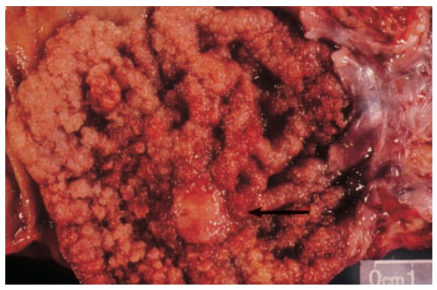
YOU Vs CASES

4. A 65-year-old woman undergoes routine colonoscopy. During the procedure, a 2-cm mass is identified in the rectosigmoid region and resected. The surgical specimen is shown in the image. Microscopic examination shows irregular crypts lined by pseudostratified epithelium with hyperchromatic nuclei, without dysplastic features. Which of the following is the most likely diagnosis for this patient's colonic lesion?



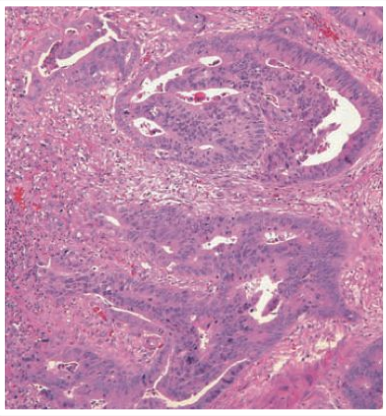
A.Carcinoid tumor	B.Hyperplastic polyp	C.Tubular adenoma	D.Villous adenoma

5 .A 63-year-old woman complains of rectal bleeding of 1 week in duration. Laboratory studies show hypochromic, microcytic anemia (hemoglobin = 7.6 g/dL and MCV = 70 µm3). Colonoscopy reveals a large polypoid mass, which is removed(surgical specimen shown in the image). The arrow points to a malignant tumor. The patient asks about the relative risk of cancer arising in various types of gastrointestinal polyps. Which of the following types of colonic polyps is most likely to undergo malignant transformation?



A.Hyperplastic polyp	B.Peutz-Jeghers polyp	C.Tubular adenoma	D.Villous adenoma

6.A 59-year-old man complains of progressive weakness. His friends have noticed that he has become pale, and he reports that his stools are tinged with blood. On abdominal palpation, there is fullness in the right lower quadrant. Laboratory studies show iron-deficiency anemia, with a hemoglobin level of 7.4 g/dL. Stool specimens are positive for occult blood. Colonoscopy reveals an elevated and centrally ulcerated lesion of the sigmoid colon. The biopsy is shown in the image. Which of the following is the most likely diagnosis?



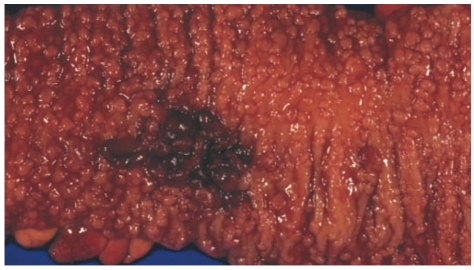
A.Adenocarcinoma	B.Hyperplastic polyp	C.Peutz-Jeghers polyp	D.Villous adenoma

4-C / 5-D / 6-A

NEED EXPLANATION ? CLICK HERE

YOU Vs CASES

7. A portion of the large bowel was removed from a 34-year-old man with a familial disease that affects his gastrointestinal tract. The surgical specimen is shown in the image. This patient most likely carries a germline mutation in which of the following genes?



A.APC	B. C-myc	C. DCC	D.RAS

8 .A 65-year-old woman presents with a 3-month history of diarrhea and abdominal pain. She has lost 9 kg (20 lb) in the past 6 months. The patient had two benign colonic polyps removed 3 years ago. Laboratory studies reveal mild iron-deficiency anemia, and stool specimens are positive for occult blood. Sigmoidoscopy demonstrates an ulcerated mass, and a biopsy shows malignant glands. A segment of the colon is resected, and the surgical specimen is shown in the image. Based on current models of colonic carcinogenesis, which of the following genes was most likely mutated in the transition from benign adenoma to carcinoma in this patient?

