

- 45years old chronic alcoholic addict presented with severe epigastric pain radiating to back.abdominal exam shows, tender epigastrium and purplish discoloration of flanks.....

whats invest ?

diagnosis?

- 50 years old man chronic alcoholic addicts, is having recurrent attacks of abdominal pain, chronic small bowel diarrhea and now he also turned out to be diabetics..he is anaemic..
- Invest ?
- Diagnosis?

# **GIT Secretions**

## **(Pancreatic Secretion)**

# Components of Pancreatic Secretion

## 1. Exocrine

- i. Digestive enzymes
  - Secreted by acinar cells
- ii.  $\text{HCO}_3^-$ 
  - Secreted by duct cells

## 2. Endocrine

- i. Insulin
- ii. Glucagon

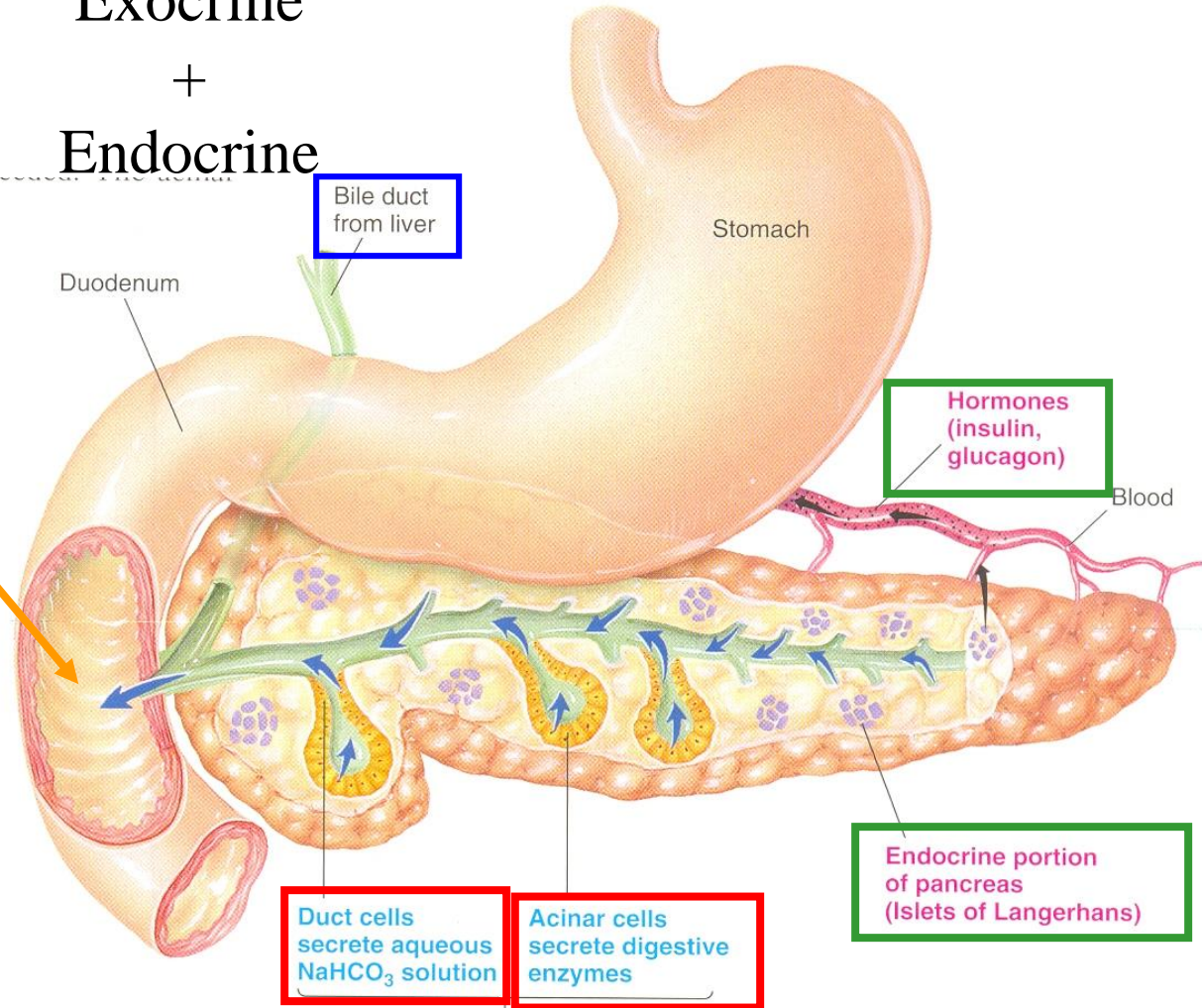
# Pancreatic Secretion

Exocrine

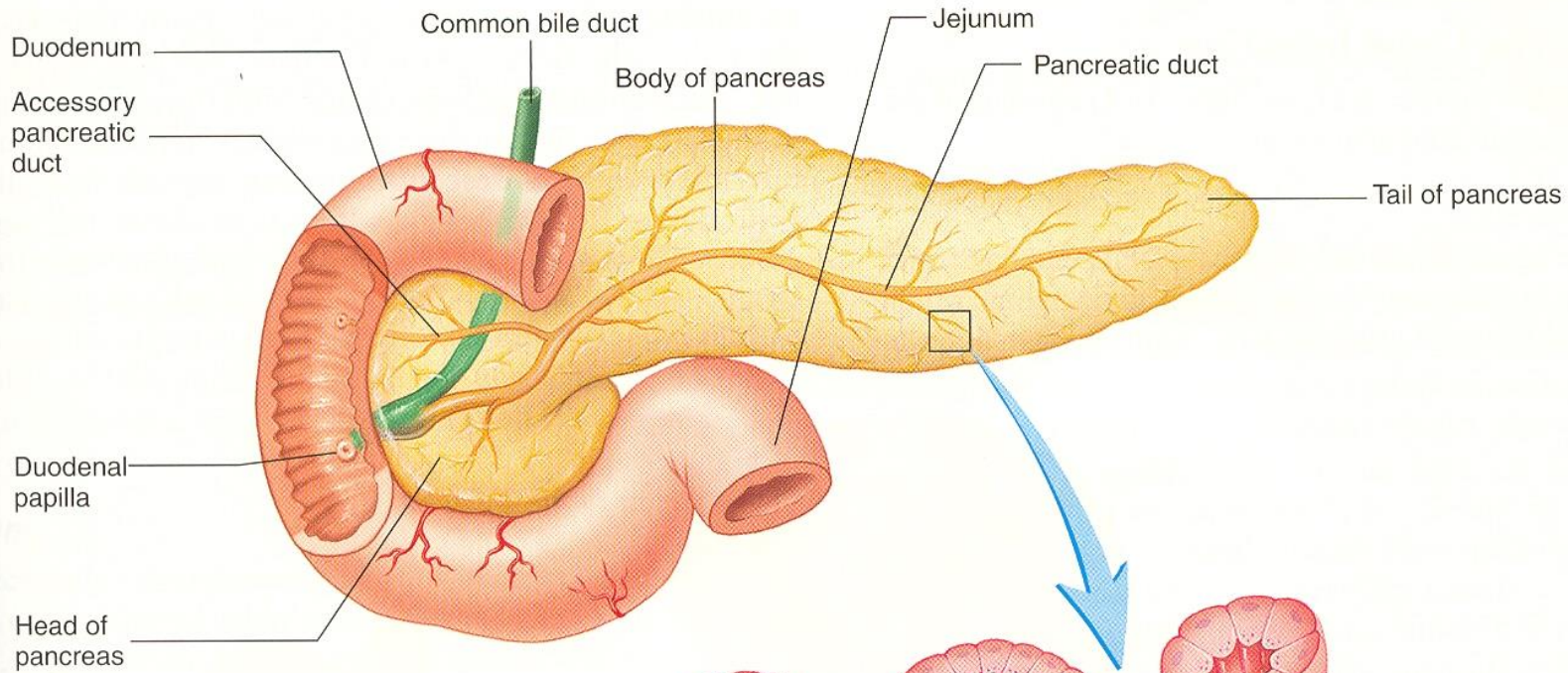
+

Endocrine

Papilla of Vater & Sphincter of Oddi

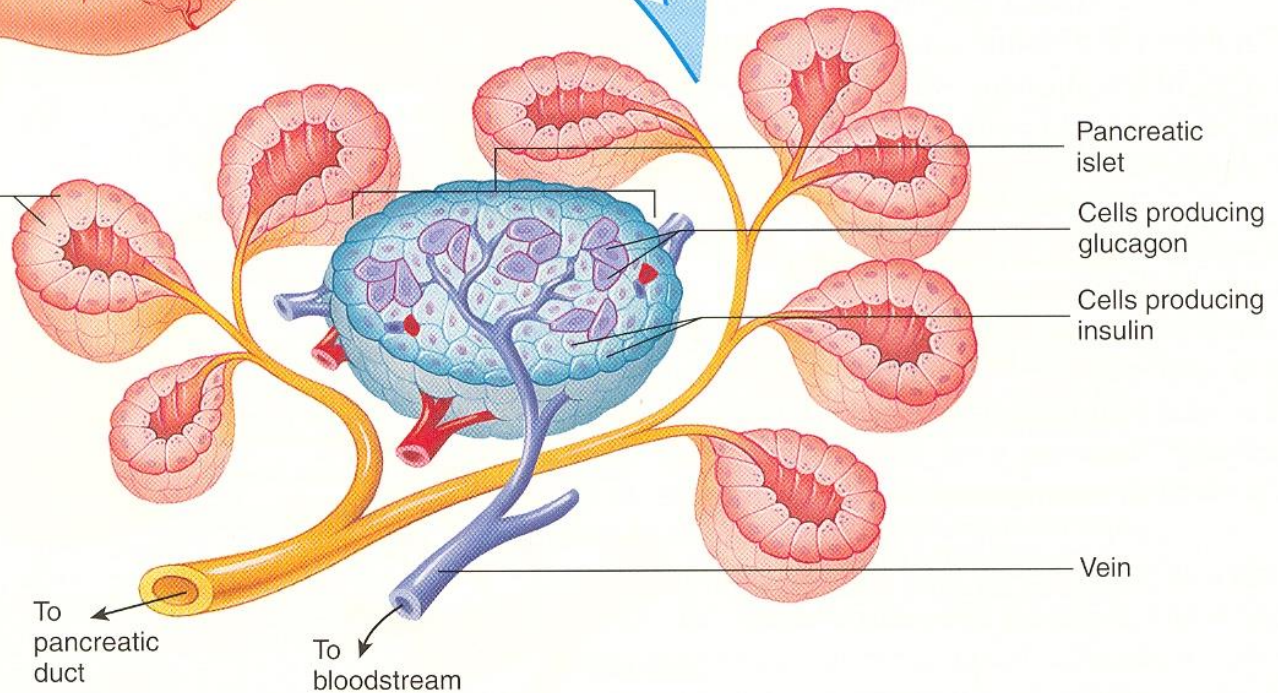


The glandular portions of the pancreas are grossly exaggerated.



(a)

Acini cells  
(secrete enzymes)



(b)

# Pancreatic Digestive Enzymes

- For digestion of Proteins
  - Trypsin
  - Chymotrypsin
  - Carboxypeptidase
  - Elastase
- For digestion of Carbohydrates
  - Pancreatic Amylase
- For digestion of Fats
  - Lipase
  - Cholesterol Esterase
  - Phospholipase
  - Colipase (Activated by Trypsin)
  - Bile salt activated Lipase

About 1 liter per day



# Regulation of Pancreatic Secretion

Acid from stomach releases secretin from wall of duodenum; fats and amino acids cause release of cholecystokinin

