GIT PATHOLOGY

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Tumors of the small and large intestine

Tumors of the **small intestine** are generally rare specially the epithelial tumors. The most common malignant tumor is **lymphoma**.

While the **epithelial tumors** of the **large intestine** are common which are:

1- **Benign** tumors (**adenomas**)

2- **Malignant** tumors (**adenocarcinoma**)

Tumors of the large intestine:

Polyp: is a tumor mass that protrudes into the lumen of the gut and are of two types:

1-Non neoplastic polyps

A. Hyperplastic polyp

* They are the most common polyps of the colon &rectum.
* It is small in size < 5mm, often multiple.
* Discovered at the age of **50-60 years.**
* **Gross:** smooth, nodular protrusions of the mucosa, Located mainly at the rectosigmoid region
* **Mic.:** consist of well-formed glands and crypts lined by non-neoplastic epithelial cells.

B. Inflammatory polyp

* Form as a result of chronic cycles of injury and healing.
* The distinctive histologic features include mixed inflammatory infiltrates and epithelial hyperplasia.

C. Hamartomatous Polyps

- **Juvenile polyp**

*Usually single, about 1-3 cm

*Mainly in **children**

*Located in the rectum

*Presented with bleeding per rectum

***Mic.:**

- Cystically dilated glands filled with mucin and inflammatory debris.
- Lamina propria expanded by mixed inflammatory infiltrates.

- **Peutz-Jeghers polyp:**

*They may occur sporadically or in the setting Peutz-Jeghers syndrome (PJS).

***PJS** is a rare autosomal dominant syndrome characterized by:

- Multiple hamartomatous polyps scattered throughout the entire GIT
- Melanotic mucosal and cutaneous pigmentation especially around the lips & in the oral mucosa.

*Patients with this syndrome are at risk for intussusception, which is a common cause of mortality.

*The polyps are present most frequently in the small intestine.

***Grossly:**

- Large and pedunculated with a lobulated contour.

***Mic.:**

- Complex glandular architecture lined by normal-appearing intestinal epithelium
- Stroma composed of smooth muscle bundles cutting through the lamina propria.

2- Neoplastic (adenomatous polyp)

- Results from **epithelial proliferation** and **dysplasia**
- They are a slowly growing tumors and they are called ADENOMAS
- They have a **malignant potentials** and can change into carcinoma

Divided into three types according to the histological features:

*Tubular
* Villous
* Tubulvillous

a- Tubular adenoma (tubular glands)

* The most common of all.
* Single or multiple
* Size: 2.5cm
* It has a stalk 1-2 cm &raspberry-like head
*Usually at the rectosigmoid area

***Mic:** Proliferation of disorganized, **rounded glands** lined by crowded cells have hyperchromatic nuclei.

* Malignant transformation is rare in that less than 1 cm

b- Villous adenoma (villous projections)

* Usually single
*Large in size 10 cm
* It does not have a pedicle (**sessile**) with broad base projecting above the surface mucosa
* Common in the rectum and rectosigmoid
* **Mic:** Proliferation of **elongated** glandular structures covered by dysplastic epithelium.

c- Tubulovillous adenoma

*It contains both elements

Question???

Does colonic adenoma change into malignancy?? and what are the factors affecting its conversion??

Answer:

Yes, it can change into malignancy, according to:
1- Size of the adenoma, the larger the size, the greater the risk.
2- Histological type, the villous carries more risk than tubular.
3- Number, increase in no. → increase the risk
4- Dysplasia, presence of severe dysplasia carries high risk.

Familial adenomatous polyposis (F.A.P)

* Is an **autosomal dominant** disorder; caused by somatic mutations of the adenomatous polyposis coli (*APC) gene* on chromosome 5.
* Its importance lies in its high risk of malignant transformation.
* It is characterized by the presence of innumerable adenomatous polyps which may reach 500-2500 polyp and we need the presence of at least 100 polyps to diagnose it.

* The risk to develop colorectal carcinoma is 100% by midlife, so prophylactic colectomy should be performed before the age of 30 yr.
* **Mic:** Tubular, villous or tubulovillous adenomas seen, but mostly **tubular adenoma type.**
* **Treatment**: Prophylactic colectomy

Colorectal carcinoma

* 98% of all cancers of the large intestine are adenocarcinomas.
* Colorectal carcinoma considered the 2nd most common cancer.
* It is common in USA, Canada and low in Asia and Africa.
* Age: 60-70 years

Etiology and pathogenesis:

1- Premalignant conditions

- adenomas (adenomatous polyps)
- ulcerative colitis

2- Genetic factors

Familial adenomatous polyposis carries 100% risk of malignancy

3- Environmental factors especially dietary factors

- Low fiber diet
- High intake of refined carbohydrates and fat.
- Low intake of vit. A, C, E.

