



# ELRAZI UNIVERSITY

## Faculty of medicine



**MALABSORPTION**  
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# Malabsorption Syndromes



# Objectives

- Define and mention the causes of malabsorption.
- Discuss the local and systemic clinical manifestations of malabsorption.
- Define, explain the pathogenesis and list the clinical presentation of celiac disease.
- Define, explain the pathogenesis and list the clinical presentation of whipple disease.



- Malabsorption is characterized by defective absorption of fats, fat-soluble and other vitamins, proteins, carbohydrates, electrolytes and minerals, and water.
- The most common presentation is chronic diarrhea; the hallmark of malabsorption syndromes is steatorrhea (excessive fat content of the feces).



**Malabsorption can be due to DEFECT of one or both of the following serial steps :**

1. Mechanical *processing of food* (chewing).
2. *Luminal digestion* (gastric, intestinal, and pancreatic juices; bile).
3. *Mucosal digestion by enzymes of the brush border.*
4. *Absorption by the mucosal epithelium.*
5. *Processing in the mucosal cell.*
6. *Transportation into blood and lymph*, through which the absorbed substances reach the liver and the systemic circulation, respectively.



# Causes :

## Defective Intraluminal Digestion

- Pancreatic insufficiency.
- Zollinger-Ellison syndrome.
- Ileal dysfunction or resection, with decreased bile salt uptake.
- Cessation of bile flow from obstruction, hepatic dysfunction.
- Total or subtotal gastrectomy .



## Primary Mucosal Cell Abnormalities

- Defective terminal digestion.
- Disaccharidase deficiency (lactose intolerance).
- Bacterial overgrowth, with brush-border damage.
- Defective transepithelial transport, Abetalipoproteinemia .



## Reduced Small Intestinal Surface Area

- Gluten-sensitive enteropathy (celiac disease) .
- Short-gut syndrome, after surgical resections.
- Crohn disease .





## **A- Infections**

- Acute infectious enteritis .
- Parasitic infestation.
- Tropical sprue.
- Whipple disease .

## **B- Lymphatic Obstruction**

- Lymphoma .
- Tuberculosis.



## Clinical Features:

1. The passage of abnormally bulky, frothy, greasy, yellow or gray stools.
2. Weight loss.
3. Anorexia.
4. Abdominal distention.
5. Muscle wasting

.



# Systemic manifestations:-

## 1. Hematopoietic system:

Anemia from iron, pyridoxine, folate, or vitamin B<sub>12</sub> deficiency and bleeding from vitamin K deficiency.

## 2. Musculoskeletal system:

Osteopenia and tetany from defective calcium, magnesium, vitamin D, and protein absorption



### **3. Endocrine system:**

amenorrhea, impotence, and infertility from generalized malnutrition; and hyperparathyroidism from calcium and vitamin D deficiency.

