
Pathology Practical

Gastrointestinal Block



 Important Notes

 Doctors' Notes

 Extra notes

Case 1: Pleomorphic Adenoma

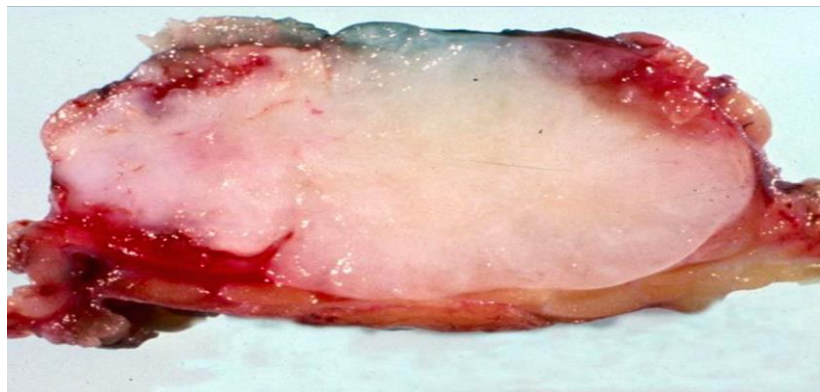
Pleomorphic adenoma : are mixed tumors and are generally **benign** having both connective tissue (i.e., usually cartilagenous) components as well as glandular components, they generally look and feel like little round soft cartilage balls.

- The prognosis is Good.
- Recurrence is high.

Gross

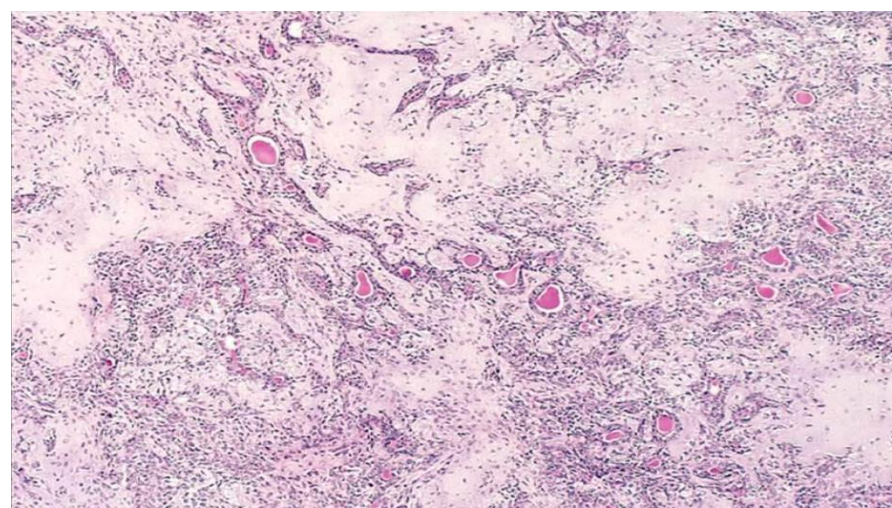
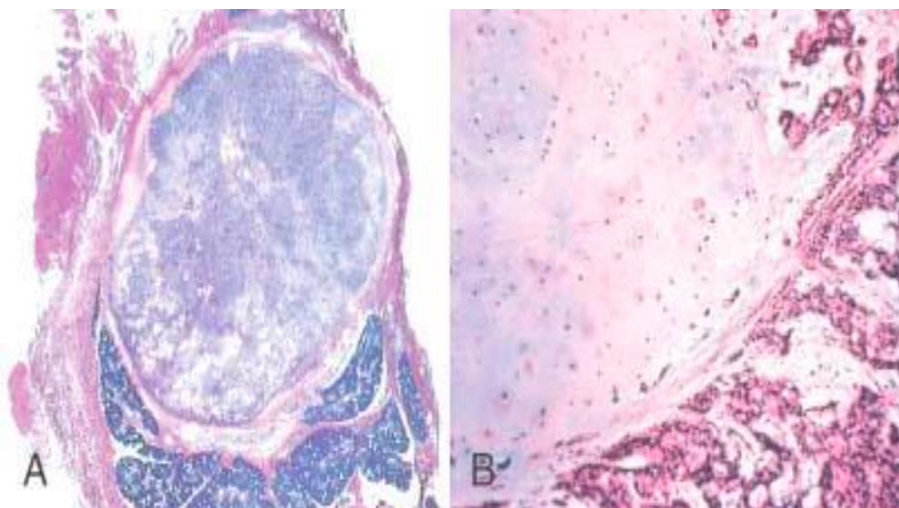


1. Parotid Swelling (tumor) is present between the tip of the ear and the tip (angle) of the mandible.



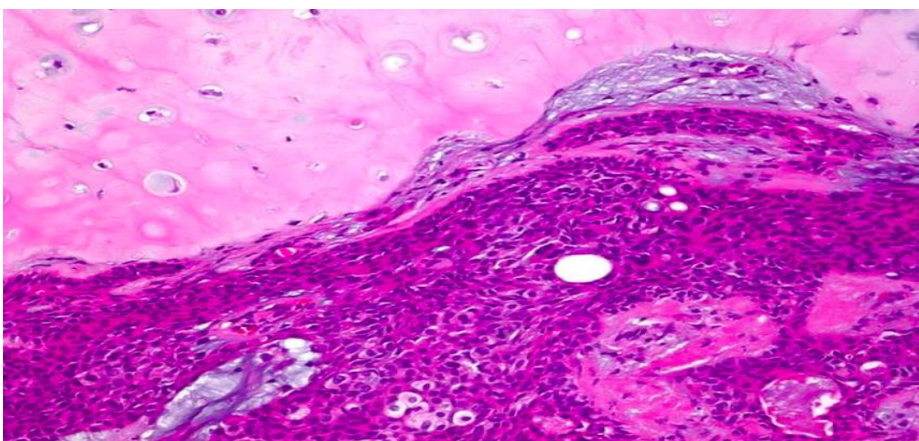
1. Pleomorphic Adenoma (mixed tumor)
2. Well defined tumor

Microscopic



1. **Mixed** tumor of the parotid gland.
2. contains **epithelial cells forming ducts**,
3. **myoepithelial cells** and **chondromyxoid stroma**.

Microscopic



1. mixed tumor
2. **Epithelial proliferation** with areas of small ducts, acini and strands or sheets of cells.
3. **myoepithelial proliferation**.
4. **chondroid** areas consist of pale blue matrix.
5. **Myxoid** areas are formed of loose myxomatous tissue .

Case 2: Gastroesophageal Reflux Disease (GERD)

- **Causes:**
 - Increase abdominal pressure.
 - Decrease lower esophageal sphincter tone.
- **Complications:** Erosive esophagitis, stricture, and **Barrett's esophagus**.
- **Treatment:**
 - H₂ receptor blocker.
 - Proton pump inhibitor.
 - Anti-reflux surgery.
- **Inflammatory cells:** Eosinophils, Neutrophils, Lymphocytes.

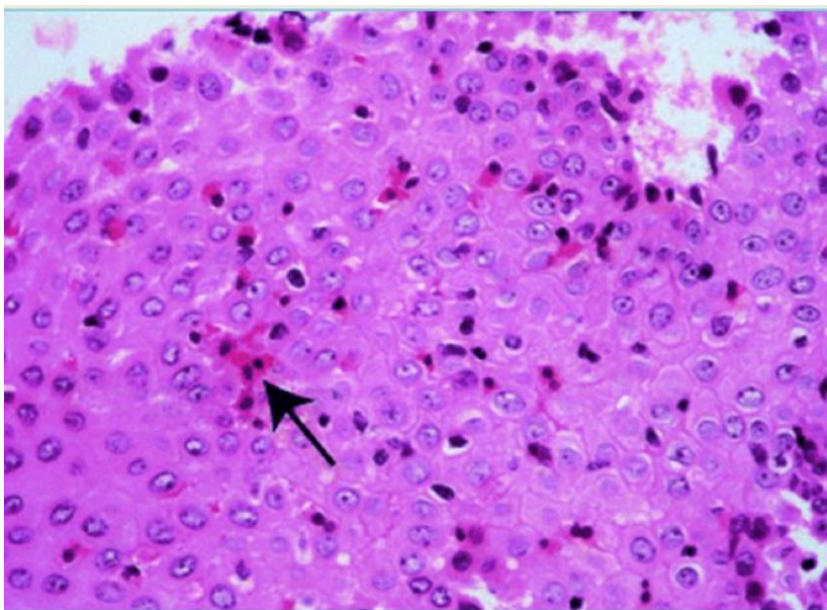
Gross- Endoscopic view



1. Necrosis of esophageal epithelium causing ulcers near the junction of the stomach and esophagus.

-May lead to intestinal metaplasia "Barrett's esophagus" (it is important to know if there is dysplasia or not.)

Microscopic HPF

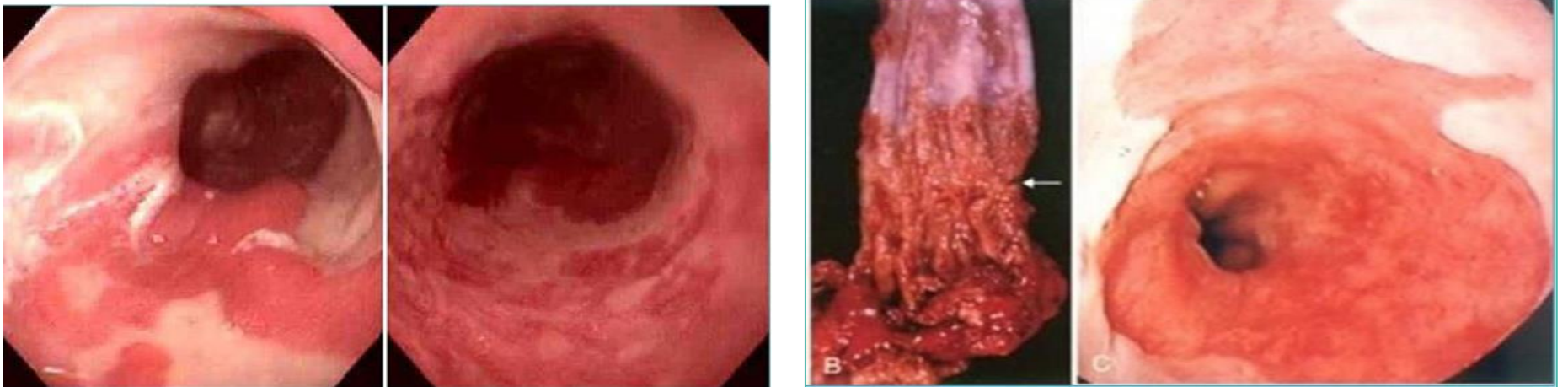


1. Intraepithelial eosinophils (arrow).
2. Basal cell hyperplasia.
3. lamina propria papillae is elongated and congested.

Case 3: Barrett's Esophagus

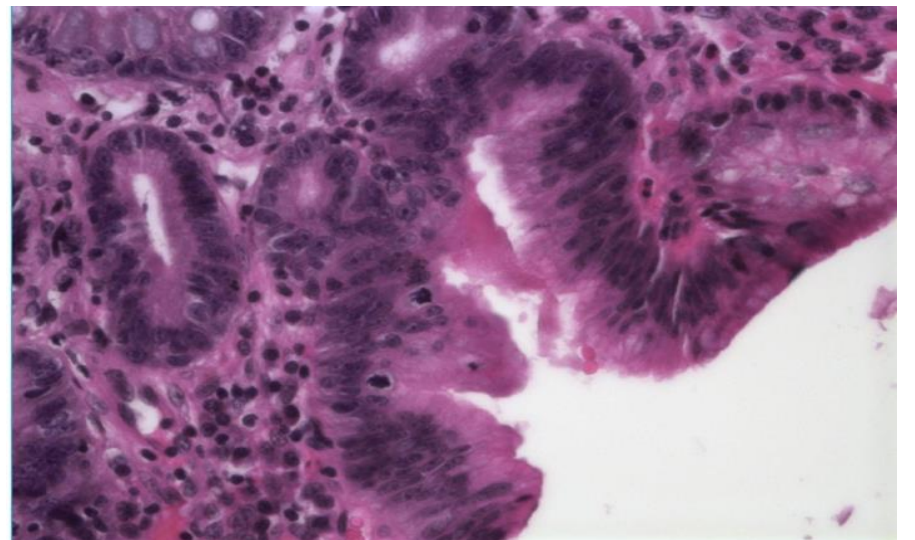
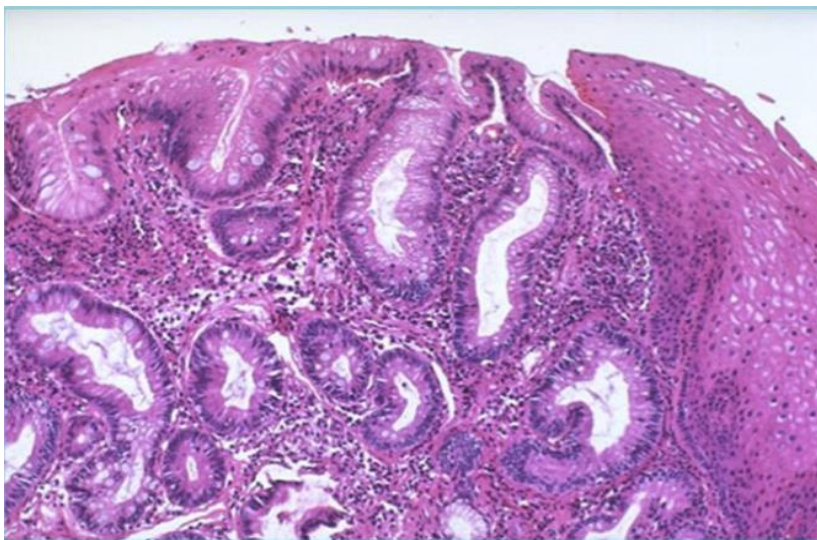
- **Definition:** Intestinal **metaplasia** of the esophageal mucosa from **stratified squamous epithelium** into non-ciliated **columnar epithelium with goblet cells**.
- Most/all adenocarcinomas in the esophagus arise from previously existing Barrett's Esophagus.
- It is important to search for **dysplasia** when Barret's is present. .
- **Risk factors:** Male, Smoker, age, and obesity.

Gross -Endoscopic view



1. Areas of **mucosal erythema** of the lower esophagus.
2. islands of normal pale esophageal squamous mucosa.

Microscopic



1. intestinal **metaplasia** with chronic inflammation and **goblets cells** in the columnar mucosa.

Left: columnar epithelium.

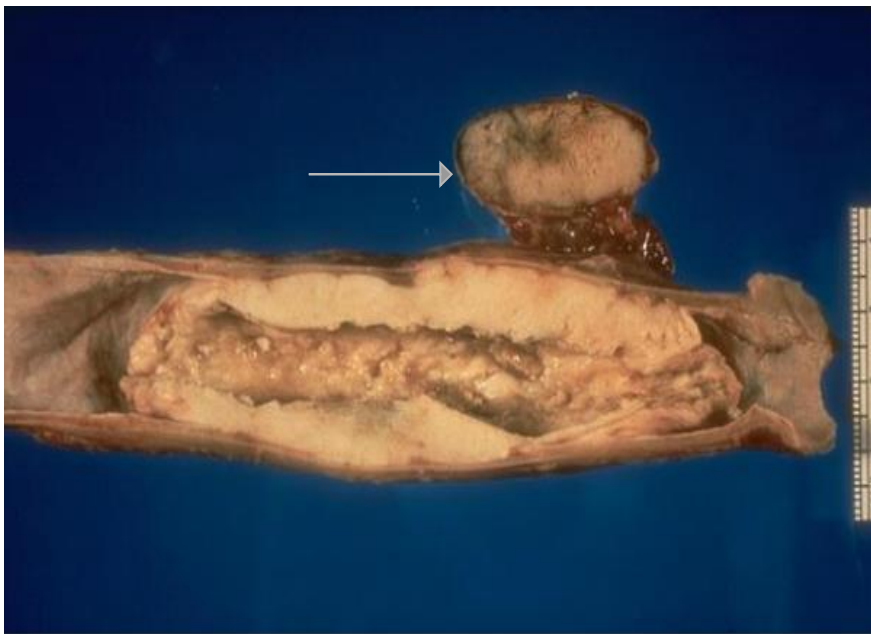
Right : the squamous epithelium.

