

pathophysiology (Theory)

Unit : IV

1. Inflammatory bowel diseases

Two main types



1. CROHN'S DISEASE
2. ULCERATIVE COLITIS

Etiology:

1. predisposing factors

1. Genetic susceptibility
2. Environment



microflora

3. HOST



immune response

CROHN'S DISEASE:

(REGIONAL ENTERITIS)

Definition:

→ chronic inflammation of the intestines

→ First diagnosed in Adolescents or young adult

→ more common in smokers than in non smokers

pathophysiology:

Some factors causes the immune system to malfunction

↓
Immune system start attacking

↓
Edema or thickening of mucosa

↓
mucosa become inflamed

↓
inflammation to the peritoneum extends

↓
intestinal lumen narrows

Symptoms

1. inflame the whole bowel wall
2. nausea and vomiting
3. Abdominal pain
4. fever
5. weight loss
6. flush

ULCERATIVE COLITIS:

Definition:

→ inflammatory disease of the mucosa and submucosa layers of colon and rectum

pathophysiology:

multiple ulceration



shedding of the colonic epithelium



Bleeding occur



mucosa became inflamed



Disease begins in rectum



spread the entire colon

Symptoms:

1. Diarrhea
2. passage of mucus and pus
3. pain in Abdomen
4. Fever
5. Vomiting

Diagnostic findings:

1. colonoscopy
2. barium enema
3. sigmoidoscopy
4. bloody stool

Management:

→ nutritional therapy

→ medical therapies



sulfasalazine

olsalazine

→ metronidazole

→ corticosteroid

→ mercaptopurine

Disease of bones and joints:

1. Rheumatoid arthritis:

Definition:

chronic disorder, that causes the

Joints to become, painful, swollen, stiff and deformed.

pathophysiology:

Immunoglobulin

↓ active

Complement system

↓

Enhancing chemotaxis, phagocytosis,

release of lymphocyte

↓

T-lymphocyte

↓

Activate T and B cells

T cells produce cytotoxin



Toxic to tissue



Stimulate inflammation

B cell produce plasma cells



Form antibody + complement



Accumulation of polymorphonuclear leucocytes



release



cytotoxins

↓ promote

cellular damage to synovium and bone

Symptoms:

- * STIFF
- * painful joint
- * swollen
- * small nodule on elbows

Diagnosis:

* Blood test



To check the presence of antibody

* X-ray of joint

Treatment:

* Anti-inflammatory drug

* Anti-rheumatic drug

- cyclosporin

- methotrexate

→ celecoxib

→ rofecoxib

2. Osteoporosis:

Definition:

A disease characterized by

1. low bone mass

2. structural deterioration of bone tissue



leads to bone fragility

Susceptibility to fracture

Commonly: spine

hip

wrist

pathophysiology:

→ unbalanced remodeling in menopause leads to osteoporosis

Effects of aging estrogen
deficiency



Increased bone resorption



Decrease bone formation



net bone loss

→ RANK receptor - Essential for osteoclast activity

pre fusion osteoclast



multinucleated osteoclast



cytokine growth factor hormone



Activated osteoclast

Symptoms:

1. painful joint
2. swallowen deficit
3. redness
4. warmth
5. fever

Diagnosis:

By using markers

Treatment:

1. non pharmacologic

* Exercise

* calcium intake

* Stop causative agent

2. Anti resorptives



Biophosphonate or Bisphosphonate

it inhibit osteoclast activity and thus bone resorption

zoledronate

Aldronate

Risedronate

Ibandronate

3. Gout:

Definition:

* Gout is a type of arthritis

* Crystalline deposits of uric acid form within joints particularly at the base of big toe.

→ caused by elevated level of uric acid in blood.

Aetiology:

plasma uric acid level are more than 7 mg/dl.

Types of gout:

1. primary Gout
↓

In this cases biochemical defect causing hyperuricaemia is not known.

2. secondary Gout
↓

increased purine biosynthesis

pathophysiology:

uric acid is the end product of the degeneration of purines



It does not have physiologic response



Excess accumulation



Abnormalities in the enzyme



Tissue breakdown



Deposition of urate crystal



phagocytosis

Normal value:

uric acid - 600 to 800 mg daily

Excretion - less than 600 mg in urine

Symptoms:

1. Redness

2. Tenderness

* warmth and swelling

- * pain
- * mild fever

Diagnosis:

1. Joint aspiration

2. fluid is withdrawn from the affected

joint



examined for uric acid crystal

Treatment

1. To reduce severe pain and inflammation

NSAID

- Aspirin
- celecoxib
- Diclofenac
- Ibuprofen

corticosteroid

- cortisone
- Beta methasone
- Beclomethasone

2. preventive drug

- Allopurinol
- probenecid

principles of cancer:

classification

etiology

pathogenesis

Definition:

Cancer is a disease in which body cells growing uncontrollably because their normal regulatory controls have been damaged.

