**Pathology 4th class / قسم المختبرات الطبية / lecture: 10**

**Inflammatory bowel disease**

- The term ‘inflammatory bowel disease (IBD)’ is commonly used to include 2 idiopathic bowel diseases having many similarities but the conditions usually have distinctive morphological appearance. These 2 conditions are Crohn’s disease (regional enteritis) and ulcerative colitis.

- Major types of IBD: 1)**Ulcerative colitis** (UC) and 2) **Crohn disease** (C D).

**Etiology and Pathogenesis**

IBD is an idiopathic disorder. The exact trigger for inflammatory bowel disease is not known. Present evidences suggest that IBD represents the outcome of threemain interactive factors:

**Genetic**, **environmental** and **host factors**.

**Genetic Factors**

Genetic predisposition/susceptibility contributes to IBD.

-**Crohn disease**: Genetic factors play a prominent role. The concordance rate formonozygotic twins is about 50%.

-**Ulcerative colitis**: Genetic factors are less prominent than in Crohn disease. The concordance of monozygotic twins is only 16%. Concordance fordizygotic twins for bothCrohn disease and ulcerative colitis is less than 10%.

**Crohn disease**

Crohn disease (regional enteritis) is a chronic multifocal relapsing and remitting, progressive inflammatory bowel disease of unknown cause that caninvolve any portion ofthe gastrointestinal tract.

**Complications:**

1. Iron-deficiency anemia: It may develop in patients with colonic disease.

2. Malabsorption: Extensive involvement of the small intestine may result in loss of protein, hypoalbuminemia and malabsorption.

3. Stricture formation: It may occur in the terminal ileum.

4. Fistula formation: It may form between loops of intestine and surrounding structures such as urinary bladder, vagina, and abdominal or perianal skin. Perforationsand peritonealabscesses are common.

5. Acute complications: Perforation and hemorrhage.

6. Development of carcinoma: It is rare and risk of carcinoma colon is increased in patients with long-standing colonic disease.

7. Systemic amyloidosis: It is rare.

**Ulcerative colitis**

Ulcerative colitis (UC) is a severe, chronic crypt destructive, ulcerating inflammatorybowel disease of unknown cause. It is limited to the colon and rectumand inflammationinvolves only the mucosa and submucosa of the intestinal wall. It isclinically associated withexacerbations and remissions of bloody diarrhea.

**Clinical Features**

- Occurs mainly in young adults.

- Triggering event: Infectious enteritis and psychological stress.

- UC is a relapsing disorder with exacerbations and remissions.

**Complications:**

1. Toxic megacolon: In fulminant cases, the inflammation and inflammatory mediators can damage the muscularispropria and disturb neuromuscular function. This may lead tocolonic dilation and toxic megacolonmay lead to perforation.

2. Colorectal cancer: It may develop in long-standing UC.

3. Hemorrhage from intestinal lesions -blood loss.

4. Electrolyte disturbances due to diarrhea.

**Malignant colorectal tumors**

1. **Colorectal Carcinoma**

Colorectal cancer comprises 98% of all malignant tumors of the large intestine. The incidence of carcinoma of the largeintestine rises with age; average age of patients is about 60years. Cancer in the rectum is more common in males thanfemales in the ratio of 2:1, while at other locations in the largebowel the overall incidence is equal for both sexes.

**Etiology**: As with most other cancers, etiology of colorectal carcinoma is not clear but a few etiological factors have beenimplicated:

**1. Geographic variations:**  The incidence of large bowel carcinoma shows wide variation throughout the world. It ismuch more common in North America and Northern Europethan in South America, Africa and Asia.

**2. Dietary factors Diet**: plays a significant part in the causation of colorectal cancer:

**i) A low intake of vegetable**fibre-diet leading to low stool bulk is associated with higher risk of colorectal cancer.

**ii) Consumption of large amounts of fatty foods** by populations results in excessive cholesterol and their metabolites whichmay be carcinogenic.

**iii) Excessive consumption of refined carbohydrates** that remain in contact with the colonic mucosa for prolongedduration changes the bacterial flora of the bowel, thus resultingin production of carcinogenic substances.

**3. Adenoma-carcinoma sequence: There** is strong evidence to suggest that colonic adenocarcinoma evolves frompre-existing adenomas, referred to as adenoma-carcinomasequence

**4. Other factorsPresence of certain pre-existing diseases andsome other factors increase the risk of developingcolorectal cancersubsequently, e.g.:**

i) Inflammatory bowel disease (especially ulcerative colitis).

ii) Diverticular disease for long duration. Low fibre diet is implicated in the pathogenesis of diverticular disease aswell.

iii) Role of tobacco smoking in development of colorectal cancer in younger patients.

**Spread**

Carcinoma of the large intestine may spread by the following routes:

1. Direct spread The tumor spreads most commonly by direct extension in both ways—circumferentially into thebowel wall as well as directly into the depth of the bowel wallto the serosa, pericolic fat, and sometimes into peritonealcavity.

2. Lymphatic spread Spread via lymphatics occurs rather commonly and involves, firstly the regional lymph nodesin the vicinity of the tumor, and then into other groups oflymph nodes like preaortic, internal iliac and the sacral lymphnodes.

3. Haematogenous spread Blood spread of large bowel cancer occurs relatively late and involves the liver, lungs, brain,bones and ovary.

**Clinical features**: Clinical symptoms in colorectal cancer appear after considerable time. These are as follows:

i) Occult bleeding (melaena)

ii) Change in bowel habits, more often in left-sided growth

iii) Loss of weight (cachexia)

iv) Loss of appetite (anorexia)

v) Anaemia, weakness, malaise.

**B. Other Colorectal Malignant Tumors**

Besides colorectal carcinoma, other malignant tumorswhich are encountered sometimes in the large bowel are**leiomyo sarcoma** and malignant **lymphoma**.