1. Glandular **Dysplasia**

Case 4: Carcinoma of esophagus

- **Definition:** Cancer arising from the esophagus, either **squamous cell carcinoma** or adenocarcinoma.
- **Clinical features:** **Dysphagia**, weight loss, hoarse voice, enlarged lymph nodes, dry cough, hematemesis.
- **Complications:** Metastasis to other organs.
- **Squamous cell carcinoma risk factor:** 1-Smoking 2-Injury 3-Drinking alcohol 4-Fungal infection.
- **Prognosis :** **Poor prognosis.**

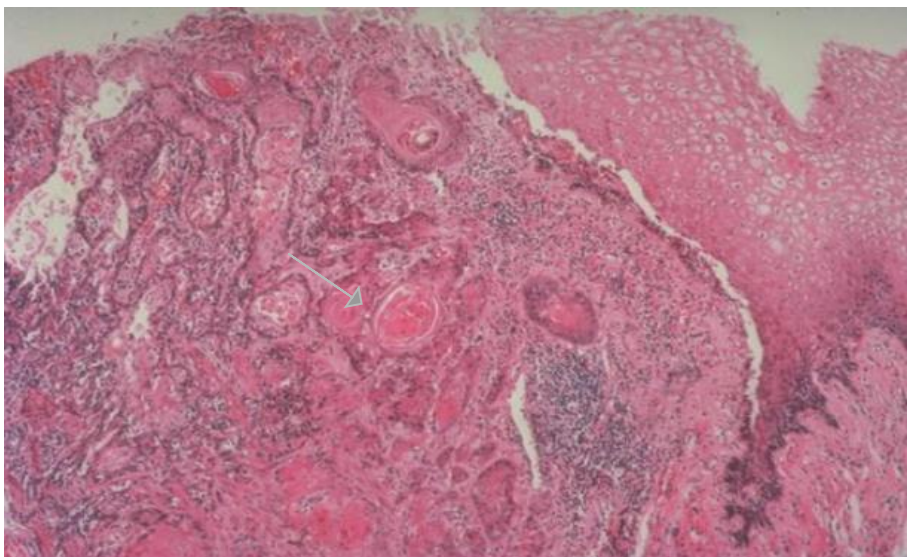
Gross-



1. **Squamous cell carcinoma** of the esophagus.
2. The oval structure adjacent to the esophagus represents **metastatic squamous cell carcinoma within a lymph node** (grey arrow).

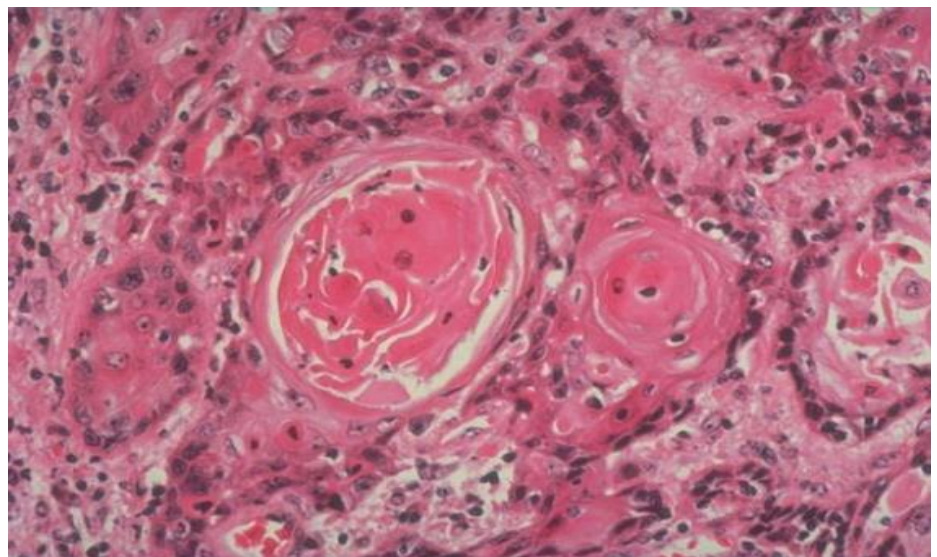
1. Irregular reddish, ulcerated exophytic mid-esophageal mass.
2. Endoscopic views of an ulcerated mid-esophageal squamous cell carcinoma causing **luminal stenosis**.

Microscopic- LPF



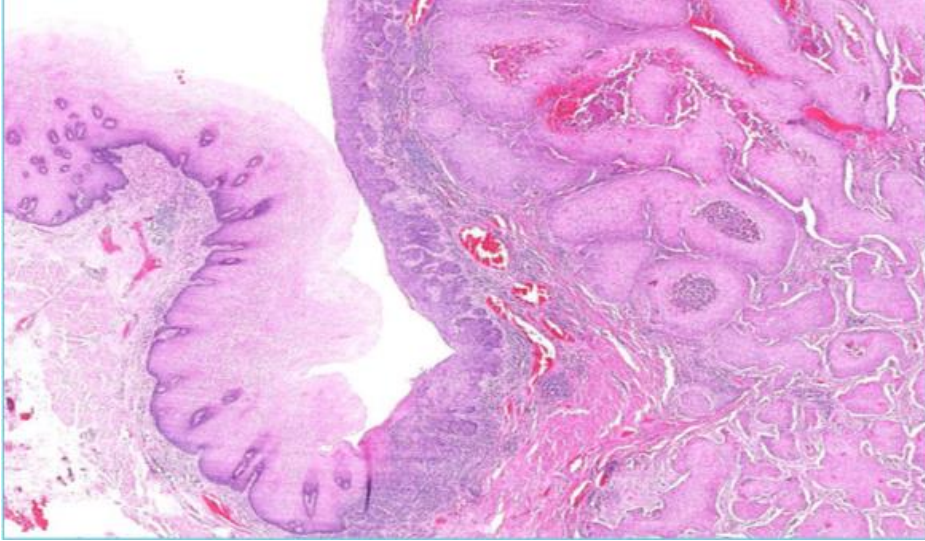
- 1-Infiltrating **nests** of neoplastic cells
- 2-**keratin** forming squamous cells (grey arrow).

HPF



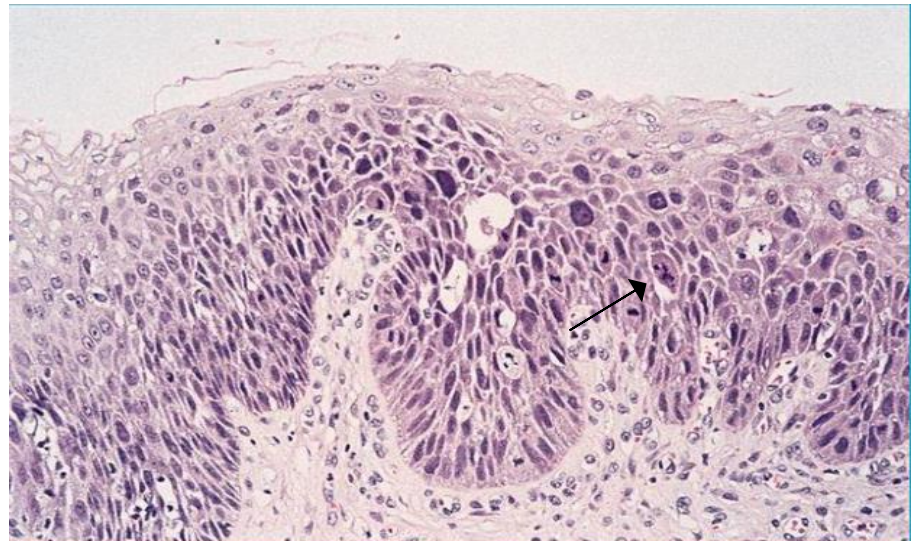
1. **Solid nests** of neoplastic cells having abundant pink cytoplasm and distinct cell borders
2. **Keratinization**

Microscopic- LPF- squamous Dysplasia of Esophagus



1. Atypical squamous cells with disorganized architecture and abnormal differentiation within the epithelium.
2. High grade **dysplasia**.
3. Nuclei are larger and more hyperchromatic than normal,
4. increased mitotic activity.

HPF

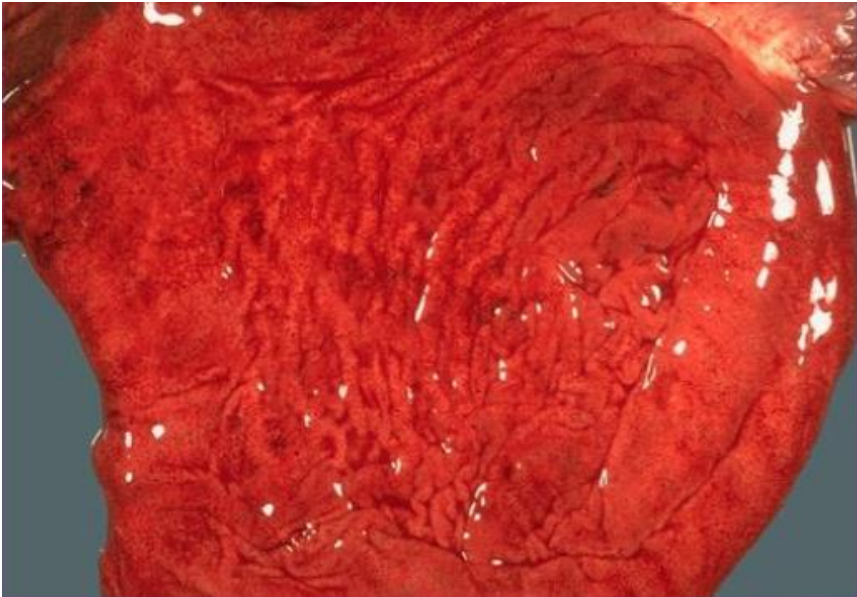


1. Squamous dysplasia of the esophagus may develop with time into squamous cell carcinoma.
2. Mitosis (Mercedes sign arrow)

Case 5: Acute Gastritis

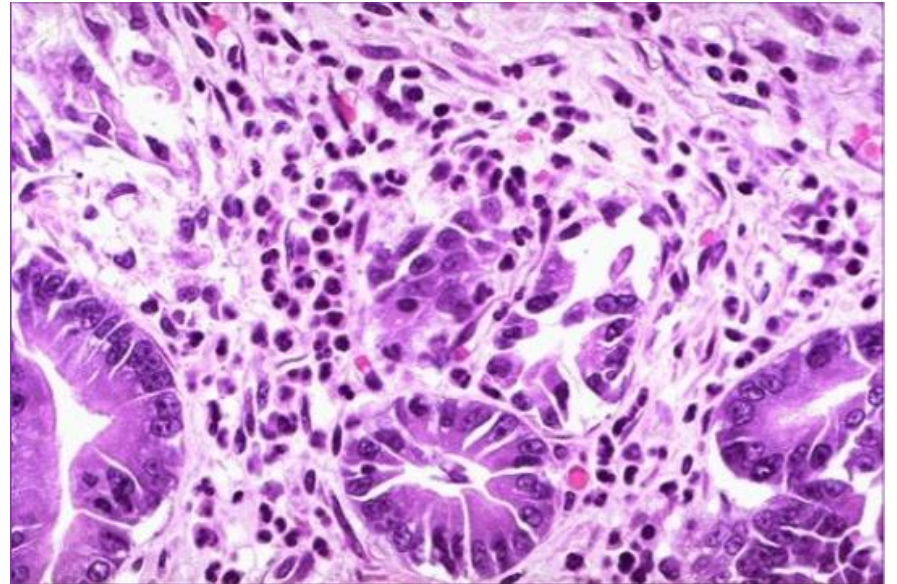
- **Causes:** NSAIDs, corticosteroids, alcohol, major surgery , infection...etc.
- **Risk factors:** Alcoholism, extreme stress, bile reflux, autoimmune diseases.
- **Complications:** stomach ulcers and stomach bleeding. And rarely increase the risk of stomach cancer.
- **Treatment:** Treatment of the primary cause, antacids, and PPIs.

Gross- endoscopic view



1. Diffusely hyperemic gastric mucosa.

Microscopic- HPF



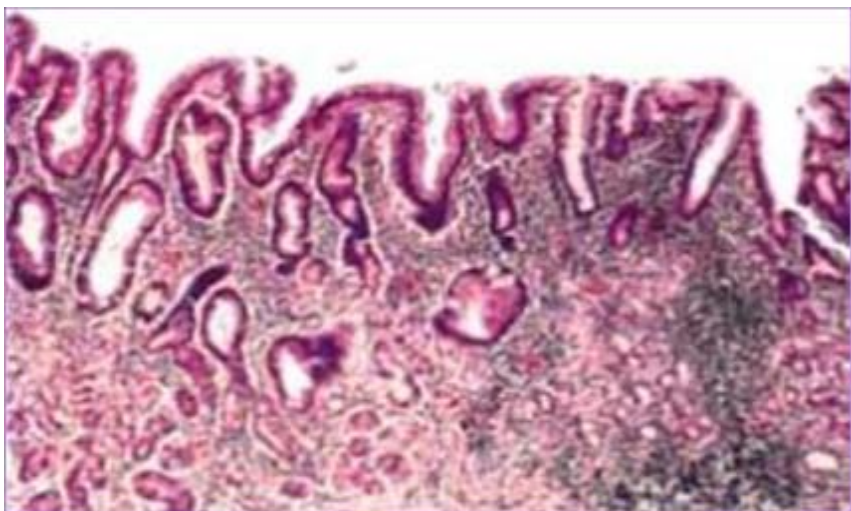
1. Gastric mucosa demonstrates infiltration by neutrophils.

Case 6: Chronic Gastritis

The symptoms and signs associated with chronic gastritis typically are less severe but more persistent than those of acute gastritis

- **Symptoms:** Nausea and upper abdominal discomfort may occur, sometimes with vomiting.
- **Causes:** -Autoimmune gastritis -Atrophic gastritis -H. pylori infection -Radiation injury -Chronic bile reflux.

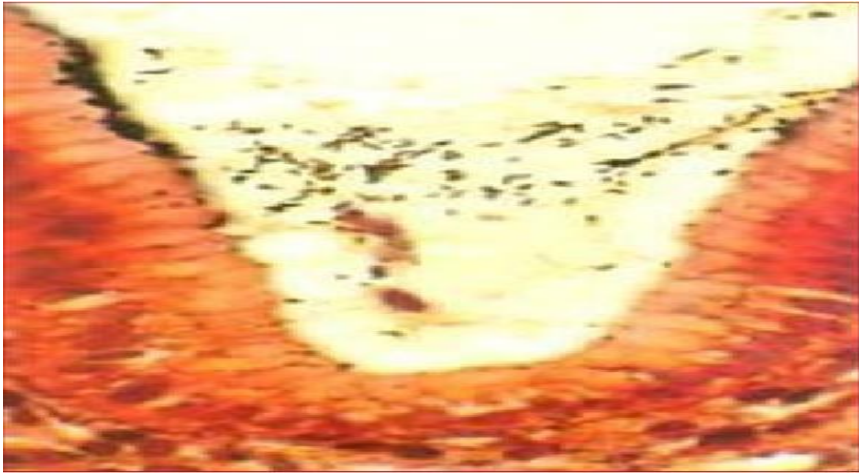
Microscopic



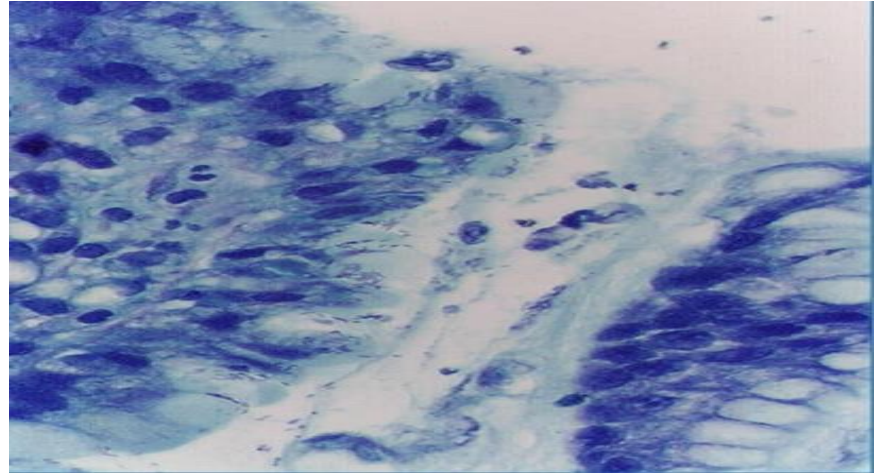
1. No erosions , no hemorrhage .
2. Some neutrophils (chronic active).
3. Lymphocytes , lymphoid follicles.
4. Regenerative changes:
 - **Metaplasia (intestinal)**
 - **Atrophy:** mucosal hypoplasia “thinning”
 - **Dysplasia.**

Case 7: Gastritis: Helicobacter induced

Microscopic- Helicobacter pylori

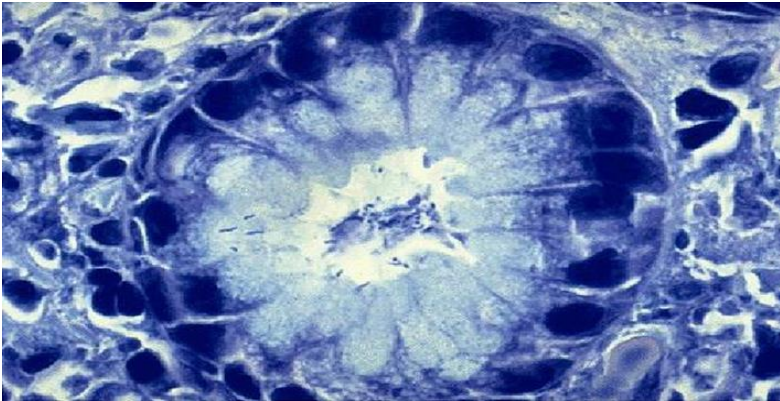


Silver stain



Giemsa stain

Microscopic- Helicobacter pylori in stomach



1. This small curved to spiral rod-shaped bacterium is found in the surface epithelial mucus of most patients with **active gastritis**.

