

PATHOPHYSIOLOGY

UNIT 4 NOTES

DISORDERS RELATED TO

- INFLAMMATORY BOWEL DISEASE
- BONES & JOINTS
- RHEUMATOID ARTHRITIS
- CANCER



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CANCER

- Cancer is a very serious disease characterized by the uncontrolled growth and spread of abnormal cells in the body.
- These abnormal cells can form tumours & spread throughout the body via blood & lymphatic system.
- Cancer can affect any part of body and often named after the organ or type of cell, where it starts, such as Breast Cancer, Lung Cancer
- Other terms like, Neoplasm & Tumour are also used for cancer, however they have slight different meanings.

Tumour

- A tumour is an abnormal growth of cells that forms a mass or lump.
- It can be classified into two types -
 - ① Benign Tumour
 - ② Malignant Tumour

Benign Tumour

- It is non-cancerous Tumour
- It generally doesn't spread to other parts of body
- It can be surgically removed

Malignant Tumour

- It is cancerous Tumour
- It spreads to other part of body through bloodstream or lymphatic system
- It cannot be removed

Classification Of Cancer

On the basis of tissue involved it can be classified into following types :

- ① Carcinomas
- ② Sarcomas
- ③ Leukemias
- ④ Lymphomas

Carcinomas

- Cancer that originates in epithelial cells, which line the inner & outer surfaces of body
- example : Breast Cancer, Lung Cancer etc.

Sarcomas

- Cancer that arises from connective tissues.
- example : Bone, Muscle, Joints etc.

Leukemias

- It is also known as Blood Cancer.
- It begins when healthy blood cells change & grow uncontrollably.

Lymphomas

- Cancer that originates in the lymphatic system.
- example : Hodgkin Lymphoma.

Causes / Etiology

Cancer often arises from a combination of genetic, environmental & lifestyle factors.

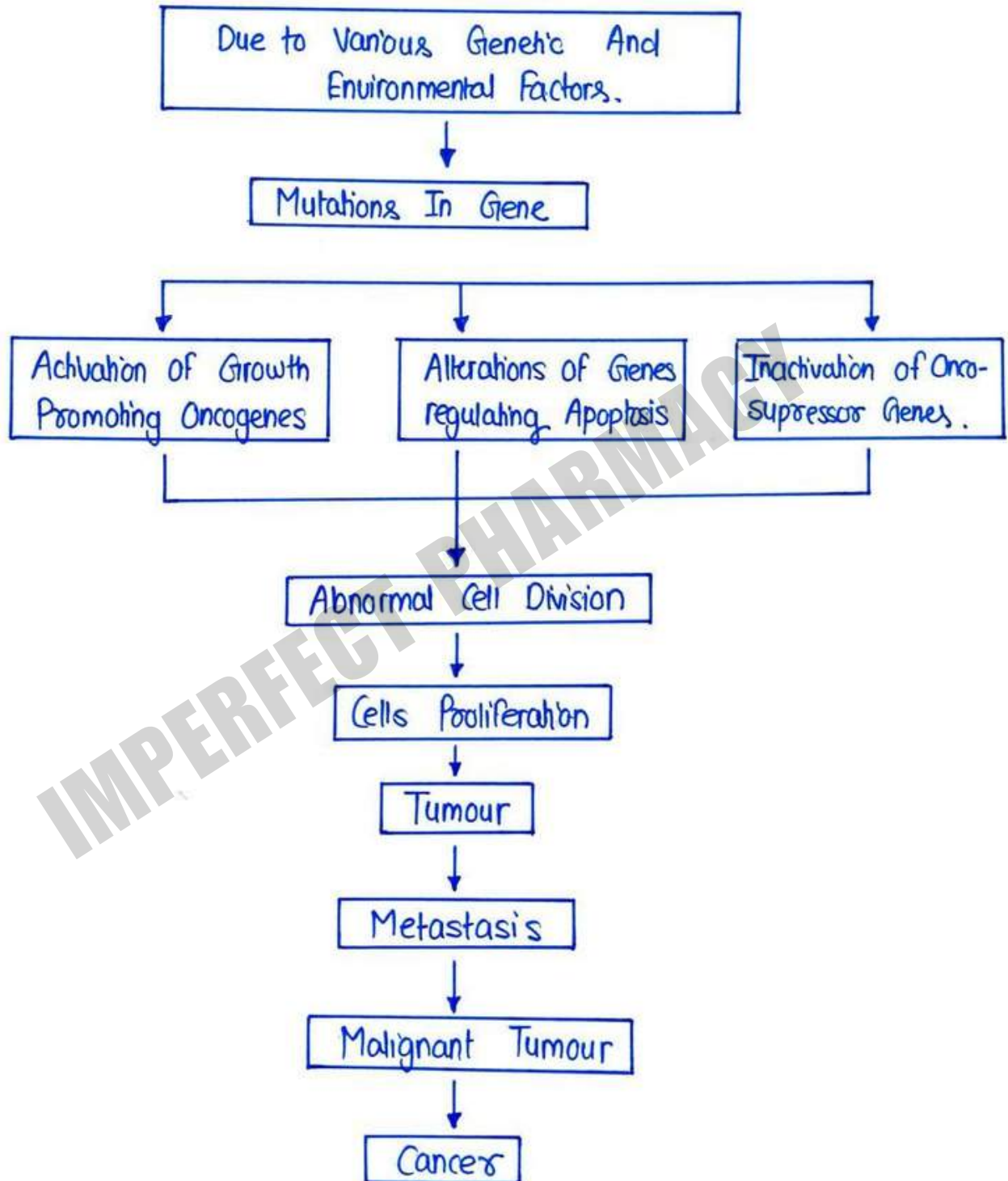
The primary causes include :

