

2ND YEAR / GIT BLOCK

MED TEAMS 431

2012

# PATHOLOGY TEAM

*practical*

*D*one by:

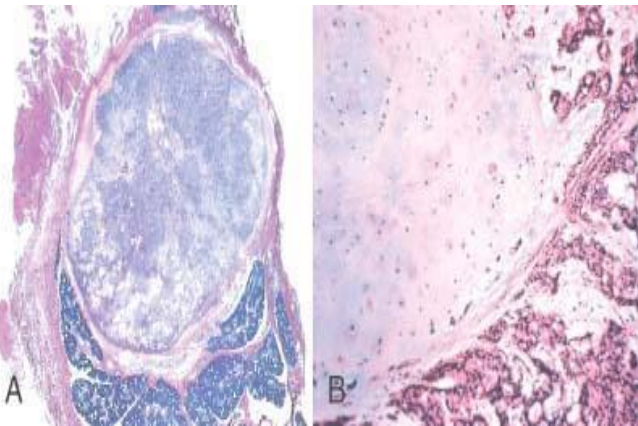
Sadeem Al dawas & Nawaf Al jarboa

# 1 PLEOMORPHIC ADENOMA

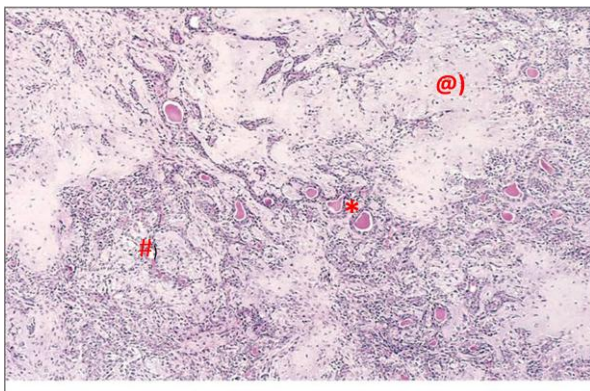
i.e., MIXED TUMOR



The classic place for ANY visible parotid **swelling** or tumor to present, between the tip of the ear and the tip (angle) of the mandible.



Mixed tumors are generally **benign**, have BOTH connective tissue (i.e., usually **cartilagenous**) components as well as **glandular** components, hence the name pleomorphic or mixed, they generally look and feel **like little round soft cartilage balls.**



Mixed tumor of the parotid gland contains

- epithelial cells forming ducts (\*)
- myoepithelial cells (#)
- chondromyxoid stroma (@) .

**Pleomorphic adenoma of the salivary gland:**

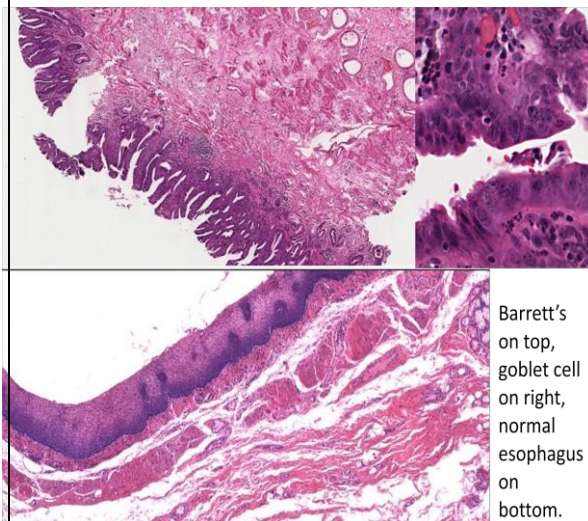
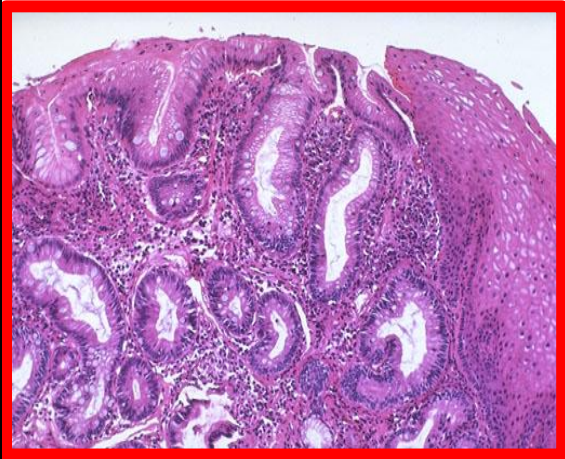
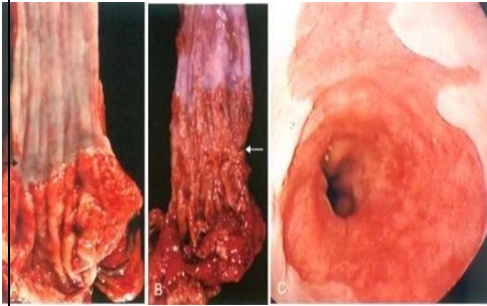
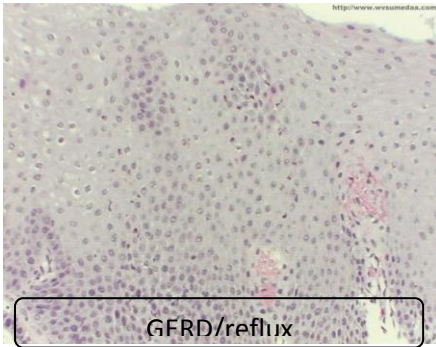
**Section shows an incomplete fibrous capsule separating the tumour from normal salivary gland:**

- Tumour shows mixed cellular components like **epithelial, myoepithelial, chondriod and myxoid elements.**
- **Epithelial areas** shows **small ducts, acini** and **strands or sheets of cells.**
- **Myxoid areas** are formed of **loose myxomatous tissue**
- **chondriod areas** consists of **pale blue matrix.**