2

Common bile duct

1

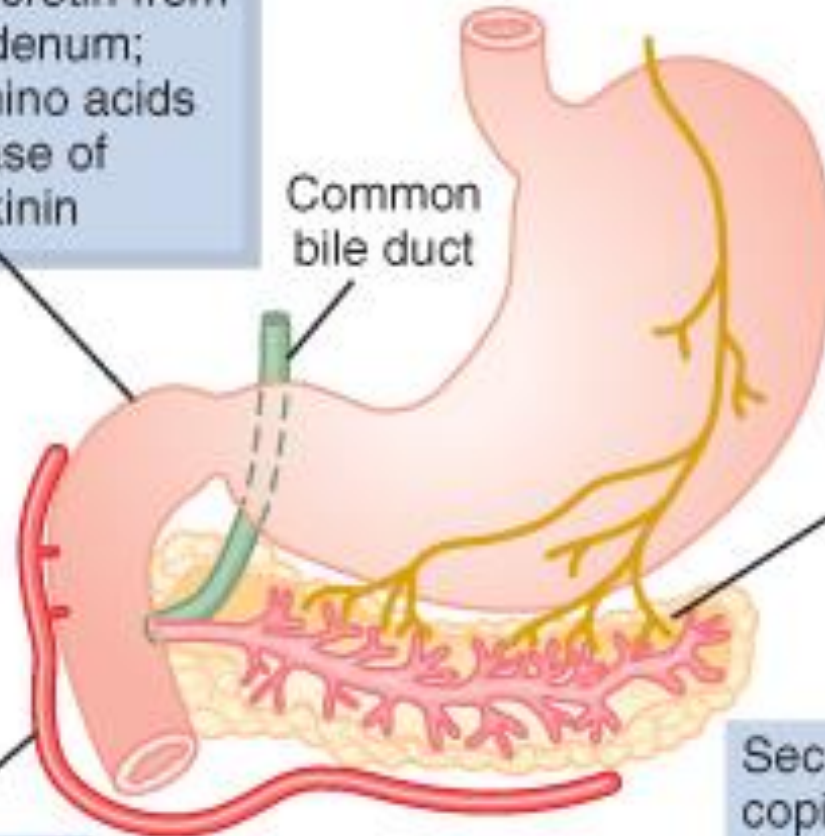
Vagal stimulation releases enzymes into acini

Secretin and cholecystokinin absorbed into blood stream

3

4

Secretin causes copious secretion of pancreatic fluid and bicarbonate; cholecystokinin causes secretion of enzymes





# Hormonal control of pancreatic secretion

Hormone	Site of secretion	Stimulus	Function
<b>Secretin</b>	"S" cells of duodenum	Acidic gastric juice	<ol style="list-style-type: none"><li>1. Mild effect on GIT motility(↓)</li><li>2. Pancreatic secretion of bicarbonate</li><li>3. Bicarbonate secretion by Bile duct</li></ol>
<b>Cholecyst- tokinin</b>	"I" cells of duodenum & jejunum	Digestive products of fats, fatty acids & monoglycerids	<ul style="list-style-type: none"><li>• Strong contraction of gall bladder</li><li>• Inhibition of stomach contraction</li><li>• Pancreatic secretion of enzymes</li></ul>

# Effects of Pancreatic failure

- Effect on Pancreas
- Effect on digestion
- Effects on absorption

# Effects of Pancreatic failure

## 1. Effect on Pancreas

- Blockage → accumulation of Pancreatic enzymes → overcoming the Trypsin Inhibitor → activation of Trypsinogen → formation of Trypsin and other Proteolytic enzymes → digestion of Pancreas itself

## 2. Effect on digestion

- Loss of digestive enzymes
  - Copious fatty feces
  - ½ to 1/3 effect on carbohydrate & protein digestion
  - Undernutrition

### 3. Effects of Pancreatic failure on absorption

- More effect on Fats absorption
  - Steatorrhea
    - Acid inhibits lipase
    - ↓ alkaline secretion by pancreas → ↓ pH
- Impaired absorption of
  - Carbohydrates
  - Proteins
  - Calcium
  - Vitamin K
  - Calcium

# Summary Slide

## Pancreatic Secretion

- Components of Pancreatic secretion
  - Pancreatic Digestive Enzymes
    - For digestion of Proteins, Carbohydrates and Fats
  - Bicarbonate and water
    - Functions of  $\text{HCO}_3^-$
- Regulation/ control of Pancreatic Secretion (Factors affecting)
- Phases of Pancreatic secretion
- Diseases of pancreas
  - Pancreatic failure

# Summary ( gastric secretions) (previous lecture)

- Nerve supply of stomach
- Characteristics and composition of Gastric secretion
- 3 types of gastric glands
- Gastric pit from body of stomach
- 1. Surface Mucous Cells
- 2. Oxyntic (Gastric ) glands
  - Functions of HCl



# Basic mechanism of Hydrochloric Acid Secretion