- Genetic Mutations
- Environmental Exposures
- Smoking
- Alcohol
- Age
- Virus, Bacteria, Parasites
- Hormonal Imbalances
- Chronic Inflammation

Sign & Symptoms

- Fatigue
- Weight Changes
- Skin Changes
- Bowel Changes
- Persistent Cough
- Breathing Trouble.
- Unexplained Joint Pain
- Fever / Night Sweats.

Pathogenesis Of Cancer



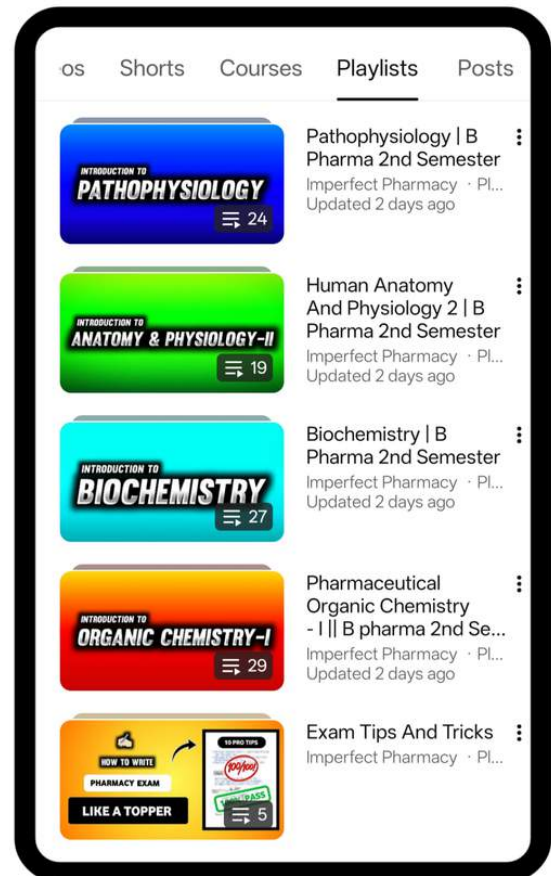
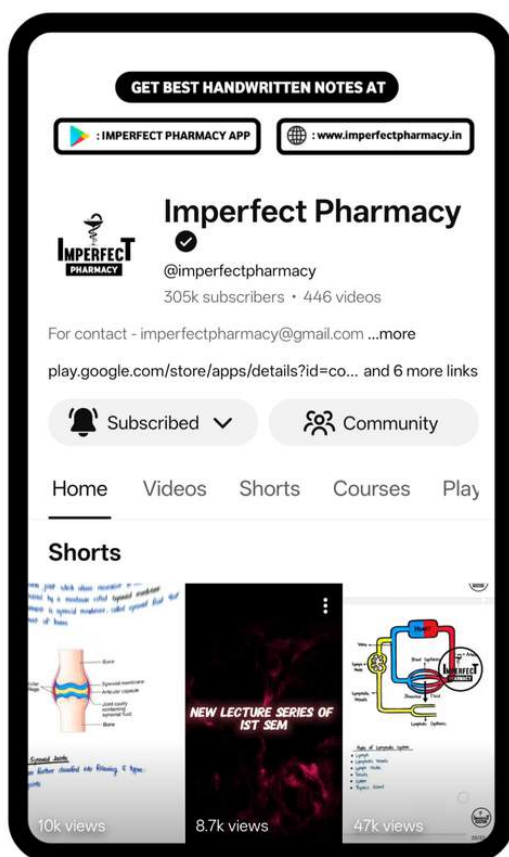
Complications