**\*treatment : total execution**

**\* what is the biological behavior of the tumor ? benign**

## 2 - BARRETT'S ESOPHAGUS



- Inflammatory Cells

Eosinophils ,Neutrophils & Lymphocytes

- Basal zone hyperplasia
- Lamina Propria papillae elongated and congested

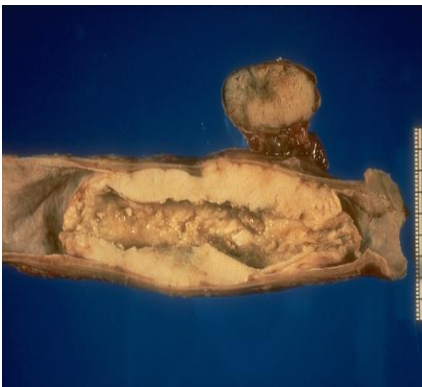
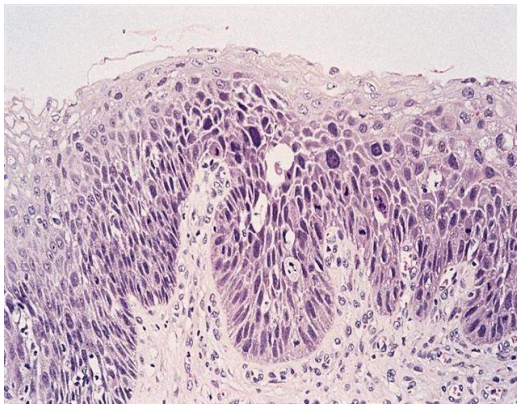
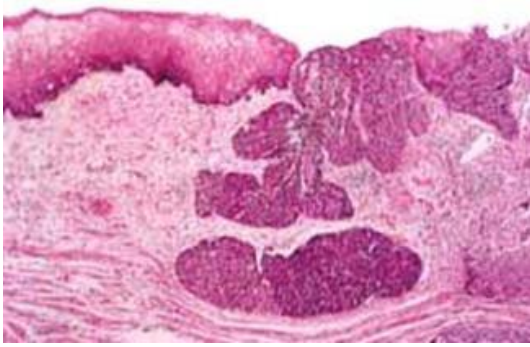
### BARRETT'S ESOPHAGUS

#### "Barrett's esophagus"

- gastric-type mucosa above the gastroesophageal junction.
- Note the columnar epithelium to the left and the squamous epithelium at the right.
- Typical Barrett's mucosa shows **intestinal metaplasia with chronic inflammation in lamina propria (esophagitis)**
- (note **the goblet cells** in the columnar mucosa).

- **INTESTINALIZED** metaplastic mucosa is **AT RISK** for **glandular dysplasia**.
- Searching for dysplasia when BARRETT's is present is of utmost importance
- **MOST/ALL adenocarcinomas arising** ( as a complication ) in the esophagus arise from previously existing BARRETT's

### 3- Carcinoma of the esophagus



Squamous cell carcinoma is the most common type of esophageal cancers

- **dysplasia → in-situ → infiltration (cancer)**

Would you call this squamous “dysplasia”?

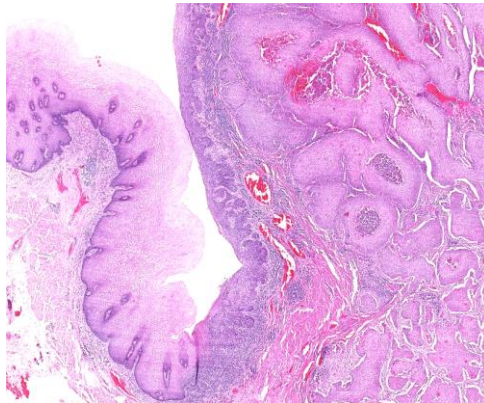
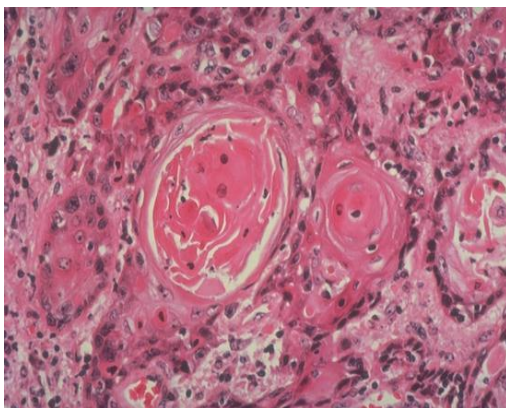
Answer: YES

Would you fear it would develop into squamous cell carcinoma? Answer: YES

Does it always? Answer: NO

Does it usually? Answer: With time, YES

**Squamous cell carcinoma** of the esophagus in a patient who presented with **progressive dysphasia**. It is easy to see how this mass produced this symptom. The oval structure adjacent to the esophagus represents **metastatic squamous cell carcinoma** within a **lymph node**.



## 4-“PEPTIC” ULCERS

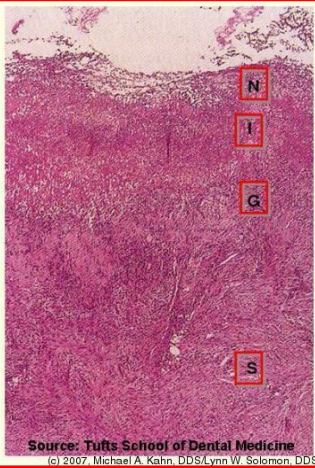


**Chronic gastric ulcer**

A 1 cm acute gastric ulcer is shown here in the upper fundus. The ulcer is **shallow and sharply demarcated**, with surrounding **hyperemia**. It is probably **benign**. However, all gastric ulcers should be biopsied to rule out a malignancy.

### The Base of a Non-perforated Chronic Peptic Ulcer

Necrosis (N)  
Inflammation (I)  
Granulation tissue (G)  
Scar (S)  
(Top - luminal surface,  
Bottom - muscular wall)



Source: Tufts School of Dental Medicine  
(c) 2007, Michael A. Kahn, DDS, Lynn W. Solomon, DDS

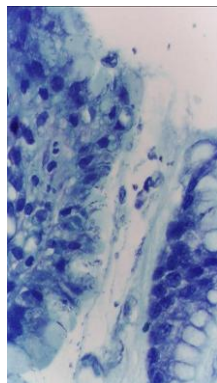
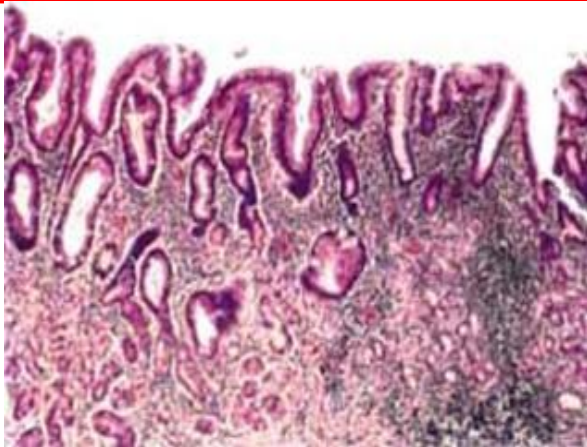
### “PEPTIC” ULCERS