Stain used here: a methylene blue stain.

H.pylori always in the stomach , if there is gastric metaplasia in ileum (illeocecal) then it can also affect it.

Peptic ulcer

- “PEPTIC” means **acid** cause/aggravation.
- Ulcer vs. Erosion (muscularis mucosa intact). (ulcer is DEEP while erosion the muscularis mucosa is intact).
- It's chronic ulcer usually, affects adults.
- **Causes:** 1. 80% caused by H. pylori. 2. NSAIDs. 3. Stress.
- Gastric Ulcer IS **WORSE** than duodenal ulcer because it may progress to cancer .

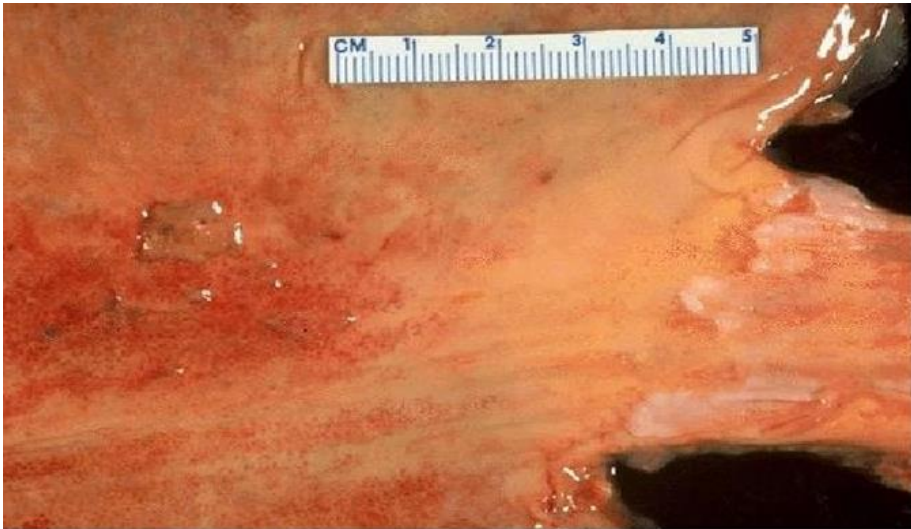
Gross- Peptic ulcer



Case 8: Acute gastric ulcer

- If the ulcer penetrates through the muscularis and through adventitia, then the ulcer is said to "**perforate**" and leads to an acute abdominal pain .
- **Complications:** (either benign or malignant) include **pain, bleeding, perforation**, and **obstruction**.
- all gastric ulcers Should be biopsied to rule out malignancy.

Gross- Benign



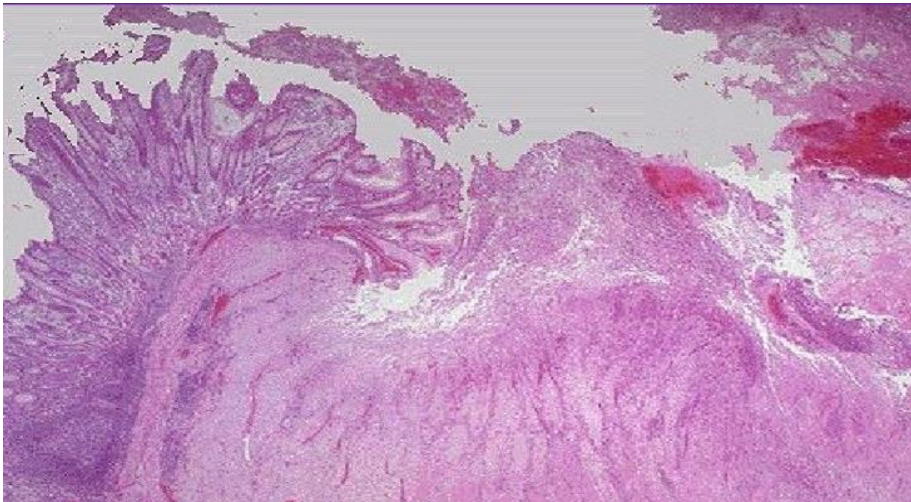
1. 1cm acute gastric ulcer in the upper fundus.
2. Shallow and sharply demarcated, with surrounding hyperemia.
3. It is probably benign.

Gross- Malignant



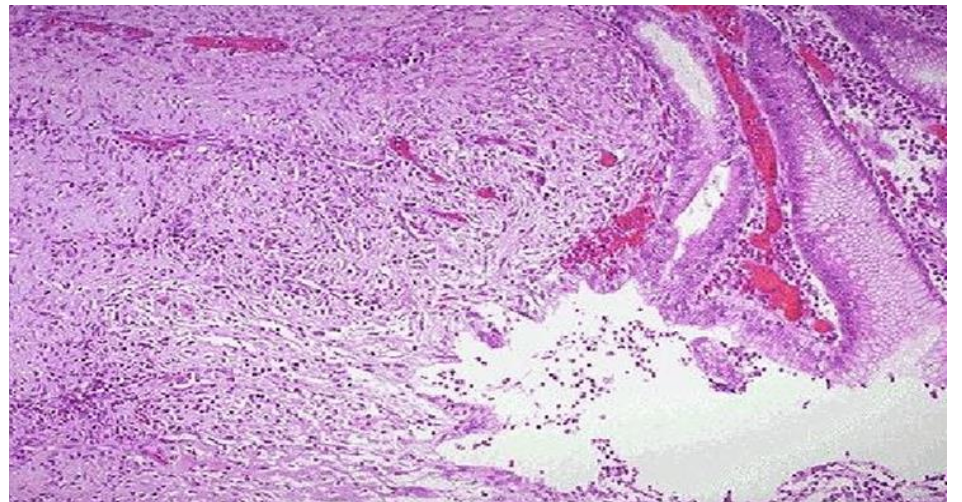
1. Larger 3 x4cm gastric ulcer .
2. deep with more Irregular margins.
3. This led to resection of the stomach.

Microscopic- LPF



1. Deep Ulcer and sharply demarcated
2. Base contains inflamed, necrotic debris.
3. An arterial branch at the Ulcer base is eroded
4. bleeding.
5. normal gastric mucosa on the **Left**.

HPF



1. ulcer at the left which is eroding through the mucosa.
2. Ulcers will penetrate over time if they do not heal. (Which Leads to PAIN) .

Case 9: Chronic Gastric ulcer

Gross- Chronic Gastric ulcer



1. irregular portion of gastric wall.
2. The ulcer is oval in shape and deeply penetrating.
3. Necrotic debris covers the base.
4. The specimen has been cut to show the submucosa, muscle coat and adventitial connective tissues in the region of the ulcer.

Microscopic- Chronic Gastric ulcer

Cellular Debris:

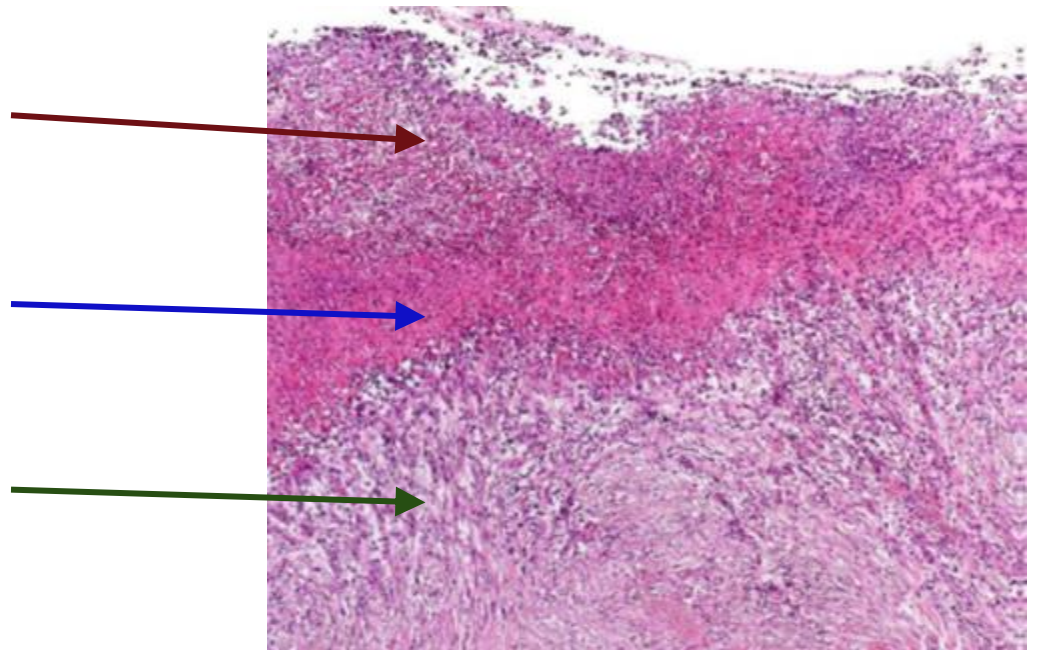
Numerous viable and degenerate polymorphs.

Fibrinoid Necrosis:

Inflammatory cells and granulation tissue.

Granulation Tissue:

Variable sized capillary channels are separated by fibroblastic connective tissue heavily infiltrated with lymphocytes, neutrophils, and eosinophils.

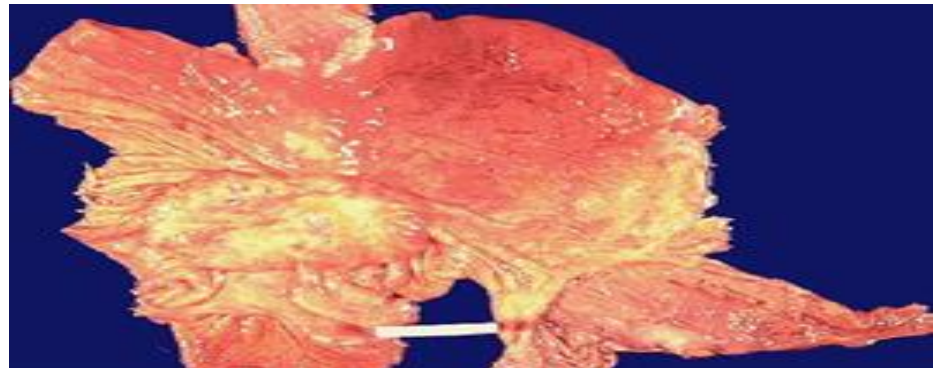
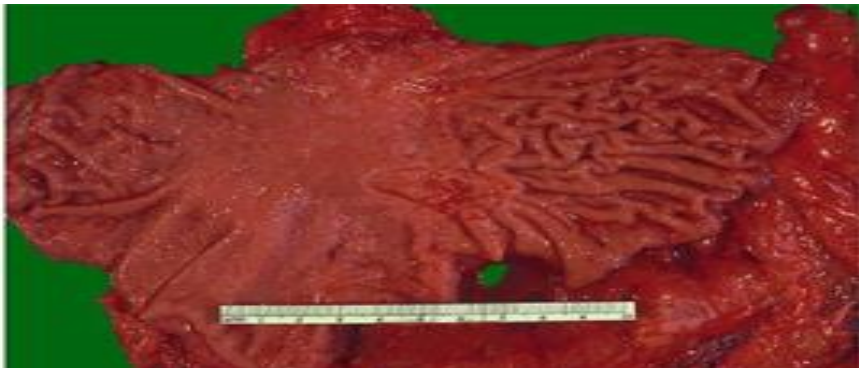


Microscopic examination shows the typical features of a chronic peptic ulcer. The ulcer is located in the antrum.

Case 10: Gastric Adenoma

- All gastric ulcers and All gastric masses must be biopsied, because it is not possible to tell from gross appearance alone which are benign and which are malignant.
- **Linitis plastica has poor prognosis.**
- Gastric neoplasia is **not uncommon**

Gross- Gastric Adenocarcinoma with ulcer



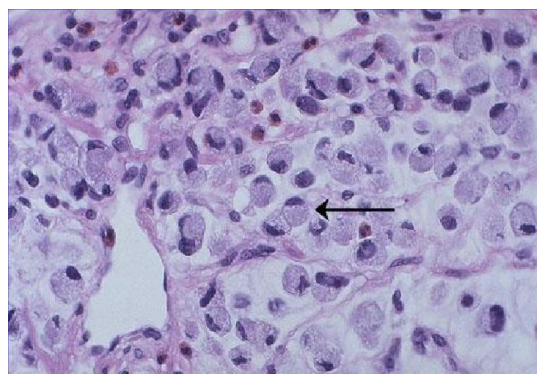
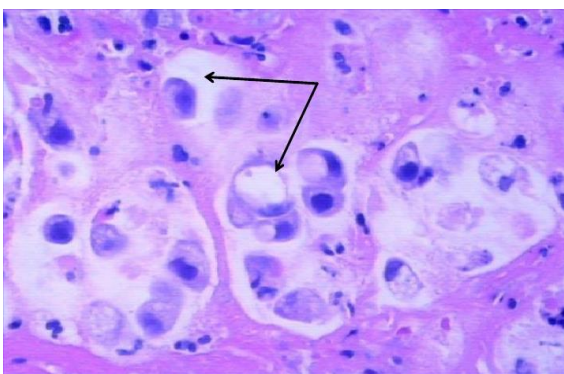
1. gastric ulcer in the center.
2. It is Shallow , about 2 to 4cm in size.
3. This ulcer on biopsy proved to be malignant

Gross -Gastric Adenocarcinoma : Linitis Plastica



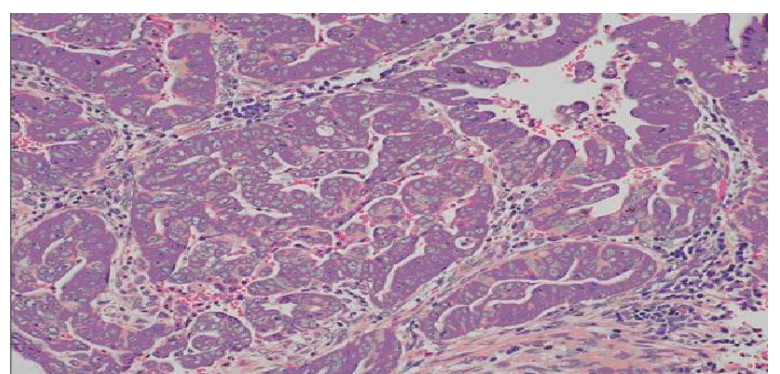
1. diffuse infiltrative gastric Adenocarcinoma which gives the stomach a **shrunken "leather bottle" appearance.**
2. grows diffusely through all layers of the stomach.
3. extensive mucosal erosion and a markedly thickened gastric wall.

Gastric Adenocarcinoma- Signet Ring Cell -HPF



1. **Signet ring cells** are poorly differentiated
2. Intracellular mucin which push the nucleus to the periphery
3. Often seen with Linitis Plastica

Gastric Adenocarcinoma- Intestinal type



Photomicrograph of a poorly differential intestinal type Adenocarcinoma of the stomach.

Case 11: Small Intestine infarction and ischemic enteritis

Gross Adhesions, peritoneum, small intestine



1. adhesion between loops of small intestine.
2. Such adhesions are typical following abdominal surgery.
3. More diffuse adhesions may also form following peritonitis.

Gross- Small intestinal infarction



1. dark red infarcted small intestine contrasts with the light pink viable bowel.
2. The forceps extend through an internal hernia in which a loop of bowel and mesentery has been caught.
3. This come from previous surgery.
4. Ischemia of the bowel.

Gross- Ischemic Enteritis



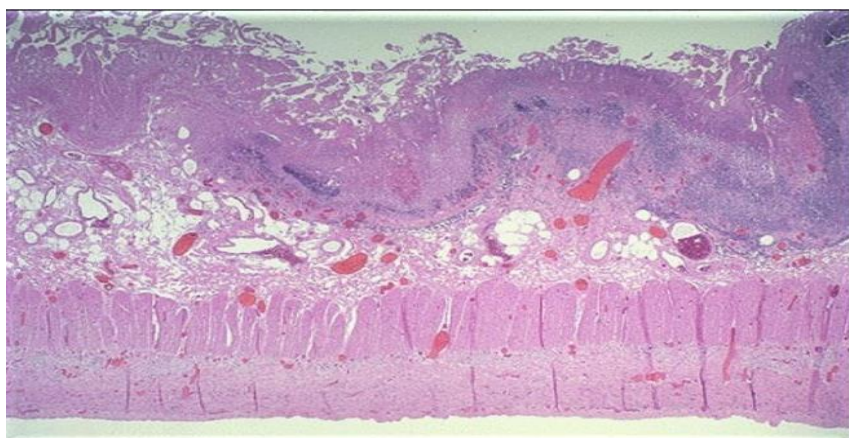
1. marked hyperemia
2. Such ischemia most often results from hypotension (shock), cardiac failure, blood loss, or loss of blood supply from obstruction (as with the bowel strangulated in a hernia or with volvulus or intussusception).
3. If the blood supply is not quickly restored, the bowel will infarct.