- Organ Dysfunction
- Pain
- Infections
- Cognitive & Emotional Effects
- Gut Issues
- Death

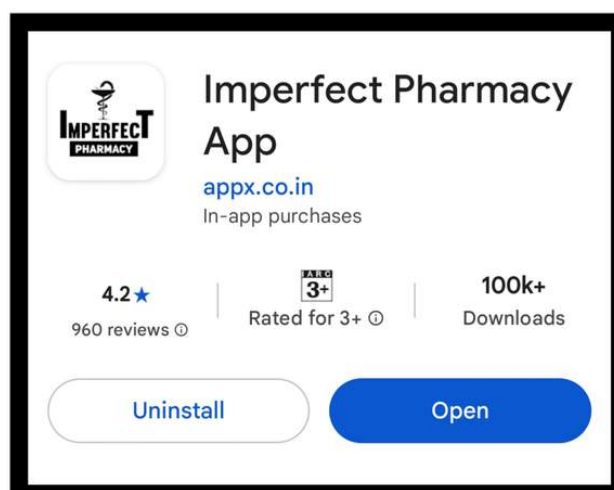
Treatment

- Surgery
- Radiation Therapy
- Chemotherapy
- Hormone Therapy

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RHEUMATOID ARTHRITIS

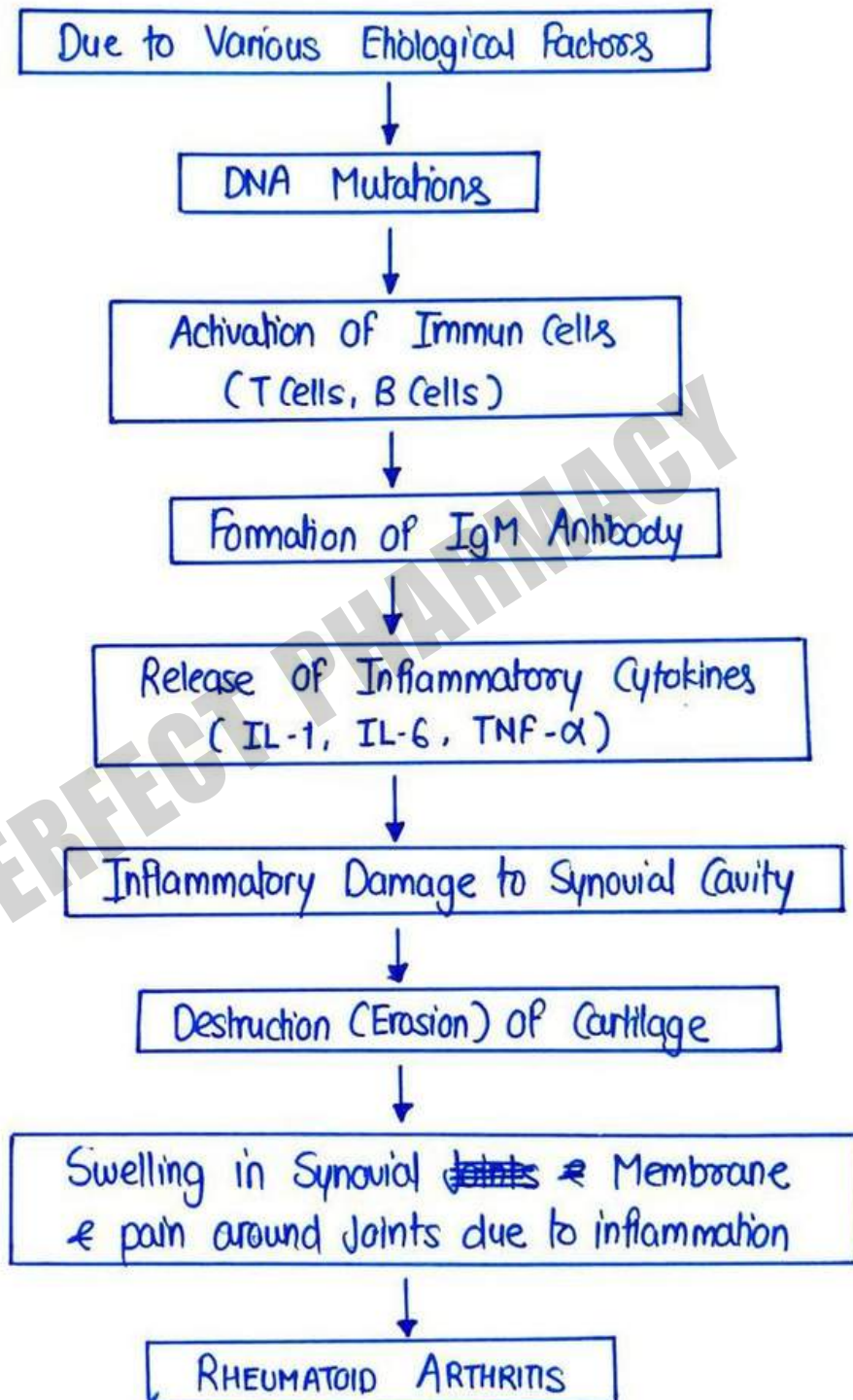
- Rheumatoid Arthritis is a chronic autoimmune disorder characterized by inflammation of joints.
- In Rheumatoid Arthritis, the body's immune system mistakenly attacks the synovium, the lining of joints, leading to pain, swelling, stiffness & inflammation.
- If Rheumatoid Arthritis is not treated early, it will lead to progressive joint deformity.

Causes

The exact cause of rheumatoid arthritis is not fully understood, but it is believed to result from a combination of genetic, environmental & hormonal factors.

- Genetic Predisposition :
 - * Certain genes related to immune system (e.g. HLA - DRB1) can increase risk of developing RA.
- Environmental factors
- Smoking
- Hormal Imbalances
- Age

Pathogenesis



Sign & Symptoms

- Fatigue
- Weakness
- Joint Pain
- Swelling
- Stiffness
- Loss of Joint Functions.

Complications

- Osteoporosis
- Infections
- Cardiovascular Issues
- Premature Death

Treatment

- Medications :
 - NSAIDs
 - Corticosteroids
- Surgical Approach
- Physical Exercise
- Balanced Diet.