Ulcer: **discontinuation of epithelium**

- “PEPTIC” implies acid cause/aggravation
- MUC → SUBMUC → MUSCULARIS → SEROSA
- Chronic, solitary (usually), adults
- 80% caused by *H. pylori*
- 100% caused by *H. pylori* in duodenum
- ❖ NSAIDS

### Gastritis

- IN the lamina propria we see **neutrophils, Lymphocytes, lymphoid follicles**
- Some REGENERATIVE CHANGES can also be noted like
- **METAPLASIA**, intestinal
- **ATROPHY, mucosal hypoplasia**, “thinning” or
- **DYS-PLASIA**



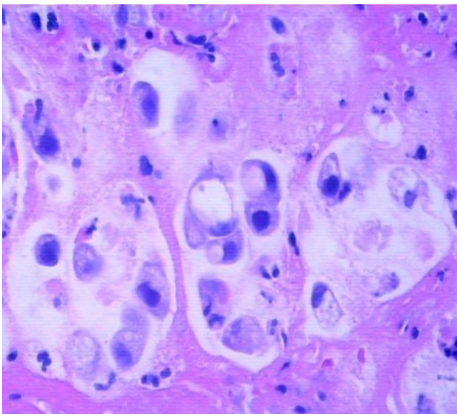
**Helicobacter pylori, gastric biopsy, silver stain on left, giemsa stain on right.**

- Gastritis is often accompanied by infection with *Helicobacter pylori*.
- This small curved to spiral rod-shaped bacterium is found in the surface epithelial mucus of most patients with active gastritis.
- **The rods are seen here with a silver stain as well as methylene blue stain**

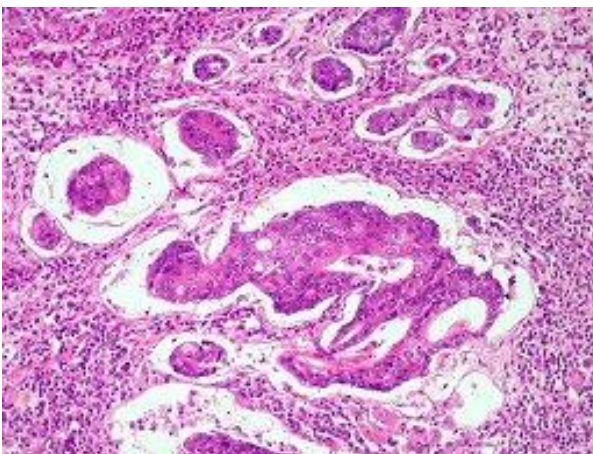
## 5-Gastric adenocarcinoma



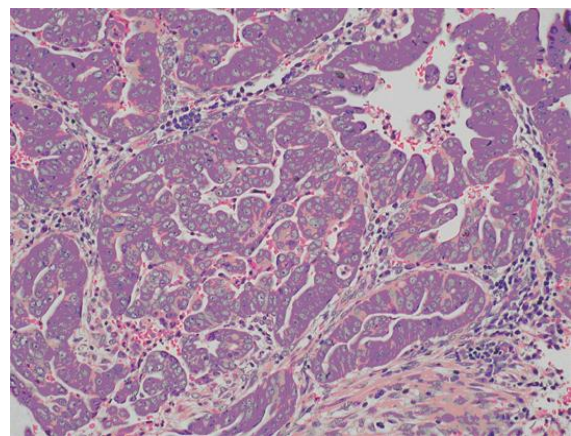
- The LINITIS PLASTICA is the most SPECTACULAR, and most FEARED, of all gastric adenocarcinomas. It grows DIFFUSELY through all layers of the stomach, **greatly thickening its wall**, and **giving the stomach a classic LEATHER BOTTLE appearance**.
- Diffuse thickening of the gastric wall which is infiltrated by a white firm tumor . It has a horrible **prognosis with early metastases to lymph nodes** .



- **Signet ring malignant glandular cells** with evidence of **intracellular mucin secretion and mitoses**
- Signet ring cells are **POORLY differentiated** adenocarcinoma cells, and are **OFTEN** seen with linitis plastica. Those large “holes” in the cytoplasm represents **intracellular mucin** which **push the nucleus to the periphery** giving the cell signet **ring appearance** .



Gastric adenocarcinoma, intestinal pattern



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

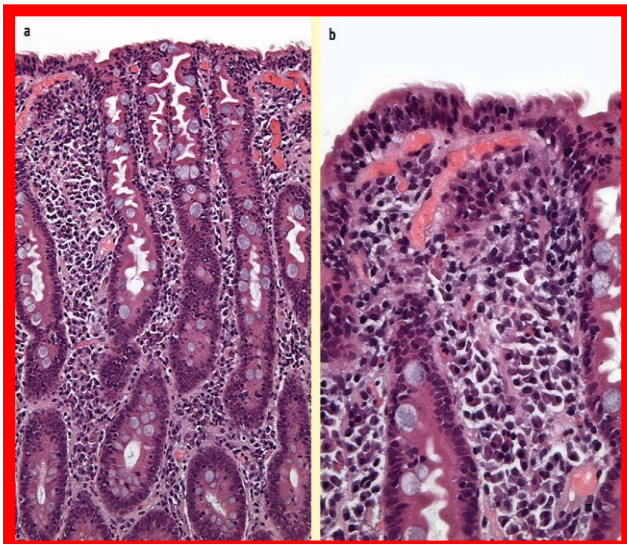
## 6- celiac disease



Normal villous length to crypt length is 3/1



**Celiac disease: complete lack of villi.**



a- Low-power view of fully developed (celiac disease) sprue-type changes. Note the **elongated crypts with complete lack of villi**.