Gross-Ischemic Enteritis- [ENDOSCOPY]



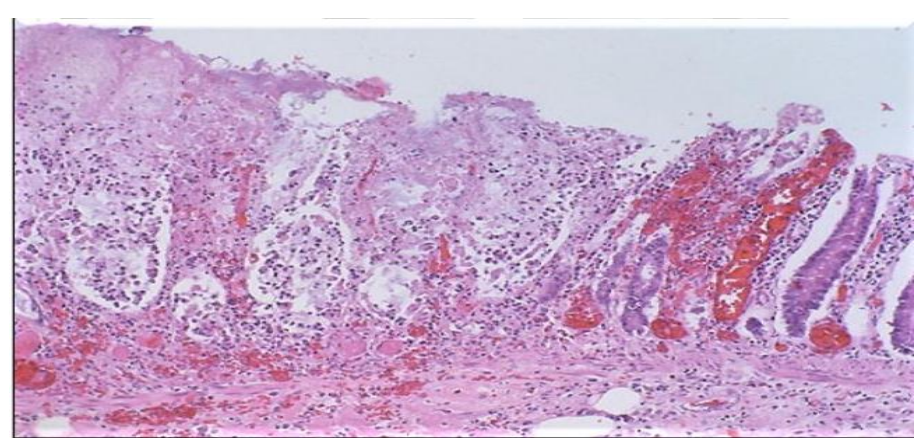
1. early ischemic enteritis involves the tips of the villi
2. bowel is hard to infarct from atherosclerotic vascular narrowing or thromboembolization because of the widely Anastomosing blood supply.
3. most cases of bowel ischemia and infarction result from generalized hypotension and decreased cardiac output.

Microscopic- Ischemic Enteritis – LPF



1. Mucosal surface with early necrosis
2. hyperemia extending from mucosa to submucosa and muscular wall vessels.
3. Submucosa and muscularis are still intact.

Ischemic Enteritis – MPF



1. Advanced necrosis
2. Small intestine shows hemorrhage with acute inflammation.

Case 12: Chronic Duodenal Ulcer

Gross- Chronic duodenal ulcer VS gastric ulcer

Duodenal Ulcer (DU)



Gastric Ulcer (GU)



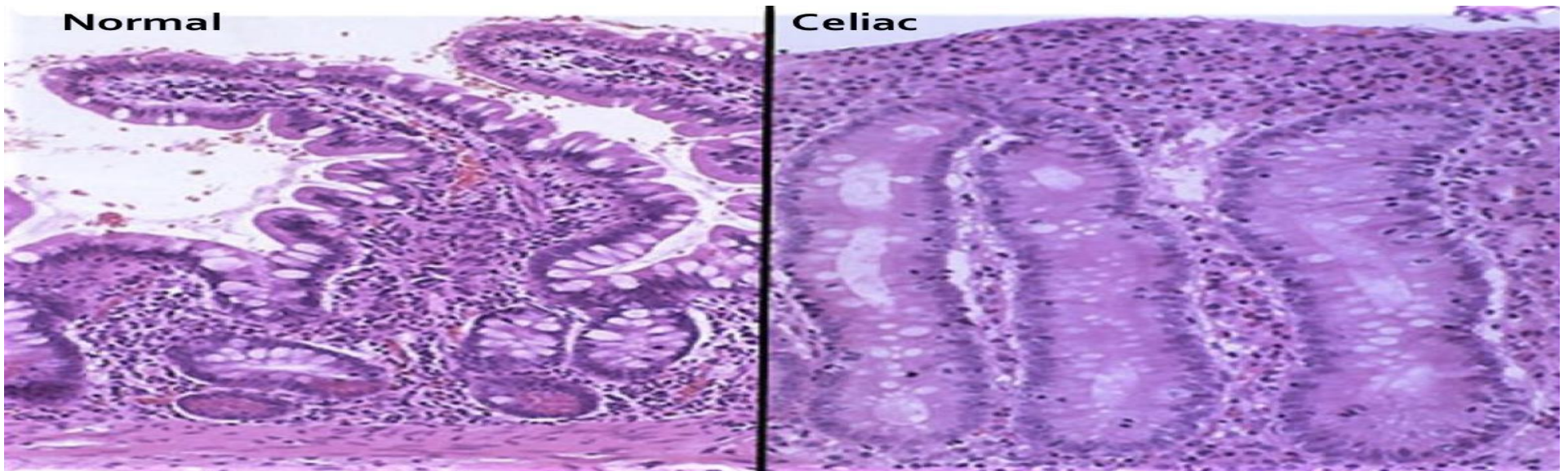
the white base of the ulcer is marked by a **blackish area** showing a **recently bleeding vessel**.

The ulcer has a **clean white base** and some **swelling** around its edges .

Case 13: Celiac Disease

- **Definition:** it is an immune reaction to gliadin fraction of wheat gluten.
 - celiac disease most often becomes apparent either in infancy or in young to middle age adults .
 - Patient present with: **Diarrhea , Steatorrhea.**
 - **Diagnosis :** 1. serology = **anti-gliadin antibodies.**
2. **Biopsy** taken from small intestine.
 - **Treatment:** lifelong gluten free diet.
 - **Complication:** 1. Anemia 2. Osteoporosis 3. Infertility in women.
- Major types of diarrheal disease in general:** 1. Exudative 2. Secretory 3. Osmotic 4. motility related .

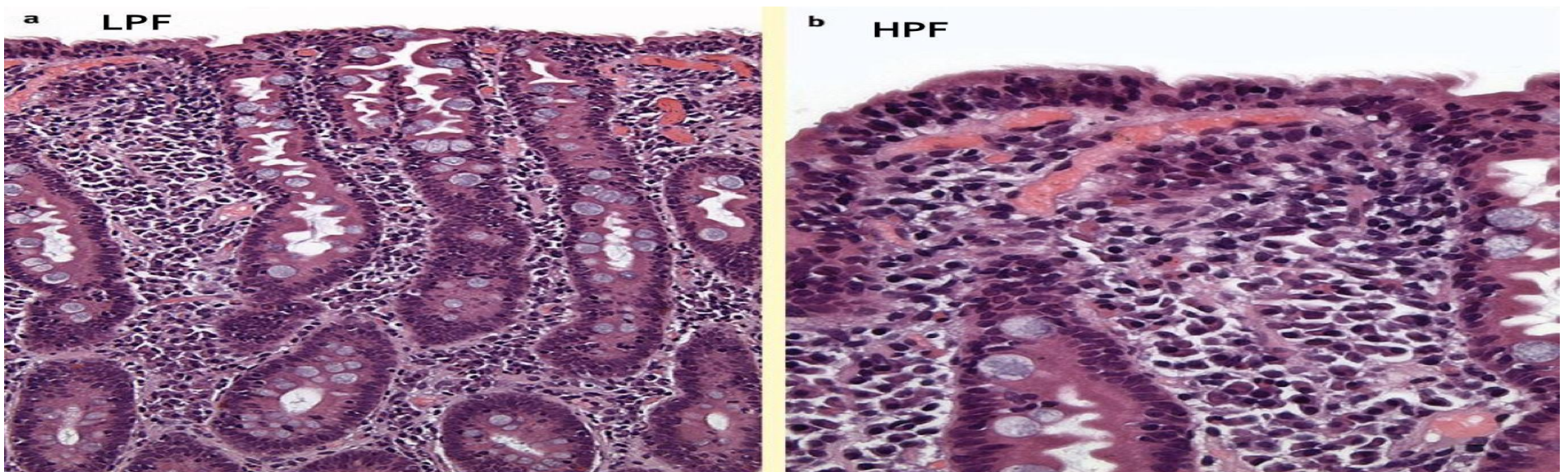
Microscopic LPF - Normal VS celiac disease



Normal small intestine mucosa .

1. Blunting and flattening of villi .

Microscopic - LPF



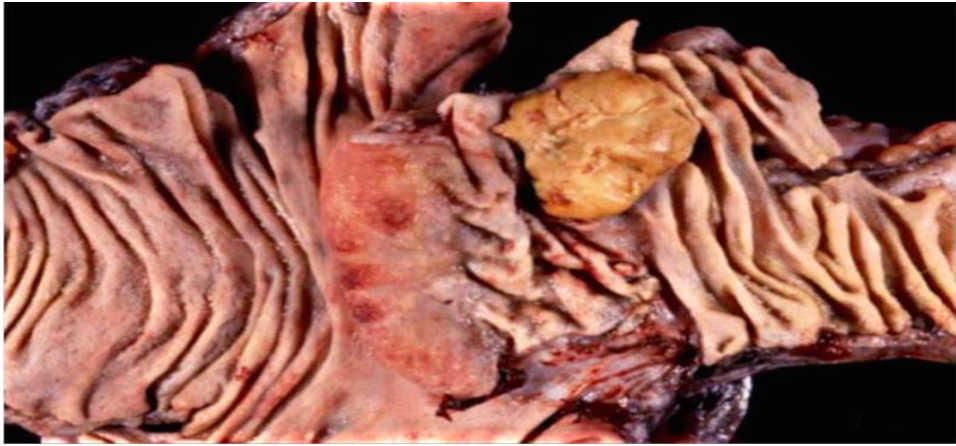
1. Low power view of **fully developed sprue-type changes**
2. **Elongated crypts** with complete **lack of villi.**

1. High power view showing **damaged surface epithelium** with large numbers of intraepithelial **lymphocytes.**

Case 14: Carcinoid Tumor of small intestine

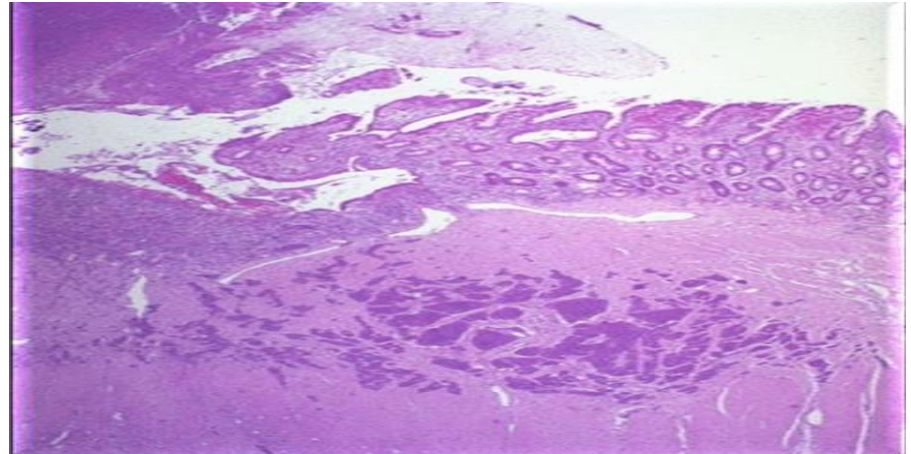
- Neoplasms of the small intestine are uncommon.
- Benign tumors can include leiomyomas, fibromas, neurofibromas and lipomas.
- Most benign tumors are incidental submucosal lesions, though rarely they can be large enough to obstruct the lumen.
- Rarely, a malignant carcinoid tumor can occur as a large bulky mass.
- Metastatic carcinoid to the liver can rarely result in the carcinoid syndrome.

Gross



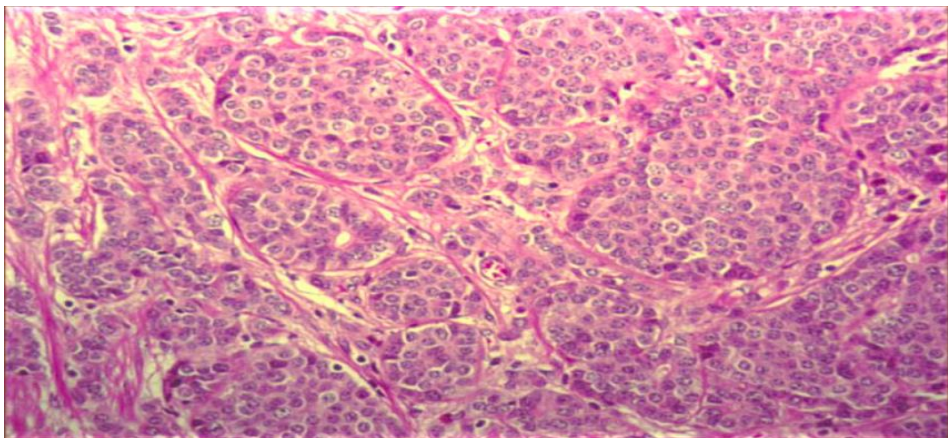
1. A carcinoid tumor seen at the ileocecal valve that has a **faint yellowish color**.

Microscopic- LPF



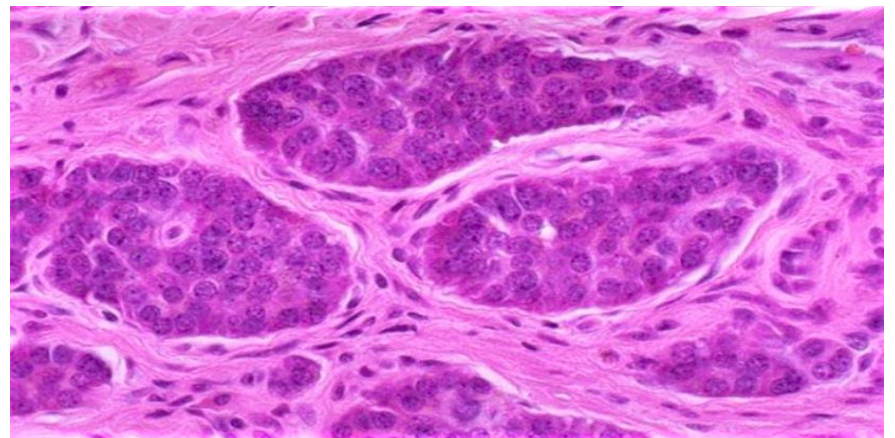
1. Discreet, though **not** encapsulated mass of multiple nests of small blue cells in the submucosa.

Microscopic- MPF



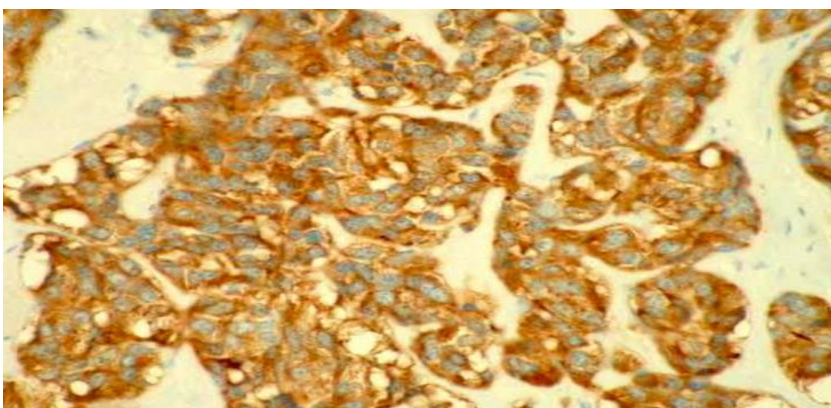
1. alveolar groups.
2. clumps of small uniform polygonal cells having centrally placed round nuclei and abundant granular cytoplasm.

Microscopic- HPF



1. The nests of carcinoid tumor have a typical **endocrine appearance** with small round cells.
2. small round nuclei.
3. pink to pale blue cytoplasm.

On Immunohistochemical stain:



1. **+ve** the synaptophysin immunohistochemical stain.
2. This finding confirms **the neuroendocrine nature of his neoplasm**.

Case 15: Crohn's Disease

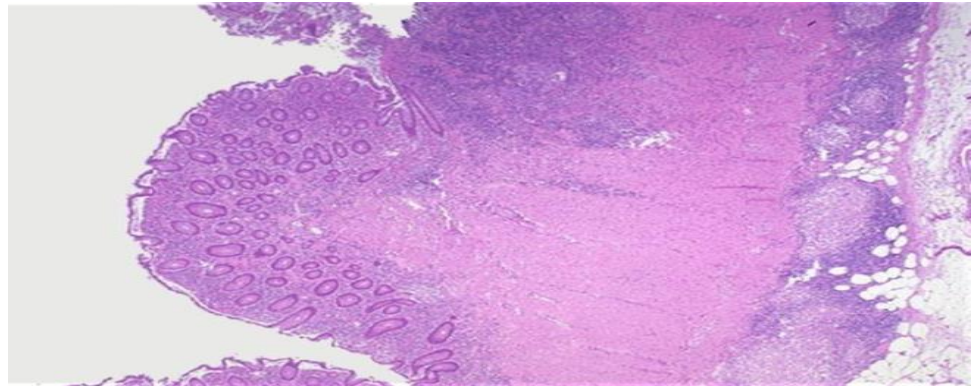
- Crohn's is a chronic inflammatory condition of the GI tract that can involve any part from the mouth to the anus with skipping areas.
- **Complications:** 1. Fistula formation 2. Intestinal obstruction 3. Fissures 4. Arthritis and uveitis.