Gross:

- Overall, adenocarcinomas are distributed approximately equally over the entire length of the colon.

1- Polypoid mass (fungating) or cauliflower which is more common and tend to occur on the right side (cecal)

2- Annular, encircling lesions which produce ring constrictions of the bowel which tend to involve the left side (rectosigmoid)

Microscopically:

Adenocarcinoma ranging from well- poorly differentiated carcinoma.

Clinical features:

- asymptomatic
- change in bowel motion
- bleeding per rectum
- intestinal obstruction
- other systemic manifestations e.g anemia ,weight loss…..etc

- The two most important **Prognostic Factors**

1- Depth of invasion:Invasion into the muscularis propria confers significantly reduced survival

2-Lymph node metastases

Spread:

1- local
2- lymphatic
3- hematogenous

Prognosis:

The most important is the tumor stage at time of diagnosis.

In 1937 Dukes proposed a staging system.

In 1954 Astler and Coller created another staging system with further subdivisions.

The staging system which is recommended nowadays is TNM system (8th edition)2018

T(Tumor):

Tx: Primary tumor cannot be assessed

T0: no evidence of primary tumor

Tis: carcinoma in situ, intramucosal carcinoma (involvement of LP with no extension through muscularis mucosae)

T1: tumor invades submucosa

T2: tumor invades muscularis propria

T3: tumor invades muscularis propria into pericolorectal tissues

T4: tumor invade visceral peritoneum or adjacent organs.

N: (lymph node)

- **NX**: regional LN cannot be assessed
- **N0**: no regional LN metastasis
- **N1:** metastasis in 1-3 regional LN
- **N2:** metastasis in 4 or more regional LN
- **M: (distant metastasis)**
- **M0:** no distant metastasis by imaging
- **M1:** distant metastasis present

Acute Appendicitis

Most common in adolescents & young adults, males

DDx:

- Mesenteric lymphadenitis
- Acute salpingitis
- Ectopic pregnancy
- Ovulation pain" or midcycle pain.
- Meckel diverticulitis

Pathogenesis:

Progressive increases in intraluminal pressure that compromise venous outflow

- Fecalith
- Tumor
- Mass of worms

Ischemic injury and stasis of luminal contents:

-Favor bacterial proliferation

-Trigger inflammatory responses

Morphology:

- Congested serosal blood vessels
- Normal glistening serosal surface turns into a dull, granular and erythematous
- **Hall mark of Acute appendicitis:**

Diagnosis of acute appendicitis requires neutrophilic infiltration of the muscularis propria

Other features:

- Mucosal ulceration
- Luminal exudation
- Fibrinopurulent exudate on the serosa
- Acute suppurative appendicitis
- Acute gangrenous appendicitis

Clinical features:

Pain: Early acute appendicitis: Periumbilical
Later: Localizes to the right lower quadrant
Classic physical finding is McBurney's sign

Complications of appendicitis:

- Perforation
- Pyelophlebitis
- Portal venous thrombosis
- Liver abscess
- Bacteremia

Tumors of the Appendix

Carcinoid tumor:

- The most common tumor of the appendix is the carcinoid
- Usually discovered incidentally
- Usually involves the distal tip of the appendix
- 2 to 3 cm in diameter
- Nodal metastases are infrequent, and distant spread is rare

It arises from the neuroendocrine cells present in the wall of the bowel, they can produce many hormones e.g serotonine, gastrin, and they can be demonstrated immunohistochemically by neuron specific enolase, chromogranin and synaptophysin.

Sites:

Appendix: Which is the commonest site.
Ileum
Stomach
Rectum

Carcinoid syndrome:

The tumor is of two types:

1- non functioning
2- functioning which produce the characteristic attacks of flushing, diarrhea, bronchospasm due to the production of serotonine (5- hydroxytryptamine).

Gross:

- Rounded swelling of the distal tip of the appendix.
- Solid yellow- tan on cut section.

Mic.:

- Neoplastic cells may form islands, trabeculae, or sheets, having a scant, pink granular cytoplasm and round to oval nucleus.