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

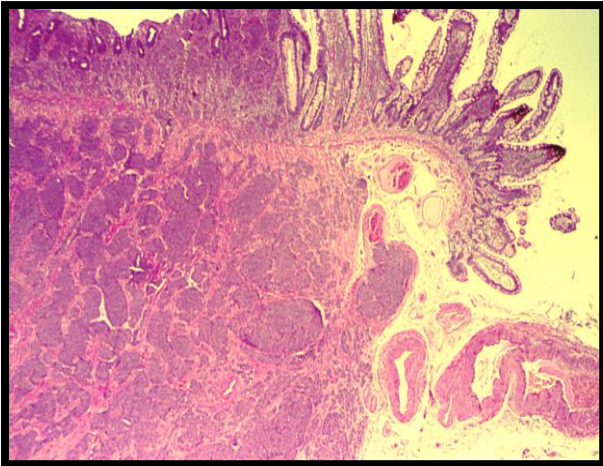
- **Increase number of Intraepithelial lymphocytes**
- **infiltration of lymphocytes & plasma cells**
- **villous atrophy and crypt hyperplasia**

Serology test show: **Antigliadin antibodies** in the sera of the patient.

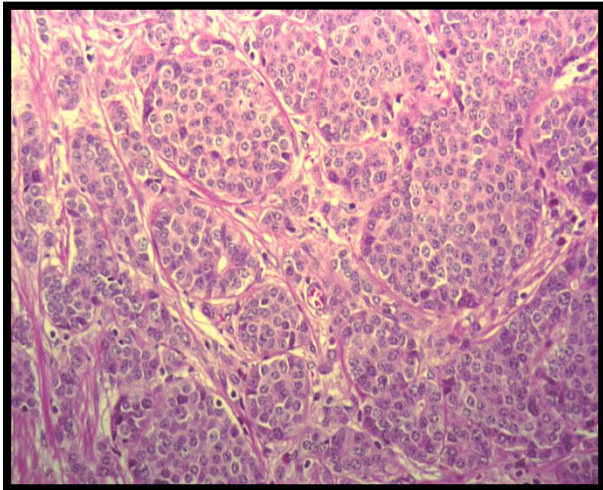
Later the patient can **develop T cell lymphoma as a complication**

Young Patient come with history of : failure to thrive

## 7-CARCINOID OF SMALL INTESTINE



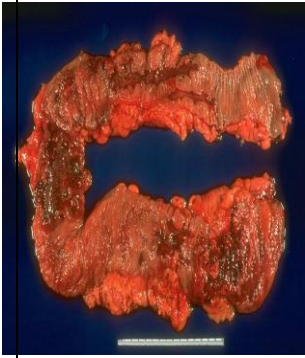
Section of small intestine shows surface **ulceration** and an **infiltrating tumour mass** in mucosa and submucosa



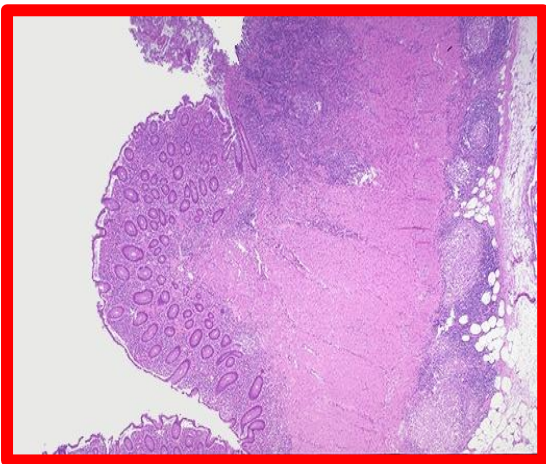
Tumour consists of **alveolar groups** and clumps of small uniform **polygonal cells** having centrally placed round nuclei and abundant **granular cytoplasm**.



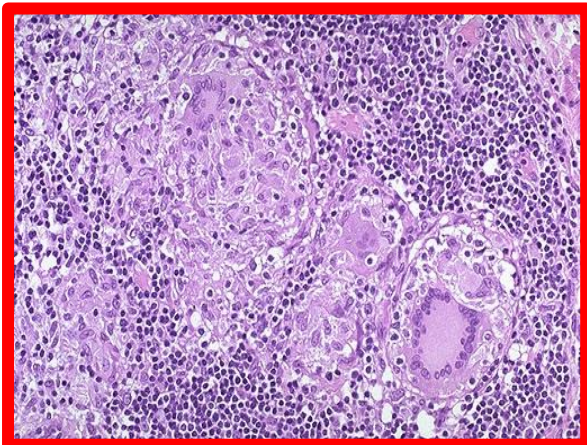
## 8-Crohn disease



- Here the inflammation has produced large, irregularly shaped to **rake-like ulcers** that are separated from each other by mucosa that appears close to normal.
- Though any portion of the gastrointestinal tract may be involved with Crohn's disease, **the small intestine and the terminal ileum in particular is most likely to be involved**



Microscopically, Crohn's disease is characterized by **transmural inflammation**. Here, inflammatory cells (the bluish infiltrates) extend from mucosa through submucosa and muscularis and **appear as nodular infiltrates** on the serosal surface with pale **granulomatous centers**.



At high magnification the granulomatous nature of the inflammation of Crohn's disease is demonstrated here with **epithelioid cells, giant cells, and many lymphocytes**.

Special stains for organisms are negative

Crohn's disease of the intestine:

Section of large bowel shows alternating normal and ulcerating mucosa:

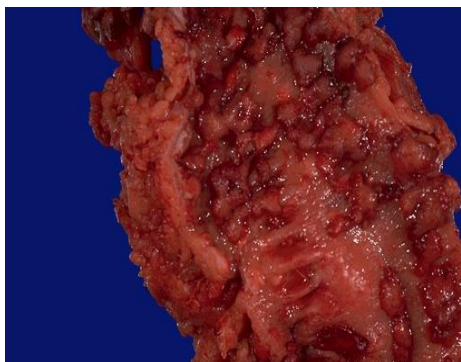
- All layers of intestinal wall show **transmural chronic inflammatory cell infiltrate, lymphoid aggregates** and **mild fibrosis**.
- **Subserosa** contains few **epithelioid granulomas**.