Gross



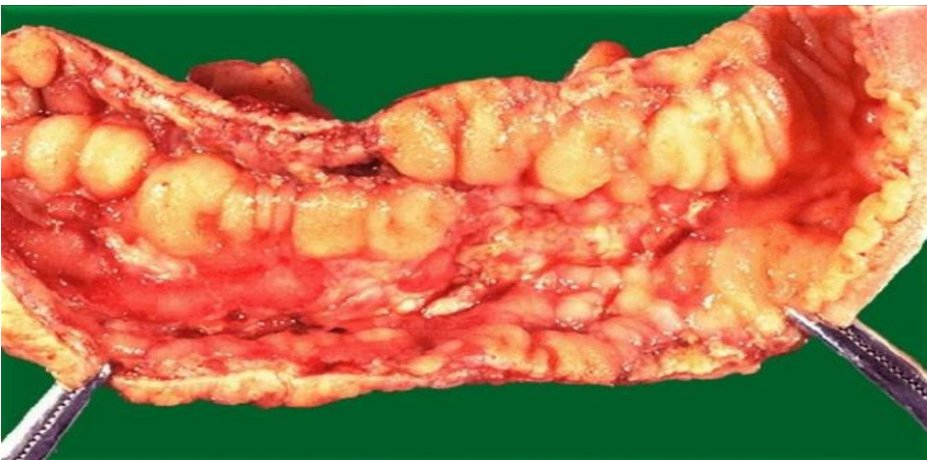
large, irregularly shaped to rake-like ulcers that are separated from each other by normal mucosa (skip lesions)

Microscopic- LPF



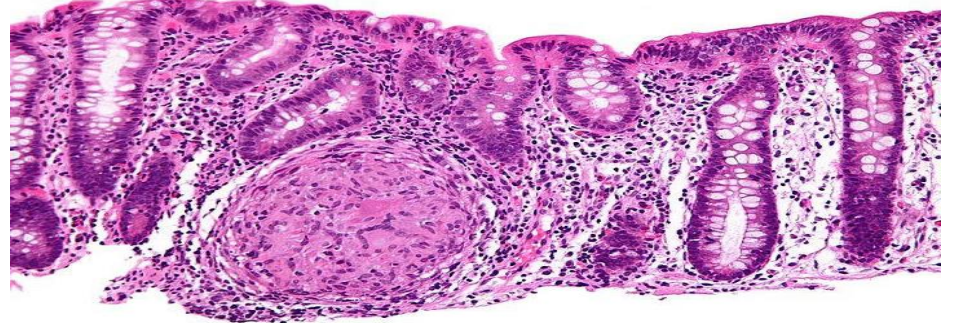
1. transmural inflammation. (the bluish infiltrates extend from mucosa through submucosa and muscularis)
2. nodular infiltrates on the serosal surface
3. pale granulomatous centers.

Gross



Mucosal surface shows an irregular **nodular** appearance with **hyperemia** and focal superficial **ulceration** (cobblestone appearance)

Microscopic- HPF



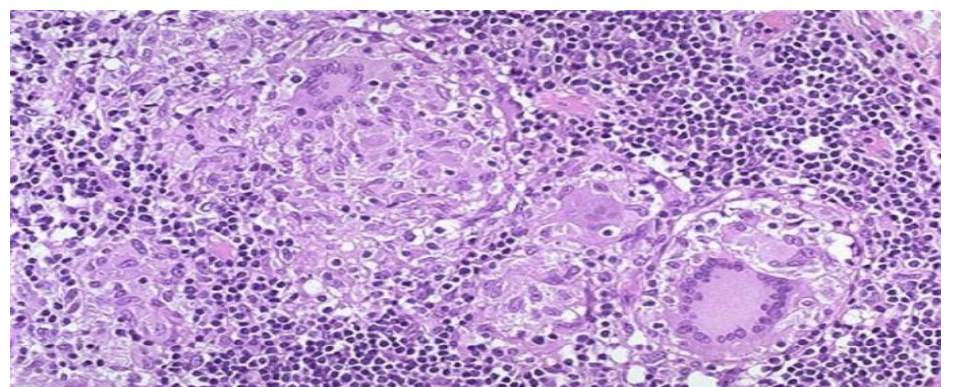
1. transmural chronic inflammatory cell infiltrate,
2. lymphoid aggregates and mild fibrosis.
3. few epithelioid granulomas.

Gross



Section of large bowel shows **alternating** normal and ulcerating mucosa. (skip lesions)

Microscopic- HPF



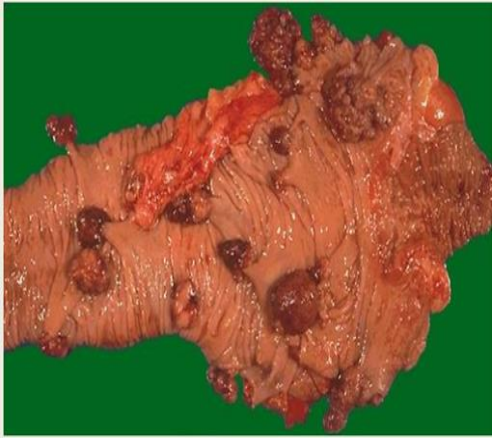
Granuloma with :

1. epithelioid cells,
2. giant cells,
3. many lymphocytes.

Case 16: Adenomatous Polyp of Colon and Rectum

- **Familial adenomatous polyposis:** A genetic syndrome in which an abnormal genetic mutation leads to development of multiple neoplasms in the colon .
- **Complications:** Development of **adenocarcinoma** of the colon.
- **Gene associated:** Familial polyposis is associated with autosomal dominant mutations of **APC gene**.
- **Possibility of malignancy:** 1. if the size of this polyp--**above** 2 cm--
2. **Villous** adenomas have a HIGHER rate than the “tubular” patterns.

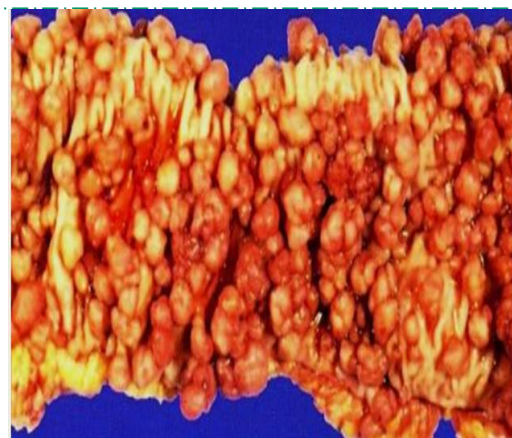
Gross



1. Multiple adenomatous polyps (**tubulovillous adenomas**)



1. adenomatous polyp has a **hemorrhagic** surface
2. the size **above** 2 cm



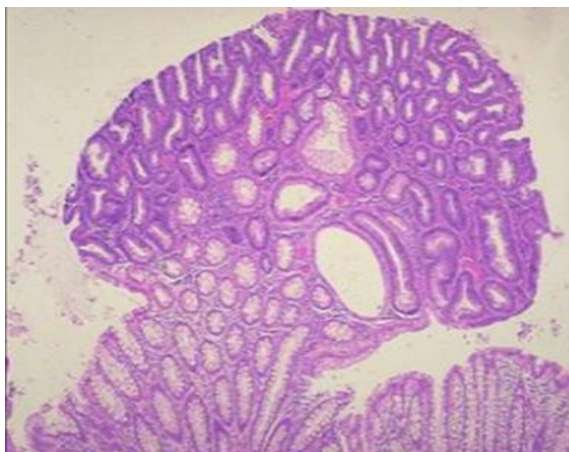
1. Familial polyposis of the colon



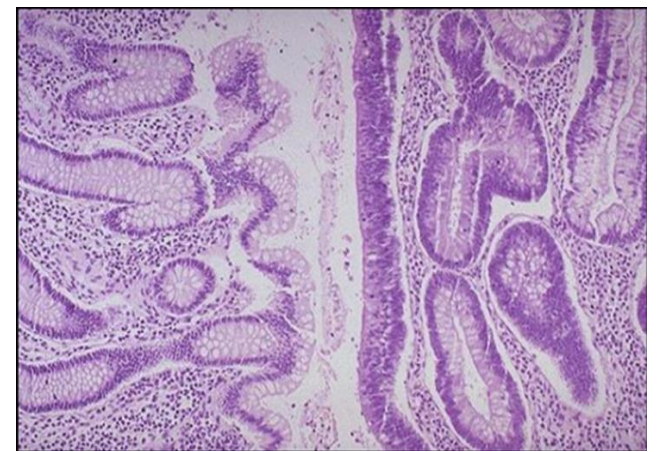
1. tubular adenoma

Microscopic

1. disorganized (irregular) dysplastic glands
2. With Crowded, hyperchromatic nuclei
3. Decrease goblet cells
4. Inflammatory cells

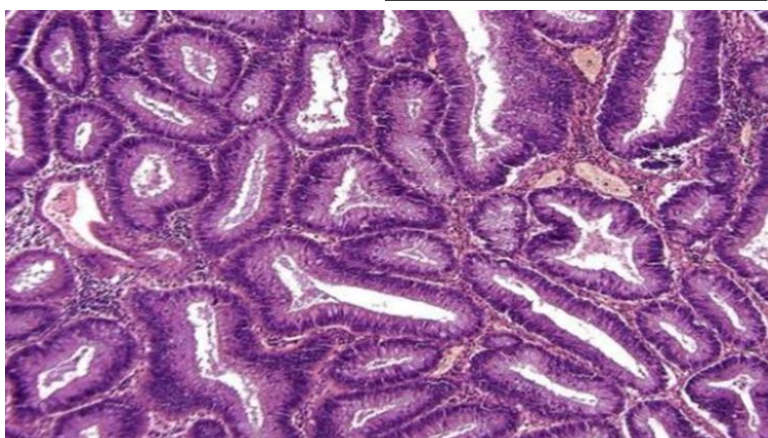


1. tubular adenoma

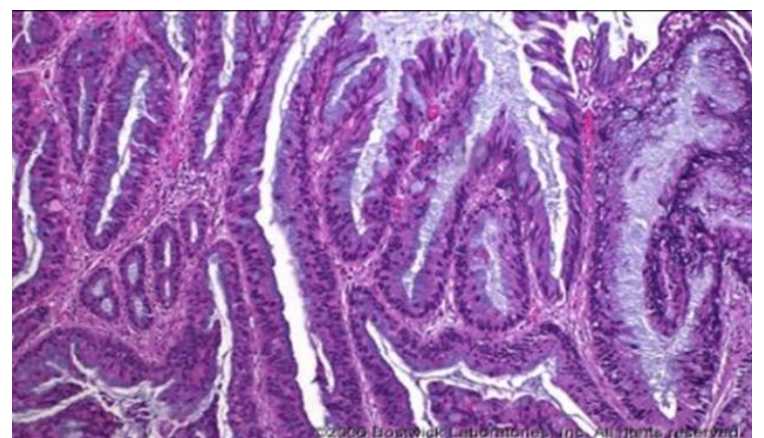


Normal

adenomatous polyp



Tubular adenoma



Villous adenoma

Case 17: Adenocarcinoma of Colon

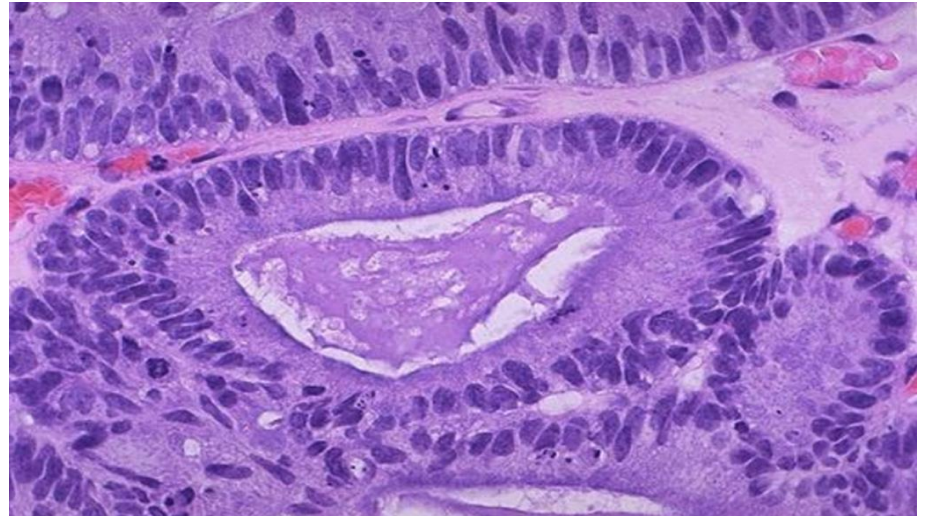
- **Location:** Sigmoid colon.
- **Epidemiology:** 60 - 70 years old.
- **Risk factors:** IBD, adenomas, polyposis, High fat content, reduced intake of Vit. A, C, E
- **Gene associated:**
 1. APC/Beta-Catenin pathway.
 2. DNA mismatch repair repair genes pathway
- **Hemorrhage** from the surface of the tumor creates a **guaiac positive stool. (+ve iron in stool)**

Gross



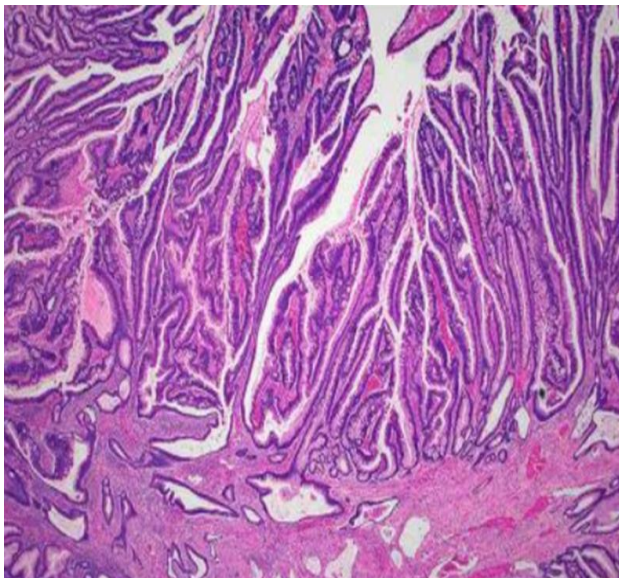
1. Adenocarcinoma arising in a villous adenoma.
2. Polypoid reddish pink surface of neoplasm.

Microscopic- HPF

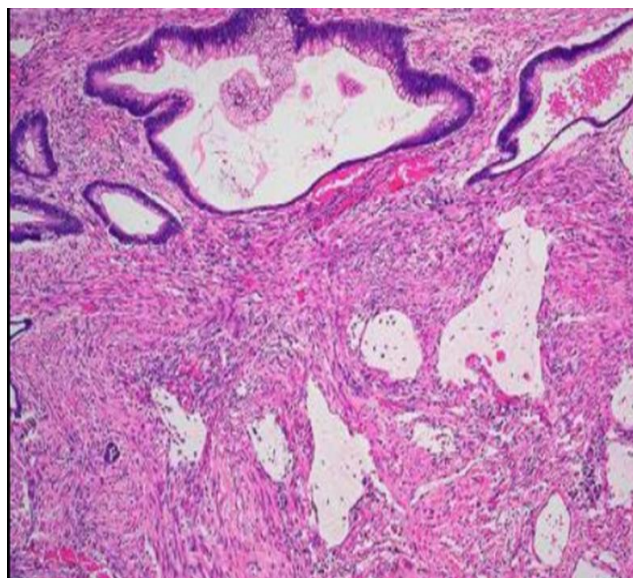


1. Adenocarcinoma with crowded nuclei .
2. Hyperchromatism .
3. Pleomorphism .
4. No normal goblet cells are seen.

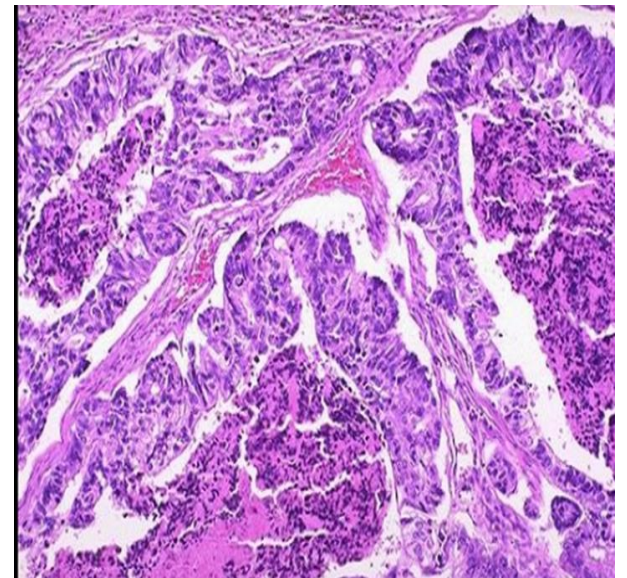
Microscopic



1. crowded irregular malignant acini with hyperchromatism and pleomorphism.
2. separated by thin fibrovascular stroma.