Tumors are classified as

1. benign
2. malignant

Benign:

- slow growth
- cell walls differentiated
- usually encapsulated
- Does not spread

malignant:

- rapid growth
- cells poorly differentiated
- not encapsulated

Spreads by
local infiltration
via lymph
blood

Types:

Skin cancer

Lung cancer

Breast cancer

prostate cancer

colorectal cancer

pathophysiology:

Clones of neoplast cell expand

↓

invade adjacent tissue

↓

spread through out the body

pathogenesis depend on both

→ Environment

→ Genetic factor

oncogenes encode Growth factor and mitogenic factor



regulate cell cycle progression and cell growth

DNA repair gene can develop the cancer

Symptoms:

→ Painless lump in or beneath the skin

→ non healing wound

→ Blood in urine

→ changes in bowel habit

→ Difficulty in swallowing

→ severe head ache

General Symptoms

→ weight loss

→ Hair fall

→ fatigue

→ loss of appetite

Diagnosis:

→ Routine screening

Colonoscopy



To look colorectal cancer

mammography



To check for breast cancer

pap test:



To look for cervix cancer

Tumor marker test:



measure blood protein

cell and tissue test:



To detect abnormal changes.

Treatment:

→ surgery



to relieve or remove an obstruction due to tumor

→ chemotherapy

Anti cancer drugs

cytotoxic drug

Bleomycin

Busulfan

chlorambucil

cytarabine

Hormone and hormone antagonist

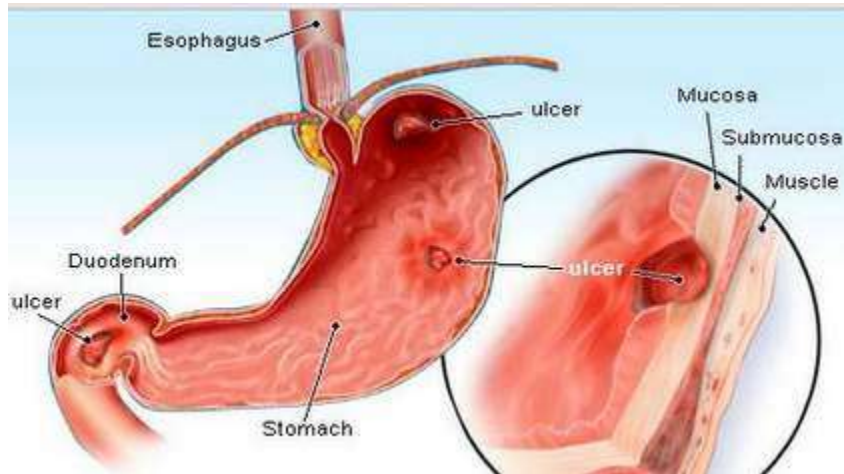
flutamide

Tamoxifen

→ Radiation Therapy

PATHOPHYSIOLOGY OF PEPTIC ULCER

Peptic ulcer disease or simply peptic ulcer is the presence of ulcerations in the gastrointestinal tract, which is characterized by being acidic and extremely painful. Ulcerations in the GIT involve mucosal erosions of than 0.5 cm.



Peptic ulcer can occur in various parts of the gastrointestinal tract. Peptic ulcers can also be classified according to severity. These include:

Types according to Location

- **duodenal ulcer**

This occurs on the duodenum just after the pylorus of the stomach.

- **Gastric ulcer**

This type of ulcer occurs on the stomach itself, particularly on the lower half portion.

- **Esophageal ulcer**

- Esophageal ulcer occurs in the esophagus itself.
- A small percentage of gastric ulcers are caused by cancerous tumors. On the other hand, duodenal ulcers are commonly benign or non-cancerous.

Symptoms & Signs of Peptic Ulcer Disease

Symptoms and signs of peptic ulcer disease

1. Abdominal pain

2. Nausea and vomiting

3. Abdominal bloating

4. Loss of appetite

5. Waterbash

6. Hematemesis

7. Melena

Pathophysiology Of Peptic Ulcer

The stomach lining is maintained by the gastric mucus to prevent irritation, however, because of certain factors, the stomach lining becomes irritated for prolonged periods. The stomach acids are very potent in irritating the stomach lining especially when the stomach is empty

. When this happens, a wound may result, which may increase in size and become ulcer. Once the ulcer has developed, this causes inflammatory response in order to aid in tissue repair. Inflammatory mediators cause pain in the area.

Consistent irritation by medications or irritating foods can aggravate the condition and lead to perforation or hemorrhage. The presence of perforation may lead to peritonitis and may become life-threatening because of sepsis and profuse bleeding..