**\*to rule out TB the pathologist stain the sample with AFB**

## 9- ULCERATIVE COLITIS

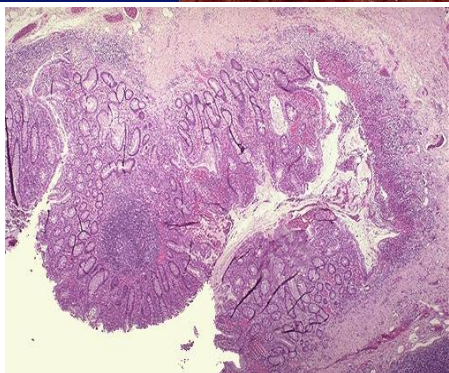


The entire colon is abnormal, and the usual transverse rugal folds have been almost completely effaced. We see **Dilated colon, ulceration, mucosal congestion and hemorrhage.**

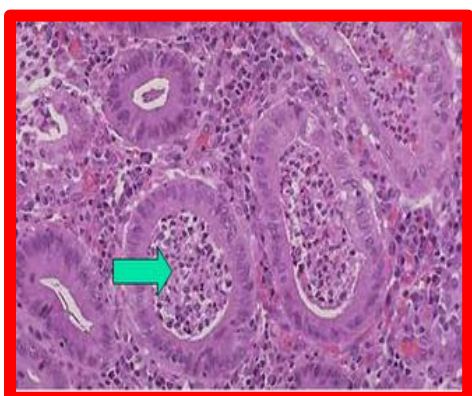


At higher magnification, the **pseudopolyps** can be seen clearly as raised red islands of inflamed mucosa.

Between the pseudopolyps is only remaining muscularis



Microscopically, the inflammation of ulcerative colitis is confined primarily to the mucosa.



Cryptitis, crypt abscess and depletion of goblet cells

### **Ulcerative colitis:**

**Section of large bowel wall show a few relatively superficial ulcers lined by acute inflammatory exudate.**

- The mucosa adjacent to the ulcers contains several **crypt abscesses** and there is evidence of **goblet cells depletion in many glands.**
- **No granulomas** or glandular dysplasia are noted.

Ulcerative colitis can give rise to

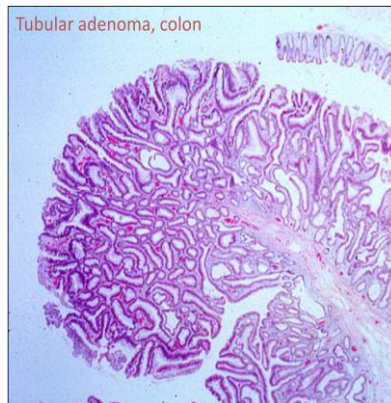
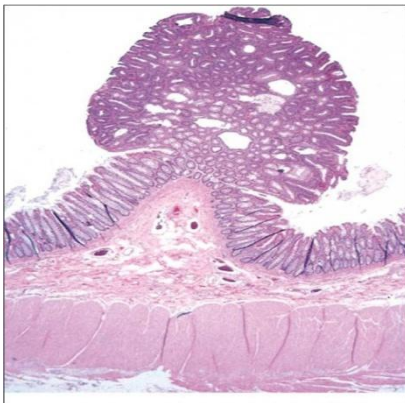
**toxic megacolon, glandular dysplasia and adenocarcinoma.**

**10- adenoma of the colon**



**Organ: Colon**

**Dx: adenoma**

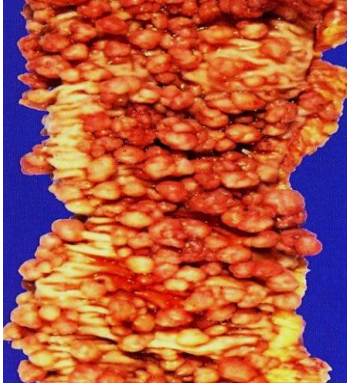


**Colonic polyp.**

## 11 -Familial polyposis coli

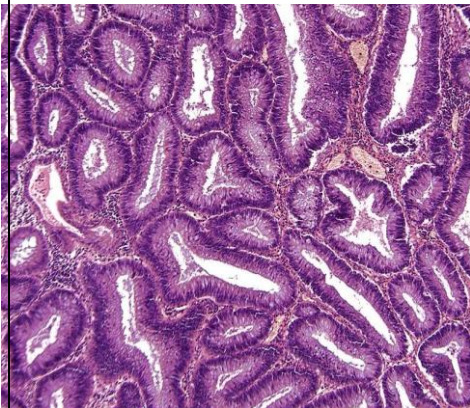


The mucosal surface of the colon is essentially a **carpet of small adenomatous polyps**. Even though they are small now, there is a 100% risk over time for development of adenocarcinoma, so a total colectomy is done, **generally before age 20**



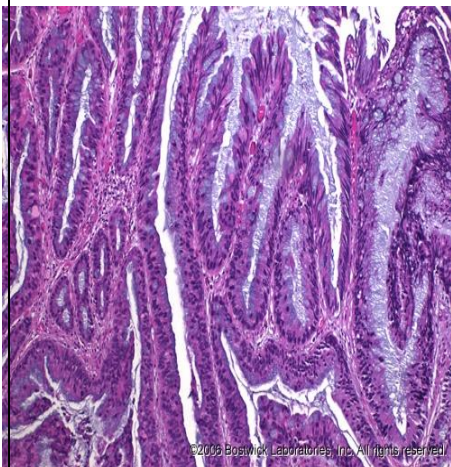
### Multiple colonic polyps.

It is caused by **mutations** of the adenomatous polyposis coli , or APC gene .



### ADENOMATOUS POLYP (TUBULAR)

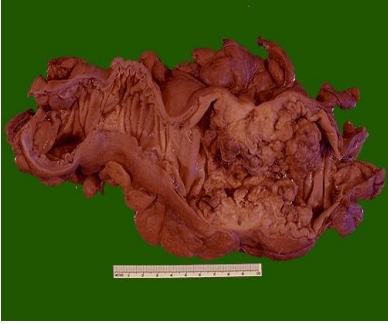
- Crowded **dysplastic glands** with **chronic inflammation**
- TUBULAR adenoma, note how all the epithelial (glandular) cells look the same.