OSTEOPOROSIS

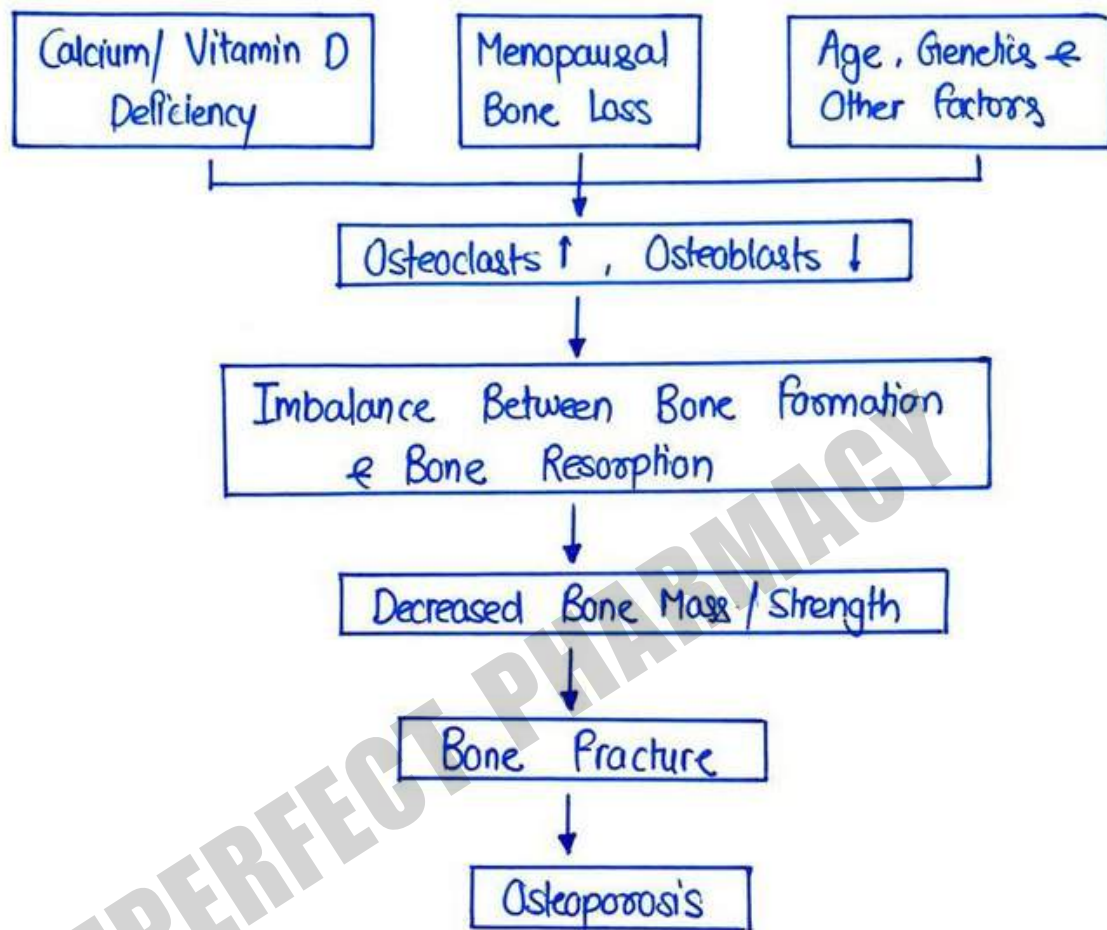
- Osteoporosis is defined as a medical condition characterized by weakened bones that are more susceptible to fracture.
- Osteoporosis causes bones to become so weak & brittle that a fall or even mild stresses such as bending over can cause a fracture.
- Osteoporosis related fracture most commonly occur in the hip, wrist or spine.

Causes

It can be caused by variety of factors :

- Aging
- Hormonal Changes.
- Nutritional Deficiencies
- Genetics
- Menopause
- Medications
- Lifestyle factors

Pathogenesis



Symptoms

- Osteoporosis often develops without noticeable symptoms until a fracture occurs :
- However sign & symptoms may include
- Back Pain
- Height Loss
- Immobility
- Stiffness

Complications

- Fractures
- Spinal Deformities
- Chronic Pain
- Reduced Mobility

Treatment

- Bisphosphonates
- Raloxifene.
- Hormonal Replacement Therapy
- Calcitonin
- Lifestyle Modifications

INFLAMMATORY BOWEL DISEASE

- Inflammatory Bowel Disease is a term used for chronic inflammatory conditions affecting Gastrointestinal Tract mainly intestine.
- It can be further subdivided into two types
 - ① Crohn's Disease
 - ② Ulcerative Colitis

Crohn's Disease

- Crohn's disease is a type of Inflammatory Bowel Disease characterized by chronic inflammation of digestive tract.
- It can affect any part of GIT, but most commonly impacts the ileum (last part of small intestine) & the colon.