1. The acini are lined with neoplastic cells with papillary projection.
2. Polymorphism .
3. Hyperchromatism.
4. Few mitosis.

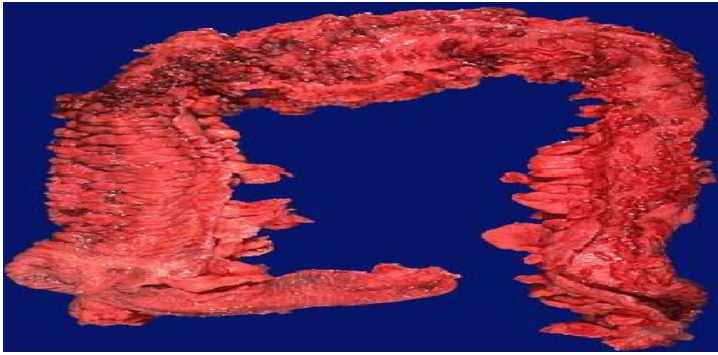


1. Adenocarcinoma in which glands are much larger and filled with necrotic debris.

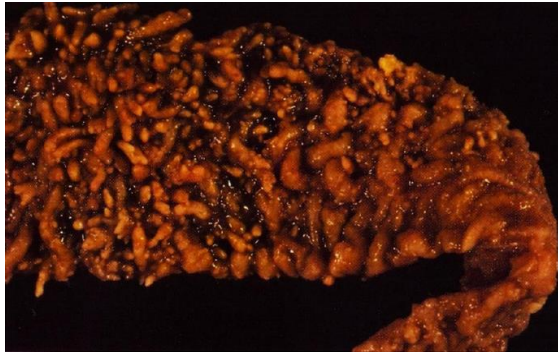
Case 18: Ulcerative Colitis

- The most intense inflammation begins at the **sigmoid colon** and extends upward and around to the **ascending colon**.
- it's **continuous** without skip areas
- **Complications** : 1. Increase risk of carcinoma and adenocarcinoma 2. toxic megacolon and glandular dysplasia 3. Hemorrhage 4. Perforation and peritonitis 5. Electrolytes imbalance due to diarrhea
- Unfortunately, not all cases of inflammatory bowel disease can be classified completely in all patients.

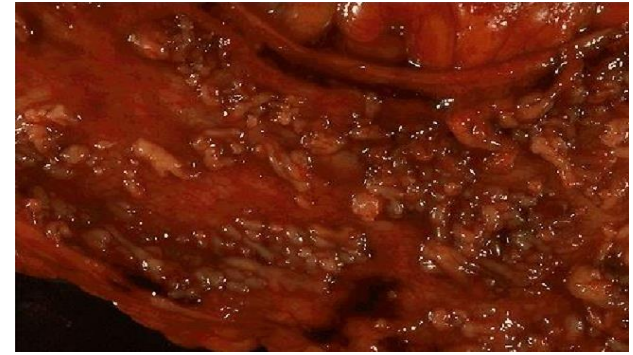
Gross- Chronic Ulcerative Colitis



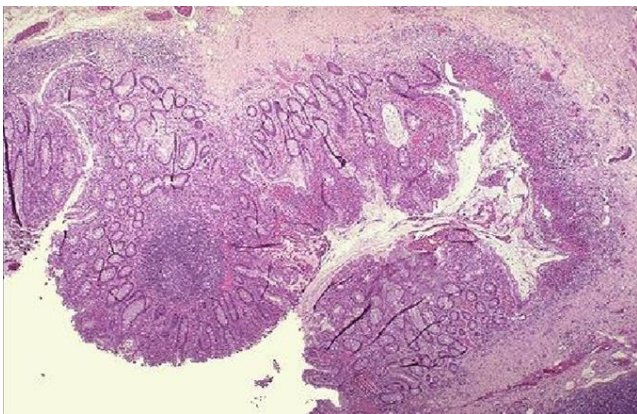
1. At the lower left is the ileocecal valve with a portion of terminal ileum that is not involved.



1. inflammatory Pseudopolyps
2. The mucosa has been ulcerated away and hyperemic.

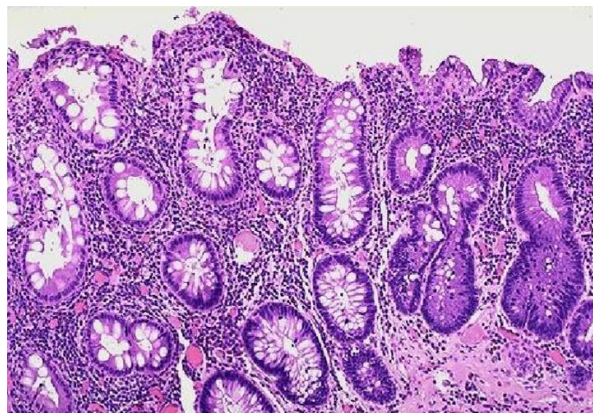


Microscopic- Chronic Ulcerative Colitis (LPF)



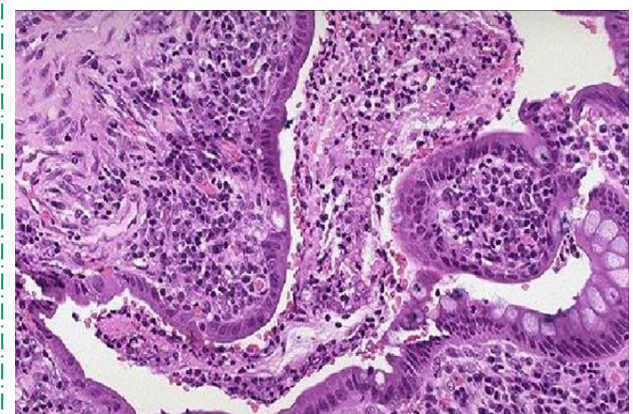
1. The inflammation is confined primarily to the mucosa.
2. the mucosa is eroded by an ulcer that undermines surrounding mucosa.

Chronic Ulcerative Colitis with Dysplasia (MPF)



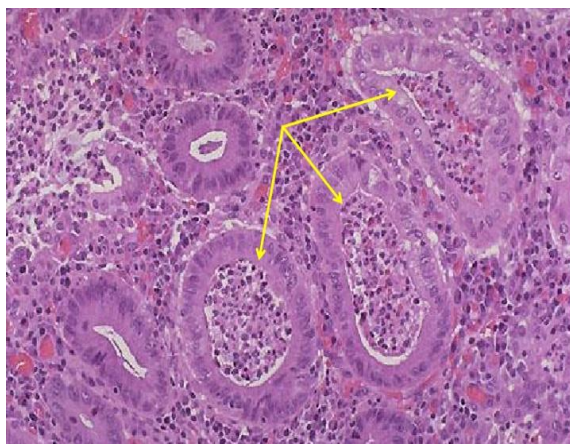
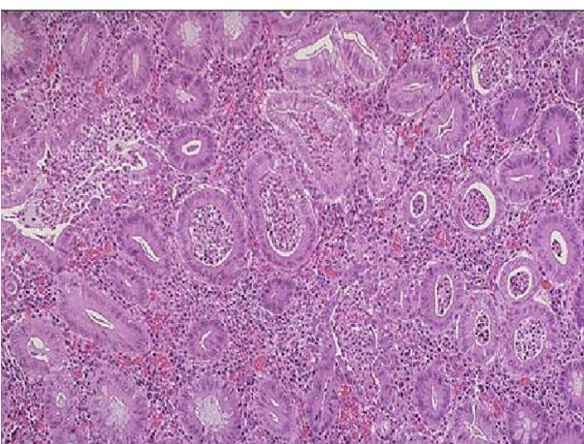
1. normal glands are seen at the **left**.
2. **At the Right**: glands demonstrate dysplasia, the first indicate on that there is a move towards neoplasia.

Microscopic- Chronic Ulcerative Colitis (HPF)



1. inflammation of the mucosa
2. loss of goblet cells.
3. An exudate is present .
4. Both acute and chronic inflammatory cells are present.

Microscopic- Ulcerative Colitis with Crypt Abscesses



1. **1. crypt abscesses** in which a neutrophilic exudate is found in glandular lumens.
2. Intense inflammation in the submucosa .
3. loss of goblet cells and hyperchromatic nuclei with inflammatory atypia.

Case 19: Chronic Viral Hepatitis

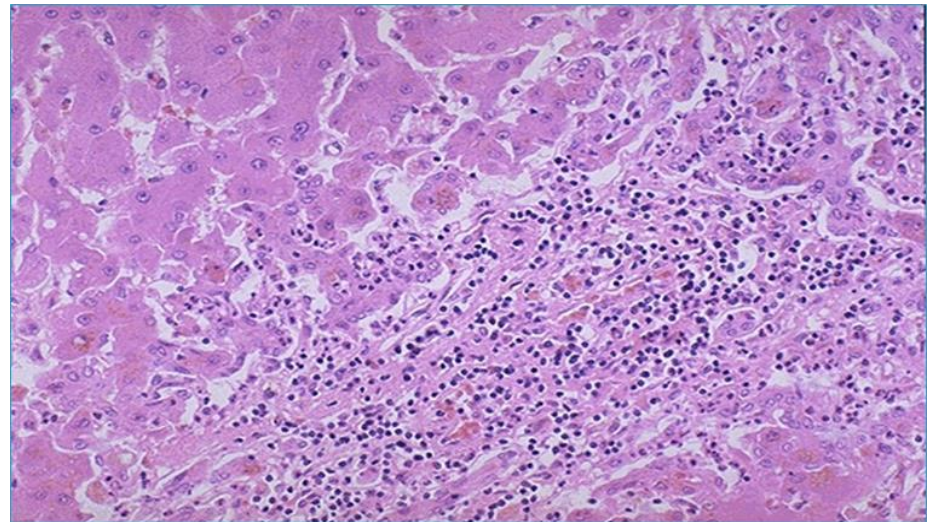
- **Diagnosis of hepatitis B virus** : +ve hepatitis B surface antigen (**HBsAg**) and hepatitis B core antibody (**HBcAb**) were positive.
- In viral **hepatitis C**, half of cases leads to chronic liver disease.
- The extent of chronic hepatitis can be graded by the degree of activity (**necrosis and inflammation**) and staged by the degree of **fibrosis**.

Gross



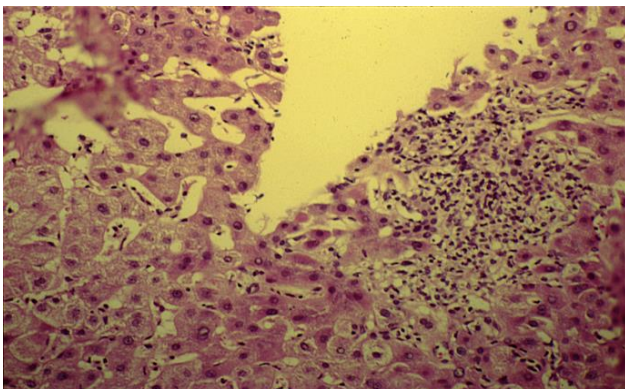
1. necrosis and lobular collapse.
2. areas of hemorrhage and irregular furrows .
3. granularity on the cut surface of the liver.

Microscopic- Chronic Viral hepatitis B



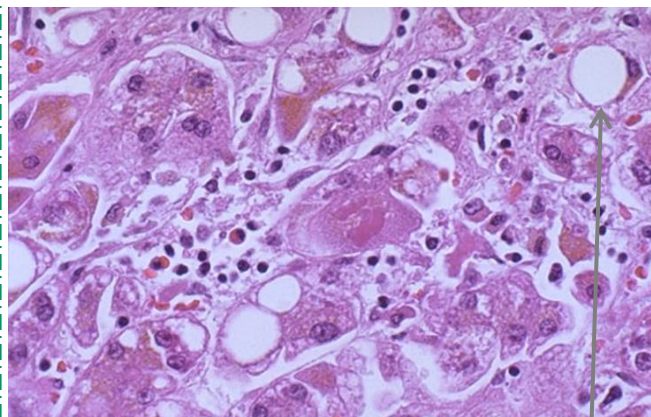
1. liver cell destruction.
2. A **mononuclear inflammatory cell** infiltrate extends from portal areas and disrupts the limiting plate of hepatocytes .
3. "**piecemeal**" necrosis of chronic active hepatitis.

chronic Viral hepatitis B



1. chronic inflammatory cells infiltration (**lymphocytes and histiocytes**) in both portal tracts and liver parenchyma.
2. **Piecemeal necrosis**.
3. hepatocytes swelling
4. "spotty" hepatocytes necrosis.
5. No cirrhosis or malignancy

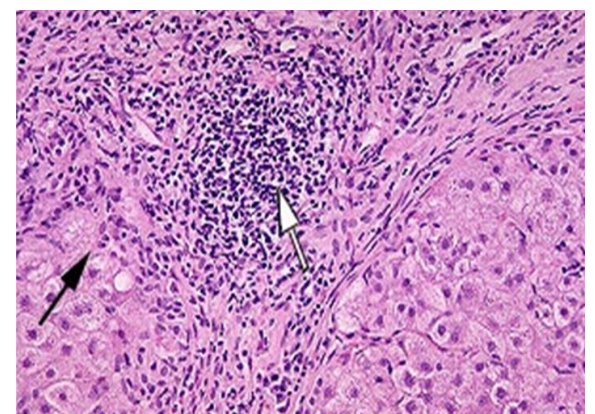
chronic Viral hepatitis C



1. necrosis
2. prominent inflammation.
3. some steatosis .

rounded clear area due to the accumulation of fat

Portal inflammation in chronic hepatitis

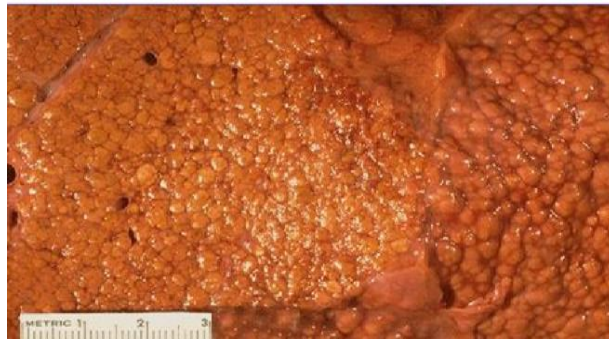


1. More severe **portal** and **sinusoidal** infiltrates.
2. The white arrow is locating an inflammation
3. **The black arrow** is locating accumulation of fat

Case 20: Hepatic Cirrhosis

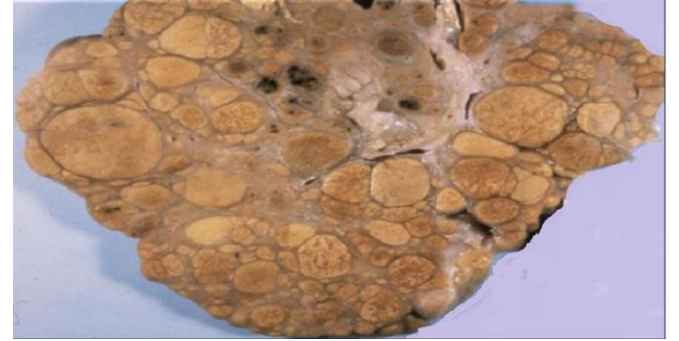
- **Causes:** the most common is Chronic alcoholism , hepatitis B & C, Wilson's disease, primary biliary Cirrhosis ,hemochromatosis.
- **Complications:** Portal hypertension , Liver failure ,hepatocellular carcinoma .

Gross- Hepatic Micronodular cirrhosis



1. Micronodular cirrhosis
2. small, less than 3 mm regenerative nodules .
3. Fatty change demonstrates the small, yellow nodules. (2nd picture)

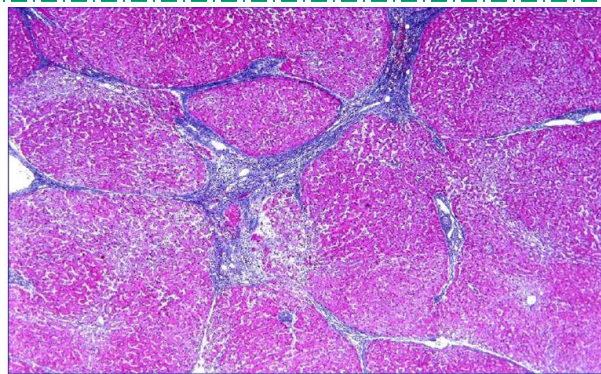
Gross- Macronodular cirrhosis



1. multiple nodules of variable sizes with fibrosis.