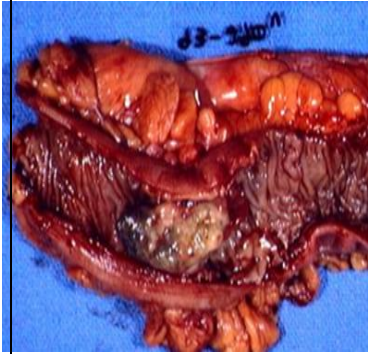
### ADENOMATOUS POLYP (VILLOUS)

- Villous adenomas behave **more aggressively than tubular** adenomas.
- They have a HIGHER rate of **developing into frank adenocarcinomas** than the “tubular” patterns

## 12- adenocarcinoma

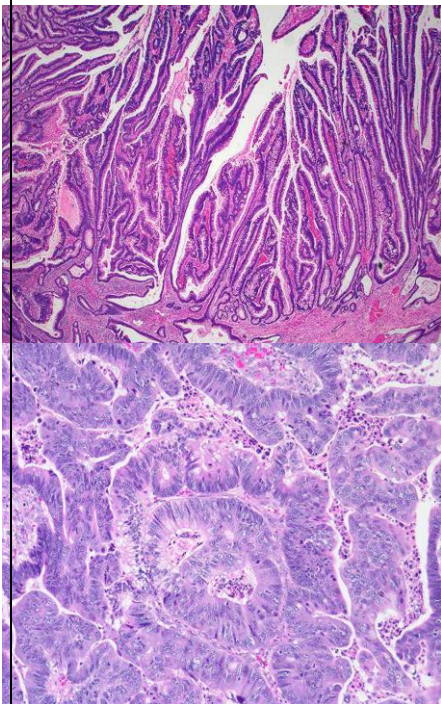


This cancer is more exophytic in its growth pattern. Thus, one of the complications of a carcinoma is **obstruction** (usually partial).



The encircling mass of firm adenocarcinoma in this colon at the left is typical for adenocarcinomas arising in the descending colon.

A change in stool or bowel habits can be created by the mass effect.

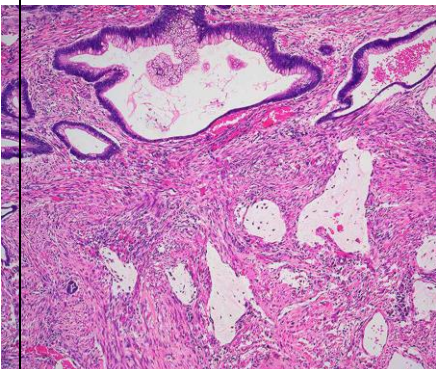


### ***Adenocarcinoma of the large intestine:***

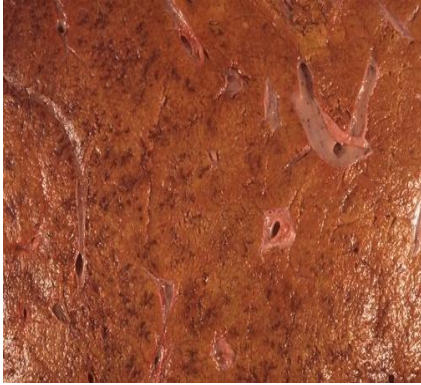
#### ***Section of large intestine shows:***

*A tumour mass at one end, and a normal mucosa on the other side:*

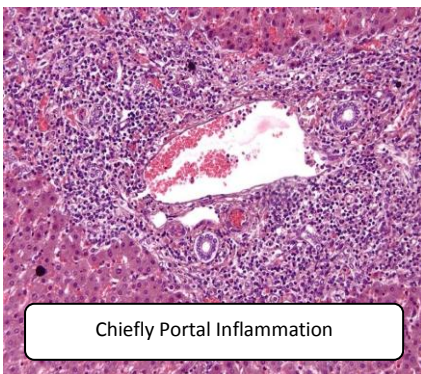
- **Tumour** consists of crowded **irregular malignant acini** separated by **thin fibrovascular stroma**.
- **The acini** are lined by one or several layers of **neoplastic cells** with **papillary projection** showing pleomorphism, hyperchromatism and few mitoses.
- **Muscle coat** is invaded by **neoplastic glands**.



## 13- Chronic hepatitis



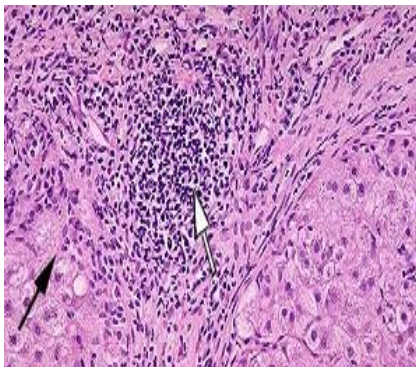
The inflammation of hepatitis starts in the portal triad areas, with increasing severity it extends to the sinusoids.



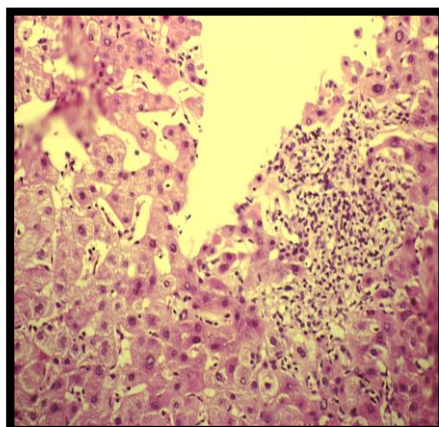
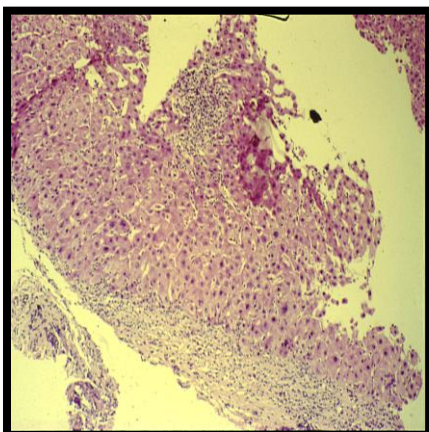
Chiefly Portal Inflammation

**Chronic hepatitis:**  
Section from this liver biopsy show:

- Moderate **chronic inflammatory cells** infiltration consisting of **lymphocytes and histiocytes** in both **portal tracts** and **liver parenchyma**.
- **Piecemeal necrosis** ( **necrosis around the portal triad**), **hepatocytes swelling** and **“spotty” hepatocytes necrosis** are also noticed.