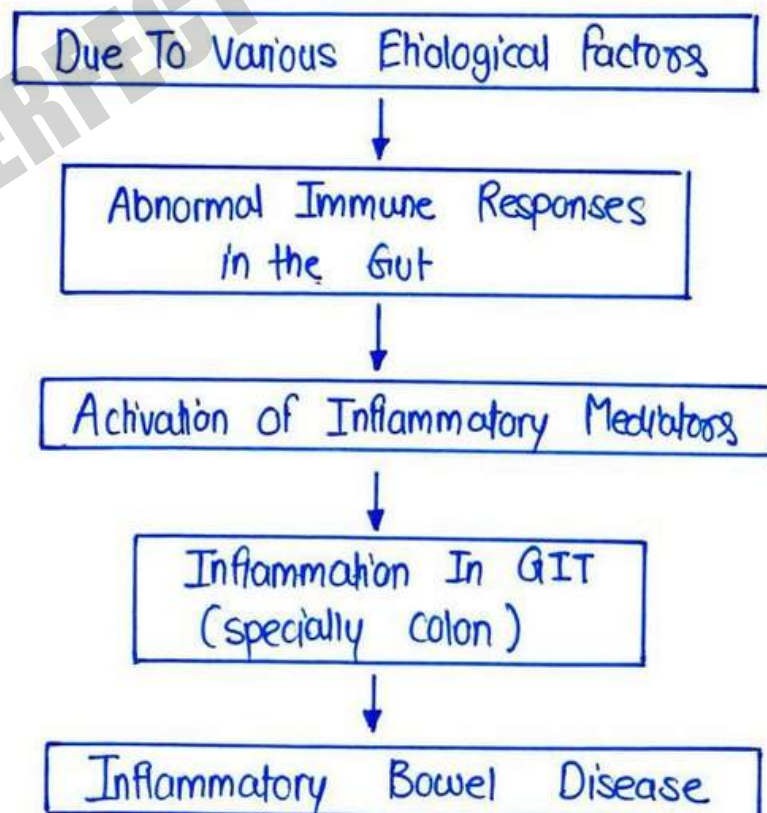
Ulcerative Colitis

- Ulcerative Colitis is a type of inflammatory bowel disease that causes chronic inflammation and sores (ulcers) in the lining of large intestine (colon) & rectum.

Causes

- The exact cause of inflammatory bowel disease is not fully understood.
- However several factors can play a major role as follows
- Immune Dysfunction
- Genetics
- Microbiome Imbalance
- Autoimmune Reactions.
- Exposure to Allergens.

Pathogenesis



Symptoms

- Abdominal Pain
- Cramping
- Weight Loss
- Fatigue
- Loss of Appetite
- Anemia.
- Rectal Bleeding

Complications

- Intestinal obstruction
- Perforation.
- Colon Cancer
- Kidney Stones

Treatment

- Corticosteroids.
- Antibiotics
- Balanced Diet.
- Surgery
- Lifestyle Modifications.

HEPATITIS

- Hepatitis is broad term that means inflammation of liver.
- It is most commonly caused by viruses but can also be caused by drugs, chemicals, autoimmune disease & metabolic abnormalities.

Types Of Hepatitis

On the basis of virus, it can be classified into 5 types:

- ① Hepatitis A
- ② Hepatitis B
- ③ Hepatitis C
- ④ Hepatitis D
- ⑤ Hepatitis E

Hepatitis A

- It is caused due exposure of HAV in food or water.
- It can be occur due to close contact with a person who has hepatitis A.

Hepatitis B

- It is caused due to HBV.
- It can be transmitted through Blood, Sexual Contact or from mother to baby.