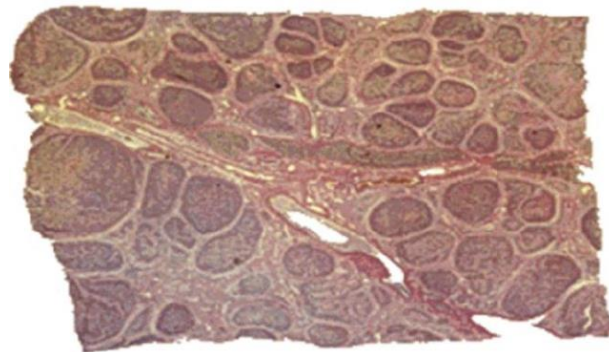
شكلها يشبه التيومر فكيف نفرق؟ هنا فيه فايبروسيس بين النوديولز بينما في التيومر مافيه

Microscopic- Trichrome stain

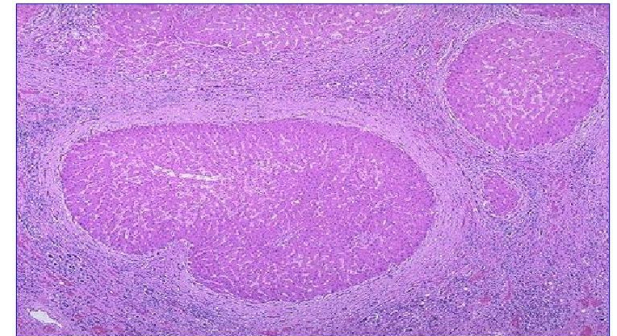


1. loss of lobular architecture
2. regenerative nodules of surrounded by fibrosis.
3. nodules consists of liver cells with no central vein
4. Chronic inflammatory cells
5. Proliferated bile ducts

Microscopic - Hepatic cirrhosis

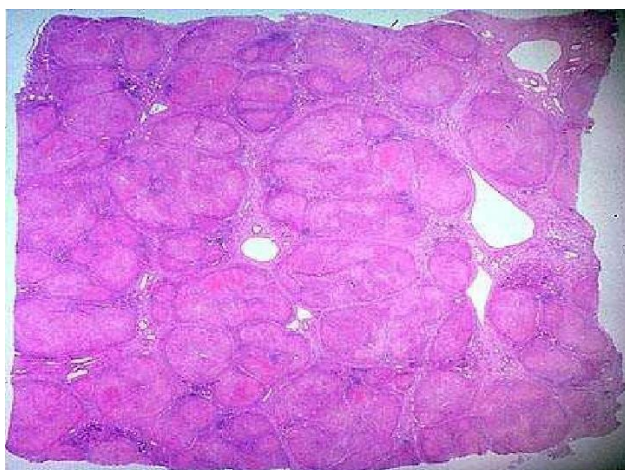


1. darker tan nodules of varying sizes.
2. nodules are composed of hepatocytes.
3. The paler areas in between are collagen.

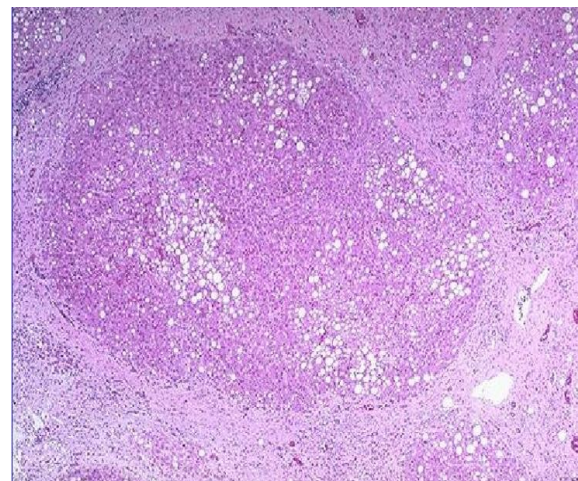


1. regenerative nodules of hepatocytes surrounded by fibrosis.
2. collagen with scattered lymphocytes ,proliferation of bile ducts.

Microscopic



1. Irregular nodules separated by Portal to Portal fibrous bands



1. Micronodular cirrhosis with moderate **fatty change**
2. regenerative nodule surrounded by fibrosis.

Case 21: Hepatic Adenoma

Gross- Hepatic Adenoma



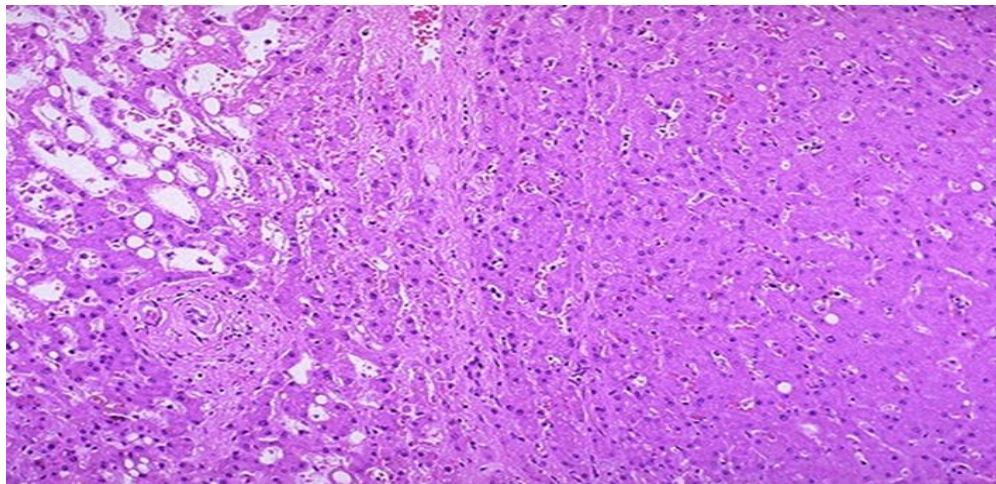
1. At the upper right is a well-circumscribed neoplasm that is arising in liver.

Gross - hepatic Adenoma (Cut section)



1. well circumscribed hepatic adenoma .
2. remaining liver is a pale yellow brown because of fatty change from chronic alcoholism.

Microscopic- hepatic adenoma

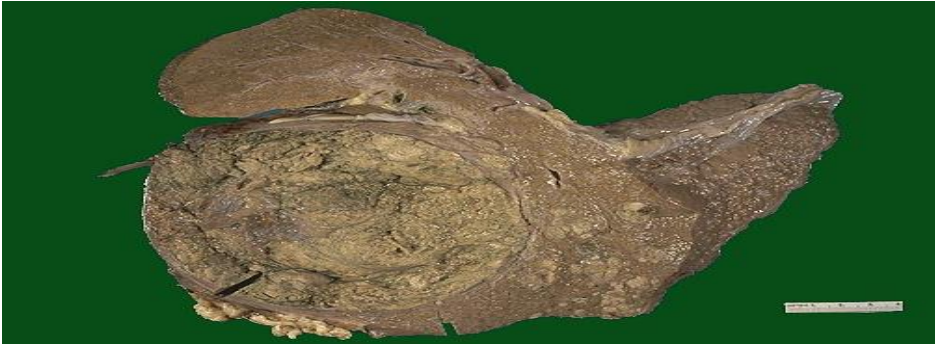


1. **Left:** Normal liver tissue with a portal tract.
2. **Right:** The hepatic adenoma.
3. composed of cells that closely resemble normal hepatocytes, but the neoplastic liver tissue is **disorganized** hepatocyte cords .
4. cells **does not** contain a normal lobular architecture.

Case 22: Hepatocellular Carcinoma

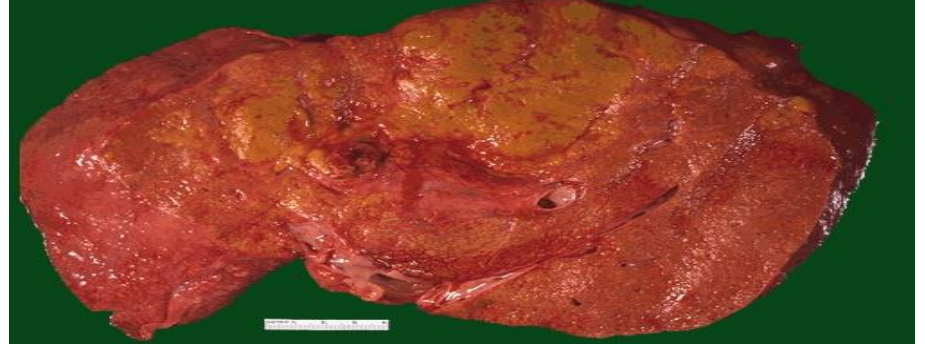
- **Causes:** 1. Hepatitis B or C 2. Chronic alcoholism 3. Alpha-toxin exposure.
- **Laboratory finding :** 1. elevated serum alpha-fetoprotein. 2. elevated alkaline phosphatase (if it obstruct the biliary tract).

Gross- Hepatocellular Carcinoma



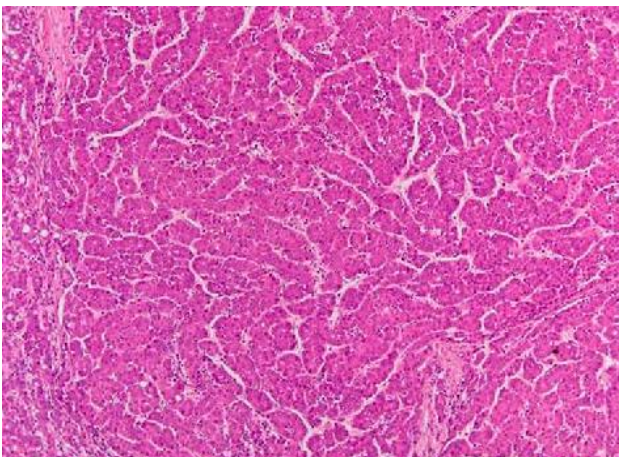
1. large and bulky neoplasm.
2. has a greenish cast because it contains bile.
3. To the right of the main mass are smaller satellite nodules.

Gross- Hepatocellular Carcinoma

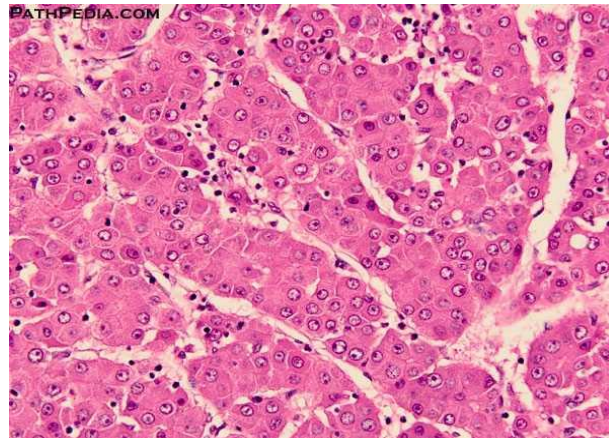


1. hepatocellular carcinoma with a greenish yellow hue.

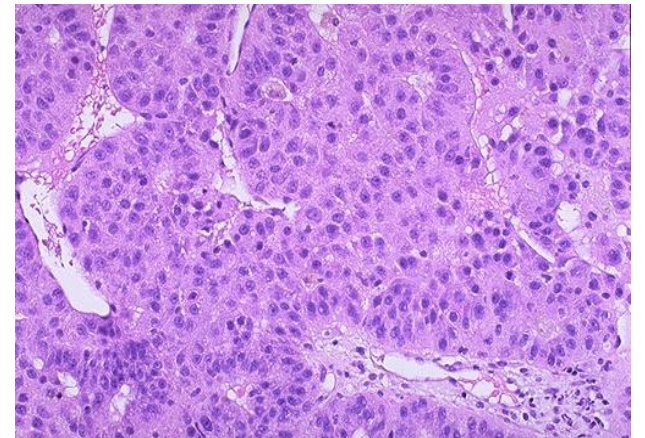
Microscopic- Hepatocellular Carcinoma



1. well-differentiated HCC.
2. trabecular pattern with intervening sinusoids.



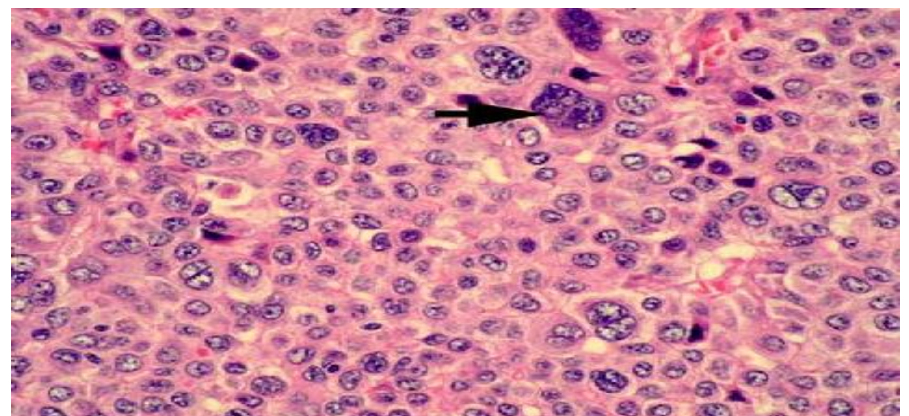
1. more than 2-3 cell-thick hepatocellular plates/cords.
2. nuclear atypia.
3. absence of portal tracts.
4. hepatic plates are separated from each other by sinusoids.



1. liver cords are two cells thick which much wider than the normal liver plate
2. There is no discernable normal lobular architecture,
3. vascular structures are present.

Microscopic- Hepatocellular Carcinoma

1. Anaplastic (poorly differentiated) tumor.
2. giant cells (arrow).
3. Mitoses are numerous.
4. Malignant liver cells are pleomorphic, binucleated cells with hyperchromatic nuclei.



Case 23: Chronic Cholecystitis with stones

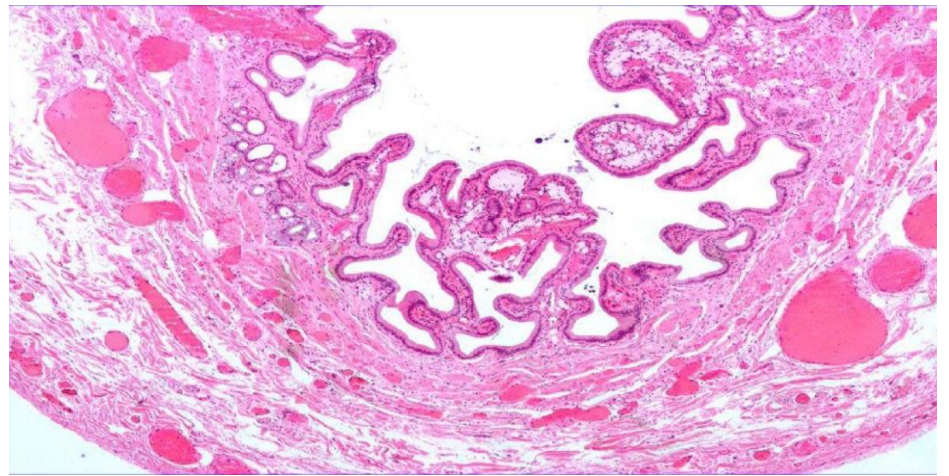
- **Cholecystitis** : is an inflammation of the Gallbladder could be acute or chronic .It almost always associated with gallstones.
- **Complications**: gallbladder perforation , abscess formation , bacterial superinfection, gallbladder rupture with diffuse peritonitis.