More severe portal infiltrates with sinusoidal infiltrates also

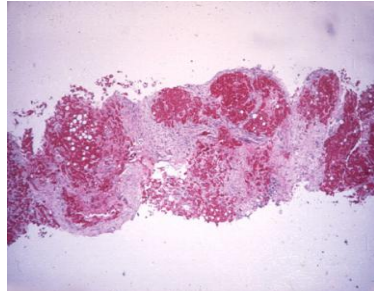
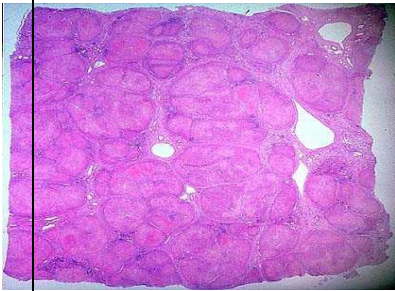


## 14- macronodular cirrhosis (HBV)

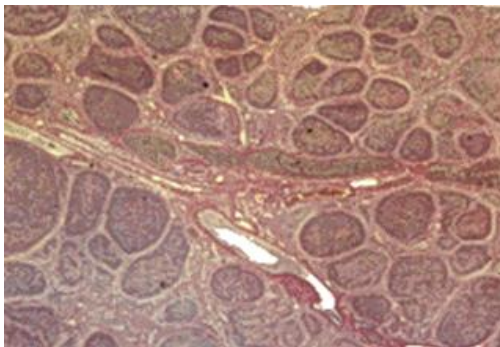


- Multiple **nodules** of variable sizes with **fibrosis**.
- The **complications** of cirrhosis can be :

Portal hypertension ,Hepatic failure, hepatocellular carcinoma.

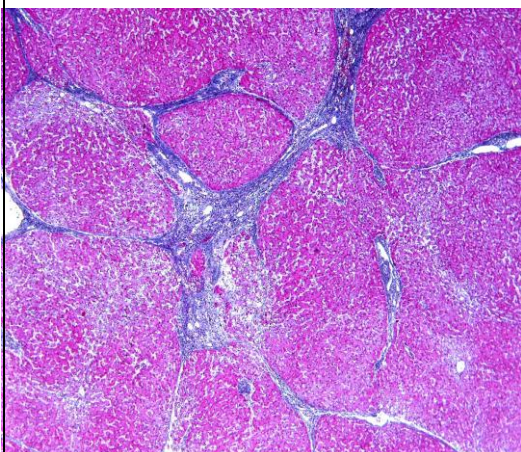


**irregular nodules** separated by portal-to-portal **fibrous bands**



**Cirrhosis** >> Very low power microscopic view of the liver.

- The **parenchyma** shows **darker tan nodules** of varying sizes.
- These nodules are composed of **hepatocytes**.
- The **paler areas** in between are **collagen**.

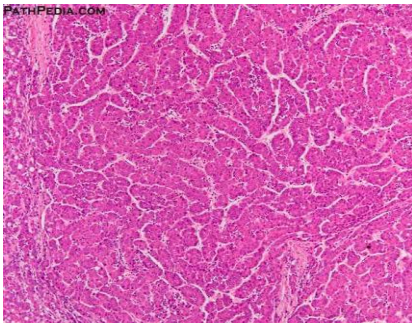


**Cirrhosis, trichrome stain for fibrosis**

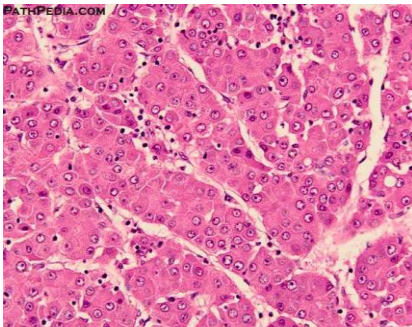
Cirrhosis of the liver  
Section of liver show:

- **Loss of lobular** architecture and formation of **regenerative nodules** of variable size and shape, surrounded by **fibrous tissue**.
- Each **nodules consists** of liver cells without any arrangement and with no central vein.
- Large number of **proliferated bile ducts** and **chronic inflammatory cells** are present in **fibrous tissue**.

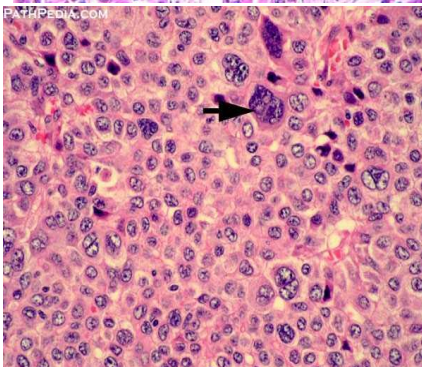
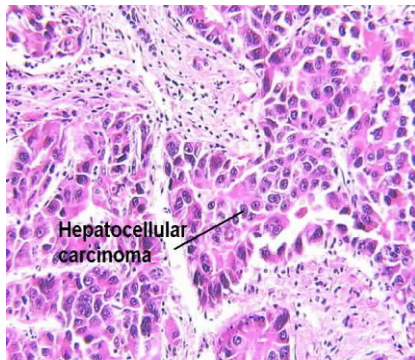
## 15 -Hepatocellular carcinoma



This example of well-differentiated HCC shows a **trabecular pattern** with **intervening sinusoids**.



The key to the identification of HCC is its resemblance to hepatocytes, the presence of more **than 2-3 cell-thick hepatocellular plates/cords**, **nuclear atypia**, and **absence of portal tracts**. Note the hepatic plates are separated from each other by sinusoids



Hepatocellular carcinoma:

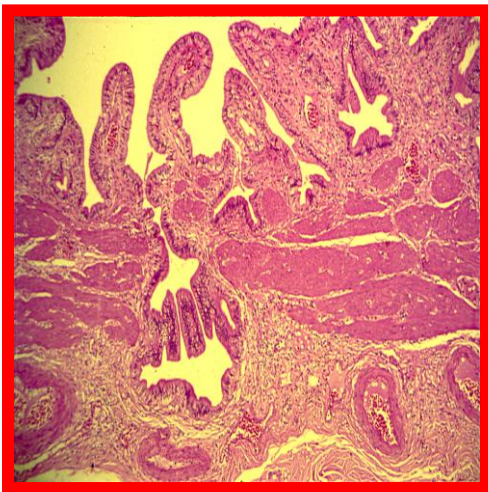
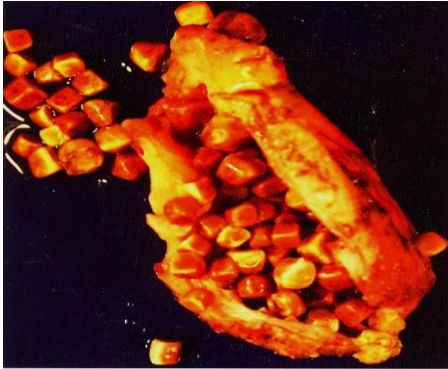
Section show tumour consisting of:

- Thick cords, **trabeculate** and **nests of malignant** liver cells separated by **sinusoidal spaces**.
- Malignant liver cells are pleomorphic, binucleated or forming giant cells with **hyperchromatic nuclei**.
- **Mitoses** are numerous.
- Areas of **haemorrhage** and **necrosis** are present.