Hepatitis C

- It is caused due to HCV.
- It is generally transmitted through blood to blood contact, such as through shared needles or contaminated medical equipment

Hepatitis D

- It is caused due to HDV.
- It is transmitted through Blood, Body Fluids etc.
- Can worsen the liver damage caused by Hepatitis B Virus.

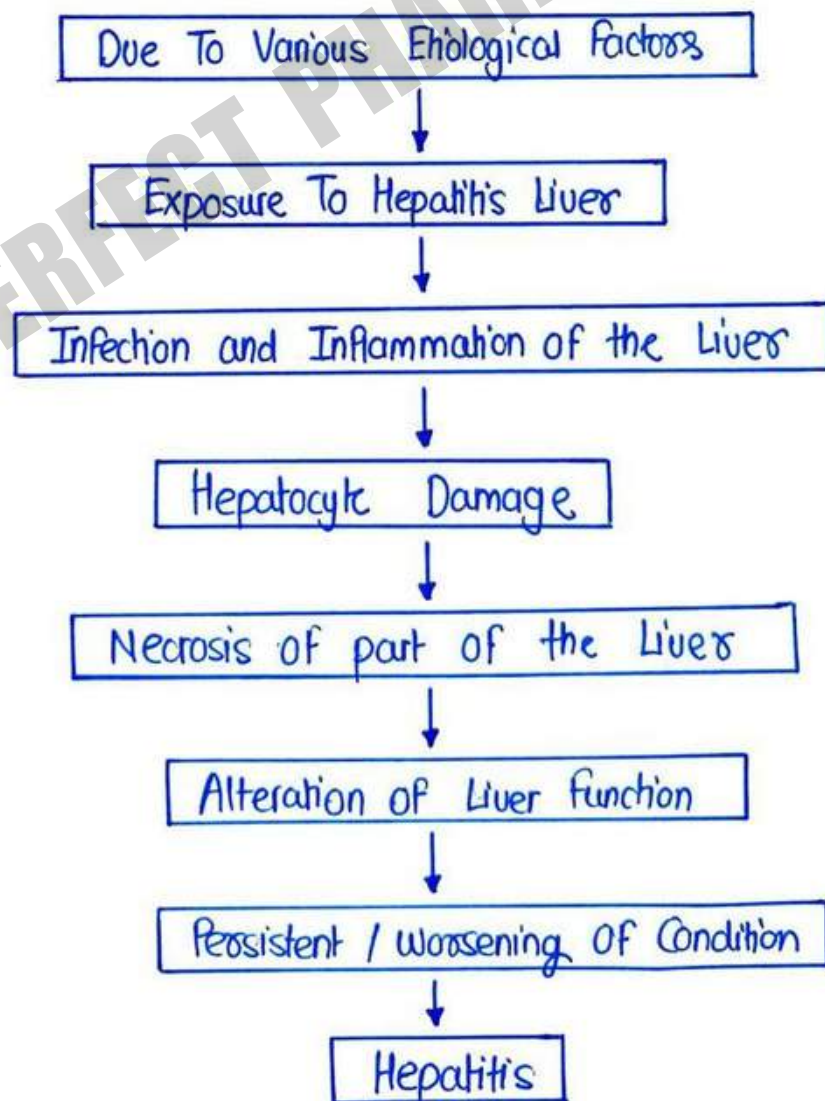
Hepatitis E

- It is caused due to HEV.
- It is transmitted through fecal-oral route.
- It is generally acute & self limiting

Causes

- Viral Infections
- Alcohol Consumptions
- Medications
- Autoimmune Disorders
- Toxins & Chemicals.
- Metabolic Disorders
- Non - Alcoholic Fatty Liver Disease.

Pathogenesis



Symptoms

- Fatigue
- Jaundice
- Abdominal Pain
- Loss of Appetite
- Nausea / Vomiting
- Dark Urine
- Pale Stool
- Fever

Treatment

- Antiviral Medications
- Lifestyle Modifications.
- Dietary Changes.
- Treatment of Underlying causes.

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