Gross- chronic cholecystitis with stones



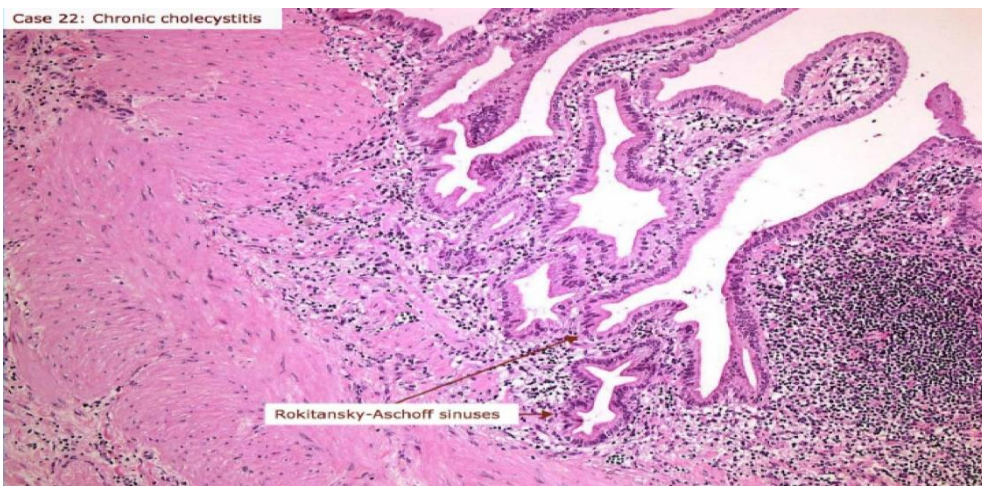
1. Thickening of gallbladder wall.
2. abundant polyhedric stones.
3. small papillary tumor in the cystic duct (arrow)

Microscopic-

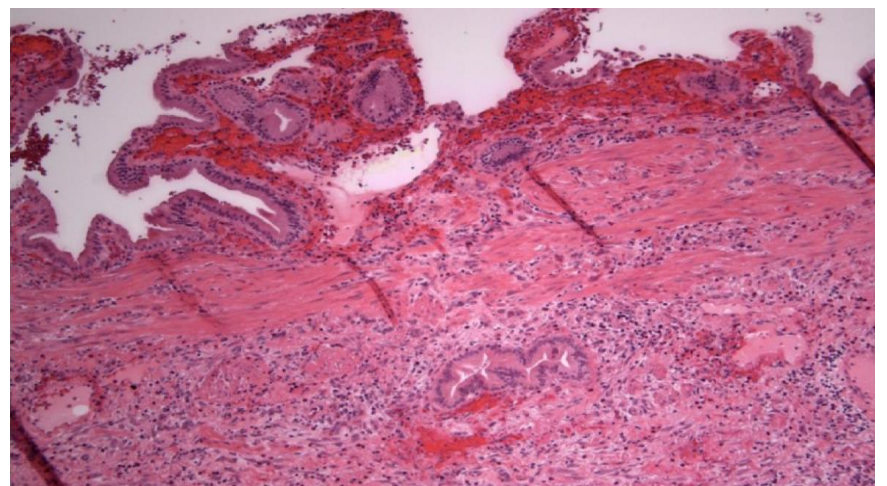


1. Dead lipid laden macrophages (**foam cells**) are seen in the finger-like projections into the gallbladder lumen.
2. Congested blood vessel.
3. Subserosa edematous.
4. this is gallbladder, because no muscularis mucosae is present (as elsewhere in the GIT)

Microscopic- chronic cholecystitis with stones



1. Irregular mucosal folds.
2. foci of ulceration in mucosa.
3. Wall is penetrated by mucosal glands which are present in Muscle coat (**Rokitansky-Aschoff sinuses**).
4. All layers show **chronic inflammatory cells** infiltration and **fibrosis**.



1. Mucosal wall is penetrated by mucosal glands which are present in Muscle coat (**Rokitansky-Aschoff sinuses**).
2. All layers show **chronic inflammatory cells** in filtration and fibrosis.

Case 24: Acute Pancreatitis

- **Causes:** alcoholism , Bile reflux , Gallstones , medication (thiazides) ,Mumps virus, Hypercalcemia , hypertriglyceridemia iatrogenic and trauma.
- **Genes:** PRSS1, SPINK1, Idiopathic 10-20%.
- **Clinical features:** severe abdominal pain, extreme emergency situation , high mortality.
- **the most important lab test:** α - amylase .
- **consequences:**
 1. edema
 2. fat necrosis
 3. acute inflammatory infiltrate
 4. pancreas autodigestion
 5. blood vessel destruction
 6. "saponification"

Gross- Acute Pancreatitis



1. Fat necrosis appears as chalky white calcium soaps.

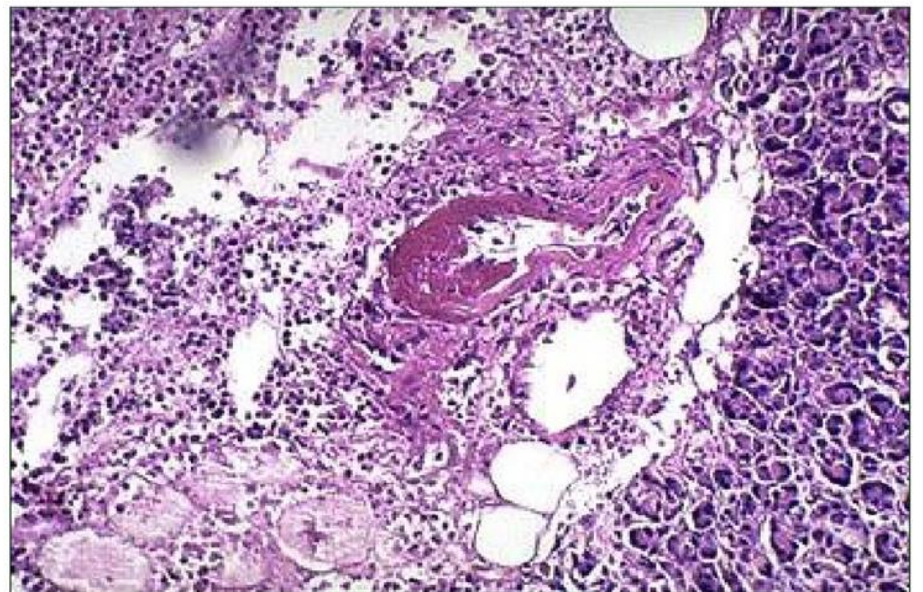
Gross- Acute Pancreatitis



1. black areas of hemorrhage .
2. chalky, yellow-white areas of fat necrosis.
3. Pancreatic parenchyma is soft and gray - white due to necrosis.

Microscopic

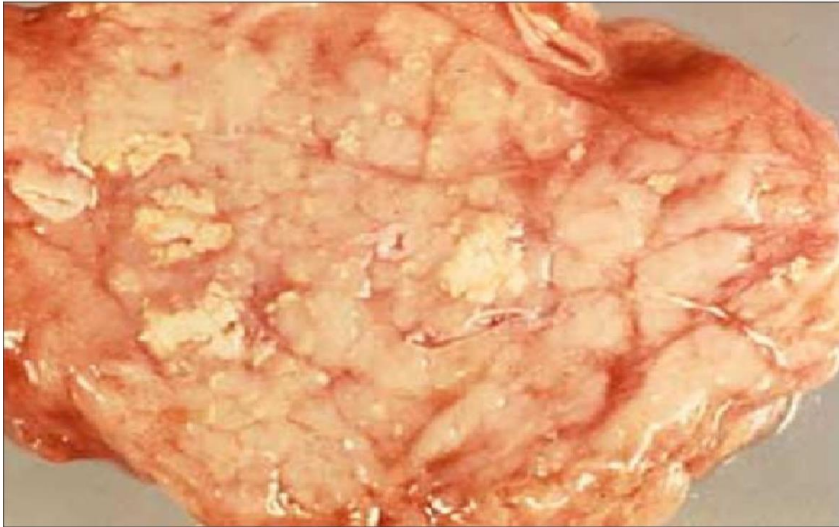
1. area of acute inflammation with necrosis.
2. fibrinoid necrosis of the vessel wall leads to severe, hemorrhagic, acute pancreatitis.



Case 25: Chronic Pancreatitis

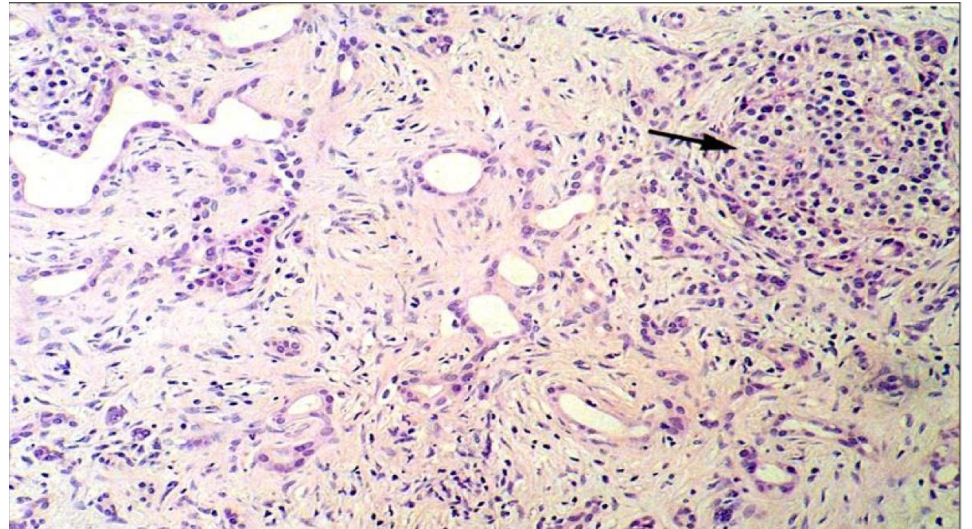
- **causes of chronic pancreatitis:** gallstones , alcoholism, tropical , hereditary and idiopathic.
- **Complications:** Malabsorption 2. Secondary Diabetes 3. Pancreatic pseudocysts.
- **Laboratory finding :** 1. mild to moderate increase of serum amylase 2. Calcification by CT scan.

Gross



1. Soap like calcium deposits .
2. Calcium deposition is secondary to fat necrosis and dystrophic calcification.

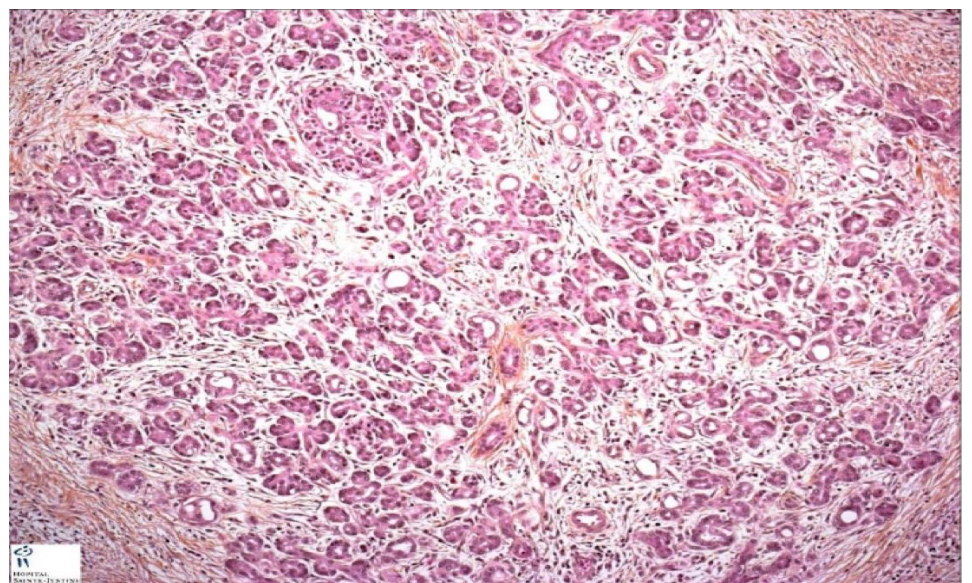
Microscopic



1. Parenchymal **fibrosis**.
2. chronic inflammatory infiltrate.
3. Reduced number and size of acini.
4. variable dilatation of pancreatic ducts.
5. relative sparing of islets of langerhans.(arrow)

Microscopic-

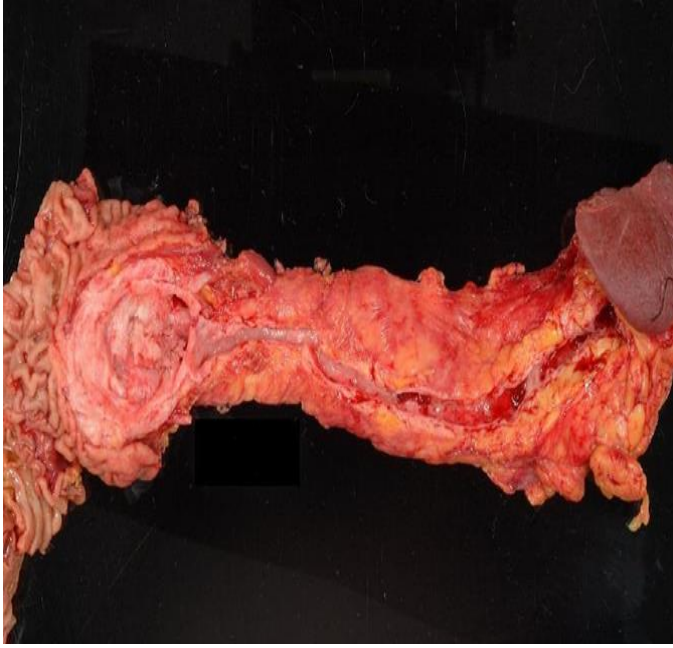
Dense fibrosis is a feature BOTH of chronic Pancreatitis as well as adenocarcinoma.



Case 26: Pancreatic Adenocarcinoma

- **Risk factors:** smoking , chronic pancreatitis, DM.
- **Genes mutation:** 1. KRAS 2. P16 3. SMAD4
- **Prognosis :** bad prognosis (high mortality rate)

Gross



1. Well circumscribed tumor nodule at the head of pancreas.
2. Dilated main pancreatic duct.
3. Part of the duodenum is seen on the **left**.
4. Spleen is seen on the **right**.

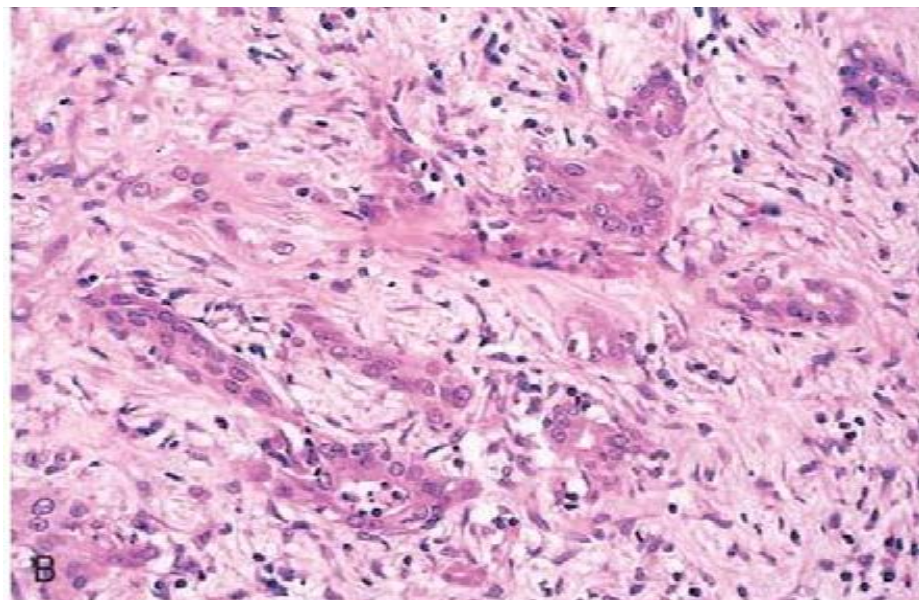


1. Cut surface of ductal adenocarcinoma
2. A microcystic pattern with cysts measuring from mm up to 1 cm.

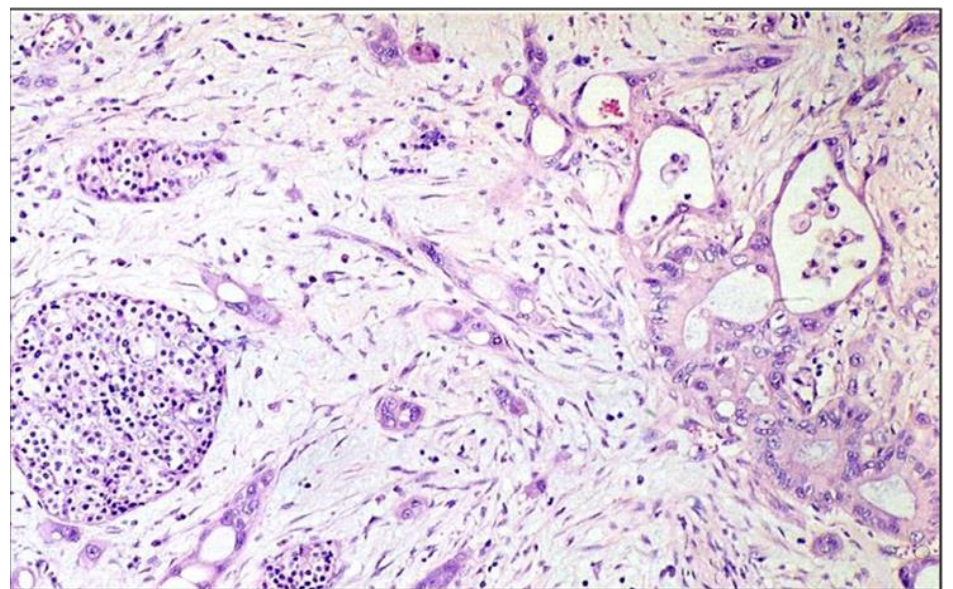


1. ill-defined pale and firm pancreatic mass.

Microscopic- LPF



1. Malignant glands or acini.
2. Surrounded by **desmoplastic** fibrous stroma.



1. Deeply infiltrative growth pattern.
2. Irregular shape and distribution.
3. **Desmoplasia**.
4. Nuclear polymorphism.
5. Loss of polarity and mitotic figure.

Thank you for checking our work & GOOD LUCK !

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Your Feedback