### **4. Skin:**

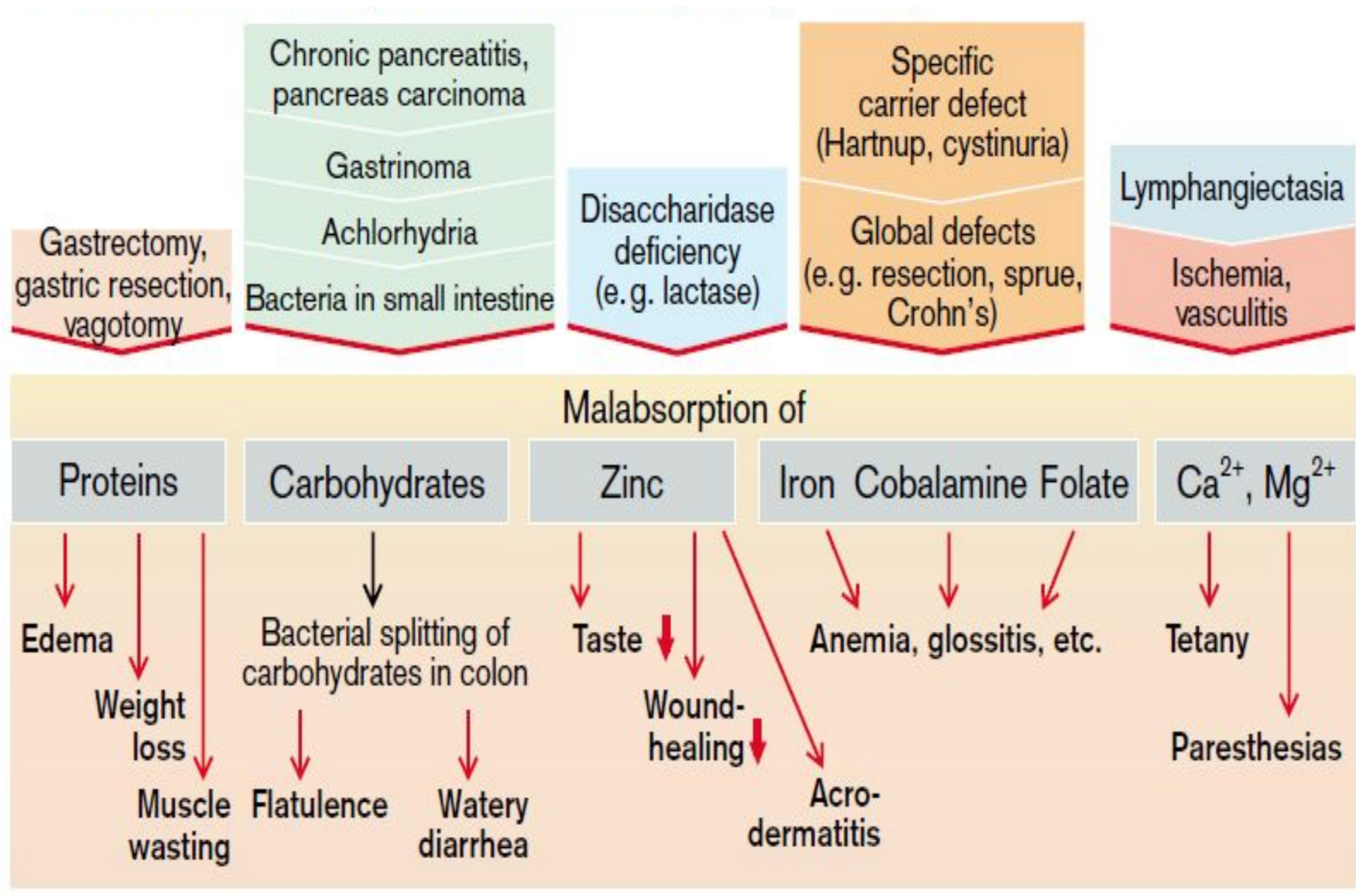
purpura and petechiae from vitamin K deficiency; edema from protein deficiency; dermatitis and hyperkeratosis from deficiencies of vitamin A.



## 5.Nervous system:

peripheral neuropathy from vitamin A and B<sub>12</sub> deficiencies.





# Celiac disease( gluten-sensitive enteropathy):

- Noninfectious cause of malabsorption resulting from a reduction in small intestinal absorptive surface area.
- The basic disorder is immunological sensitivity to gluten, the component of wheat and related grains that contains the water-insoluble protein gliadin.



Gliadin peptides are efficiently presented by antigen-presenting cells in the lamina propria of the small intestine to CD4+ T cells, thereby driving an immune response to gluten.

## **Pathogenesis:-**

- The intestinal pathology may result from epithelial cell stress, perhaps induced by gliadin sensitivity, and CD8+ T cell-mediated killing of these epithelial cells.





- The age of presentation from infancy to mid-adulthood.
- Removal of gluten from the diet is met with dramatic improvement.
- There is a low long-term risk of malignant disease. ( lymphomas, especially T-cell lymphomas).
- In some patients with celiac disease there is an associated skin disorder called dermatitis herpetiformis.



# Dermatitis herpetiformis



# Tropical sprue:

- Tropical sprue occurs almost exclusively in persons living in or visiting the tropics.
- No specific causal agent has been clearly identified, but the appearance of malabsorption within days or a few weeks of an acute diarrheal enteric infection.
- Strongly implicates an infectious process, is that it response to broad-spectrum antibiotic therapy.



# Whipple disease:

Rare systemic infection that may involve any organ of the body but principally affects the intestine, central nervous system, and joints.

The causal organism is a gram-positive and culture-resistant actinomycete, *Tropheryma whippelii*.



- Occurring in males in the fourth to fifth decades.
- Cause a malabsorption accompanied by lymphadenopathy, hyperpigmentation, polyarthritits, and central nervous system complaints.
- Response well to antibiotic therapy but relapses are common.



THANK YOU