A.BRCA1	B.VHL	C.p53	D.Ras

IF YOU WANT A SUMMARY CLICK HERE

DR. MAHA & DR AHMED CASES & QUESTIONS CLICK HERE

7-A / 8-C

NEED EXPLANATION ? CLICK HERE

YOU VS CASES

EXTRA CASES MAY REQUIRE EXTRA INFO

1.A 55-year-old man is scheduled to undergo a routine screening colonoscopy for colorectal cancer. He does not have any abdominal pain, changes in bowel habits, unintentional weight loss, or noticeable blood in the stool. Past medical history is noncontributory. He has no family history of cancers. Colonoscopy is performed, which reveals a few polyps in the colon. The polyps are biopsied and examined for abnormal histology. Which of the following histological subtypes is at the highest risk for malignant transformation?

A.Tubulovillous adenomatous	B.Hamartomatous	C.T Hyperplastic	D.Inflammatory pseudopolyp

2.A couple comes to the genetic counselor's office for prenatal counseling. The woman has no significant past medical history, and her family history is not notable for any cancers. The man has a history of prophylactic colectomy at the age of 16 after a colonoscopy revealed hundreds of polyps. His father died at the age of 39 due to colorectal cancer, but his mother has been healthy. The couple is worried their children may also inherit this condition. What is the probability that this couple's first child will inherit the disease?

A.50%	B.25%	C.0%	D.75%

3.A 22-year-old woman comes to her physician for evaluation of intermittent constipation. The symptoms began several months ago. She often needs to strain during defecation and has occasionally noticed blood in her stool. The patient has no significant past medical history, but she states her father developed pancreatic cancer at a young age. Vital signs are within normal limits. Physical examination shows multiple, small, hyperpigmented macules on the buccal mucosa. Colonoscopy is performed and shows numerous polyps, with subsequent biopsy revealing hamartomatous mucosal polyps. This patient's diagnosis is most likely associated with which of the following conditions?

A.Breast cancer	B.Intracranial masses	C.Benign mandibular bone tumors	D.Supernumerary impacted teeth

4.A 40-year-old woman comes to her physician for a routine preventative examination. The patient gets regular exercise and does not consume tobacco, alcohol, or illicit drugs. She states she has been feeling fine for the past year. Her physical examination findings are unremarkable. The patient expresses concern about undergoing colonoscopies because of the procedure's invasiveness, and she wants to know when it is necessary to have one done. Which of the following risk factors, if present in this patient's history, would warrant early screening for colorectal cancer?

A.The patient consumes a low-fiber diet.	B.The patient's father developed colorectal cancer at age 70.	C.The patient has a history of irritable bowel syndrome.	D.The patient has a history of ulcerative colitis diagnosed at age 33.

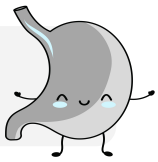
5.A 51-year-old man comes to his physician for a routine preventative examination. The patient's past medical history is significant for coronary artery disease and hypertension. His current medications include hydrochlorothiazide, atorvastatin, and daily aspirin. His diet consists mainly of processed red meats with minimal vegetables and fruits. He consumes 1 glass of wine with his dinner daily. In the office, his blood pressure is 126/84 mmHg, pulse is 80/min, respiratory rate is 17/min, and body mass index (BMI) is 34 kg/m2. The patient's sister recently died from colorectal cancer, and he wants to know what is his own risk of developing this disease. Which of the following in this patient's current lifestyle is protective against colorectal cancer?

A.Daily aspirin intake	B.Low-fiber diet	C.Consumption of red meat	D.Statin use

1-A /2 -A/ 3-A /4-D / 5-A

Pathology Team

Leader زياد العتيبي



Leader لمى العتيبي

عائشة إبراهيم	عبدالرحمن المسلّم	نورة المحيميد
الدانة عبدالله	رغد المصلح	ليان الرويلي
ريما المطيري	فيصل الشويعر	ريماز المحمود
زياد حكمي	سلطان البقمي	عروب المحمود
خالد الرشيد	عبدالله الضويحي	الجوهرة الوهيبي
لؤي الحديثي	هيا الزير	عبدالله الكودري
محمد السلامه	معاذ الحضيف	إيلاف معتبي
يوسف بادغيش	ساره العجاجي	يزيد ال طلحه
أفنان الأحمري	رند ابا الخيل	رزان السطيحي
هدى بن جدعان	منصور العتيبي	زياد السويلم
محمد العرفج	دانه المحيسن	عبدالرحمن الأحيدب
نوره المالك	دينا المهوس	عبدالمحسن الدايل
شوق الخليفة		