Anaplastic tumor **giant cells** can be seen in poorly differentiated HCC



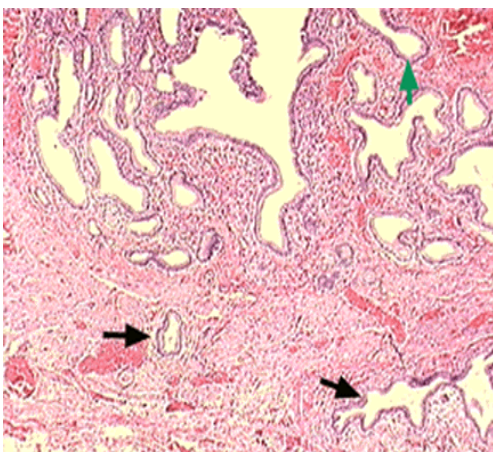
## 16- chronic cholecystitis



*Chronic cholecystitis:*

*Section of gallbladder wall shows:*

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



The surface epithelium has lost its normal delicate papillary appearance (green arrow) with an increase in fibrous tissue and mild chronic inflammation in the lamina propria

- Rokitansky-Aschoff sinuses are seen in the muscularis (black arrow)
- The degree of chronic inflammation is quite variable and as in this case **surprisingly mild**

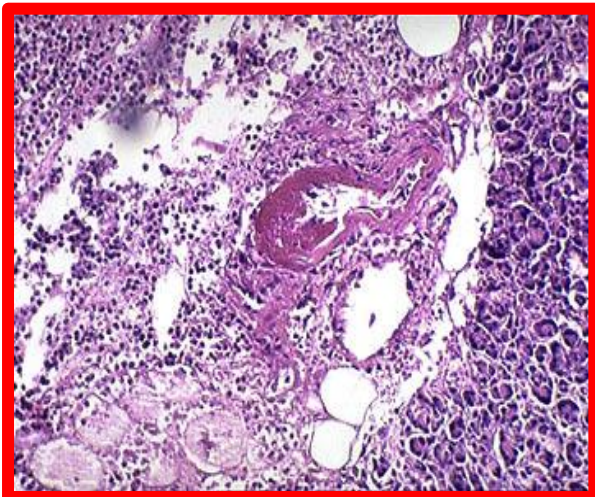
## 17- acute pancreatitis



In severe acute pancreatitis, **black areas** of **hemorrhage** are present within the pancreas as well as chalky, **yellow-white areas** of **fat necrosis**. Pancreatic parenchyma is soft and gray-white due to **necrosis**

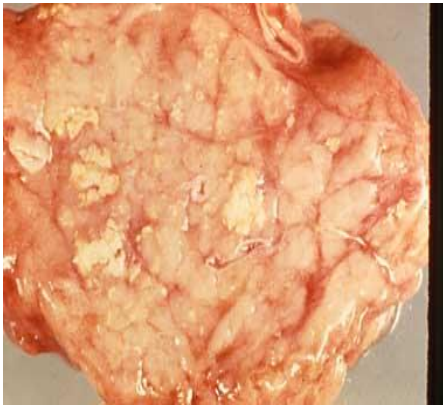


Does this look like a partly digested piece of meat? It is.

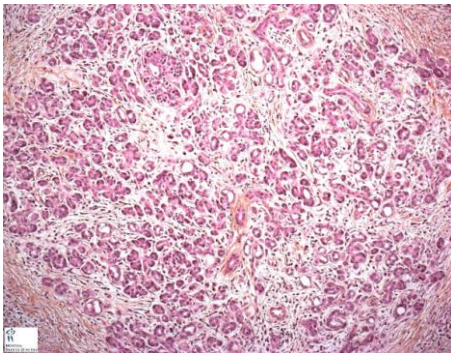


This image of severe acute pancreatitis shows an area of **acute inflammation** with **necrosis**. Within the necrotic area is a **blood vessel showing fibrinoid necrosis** of the vessel wall. Damage such as this leads to severe, **hemorrhagic, acute pancreatitis**

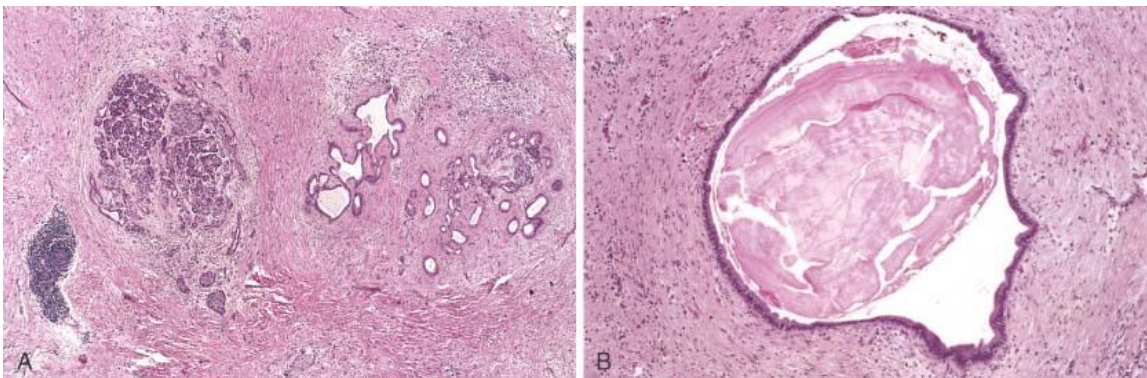
## 18 - Chronic Pancreatitis



Hard, shrunken, dilated ducts, visible **calcified** concretions



Unfortunately **dense fibrosis** is a feature BOTH of **chronic pancreatitis** as well as **adenocarcinoma**.



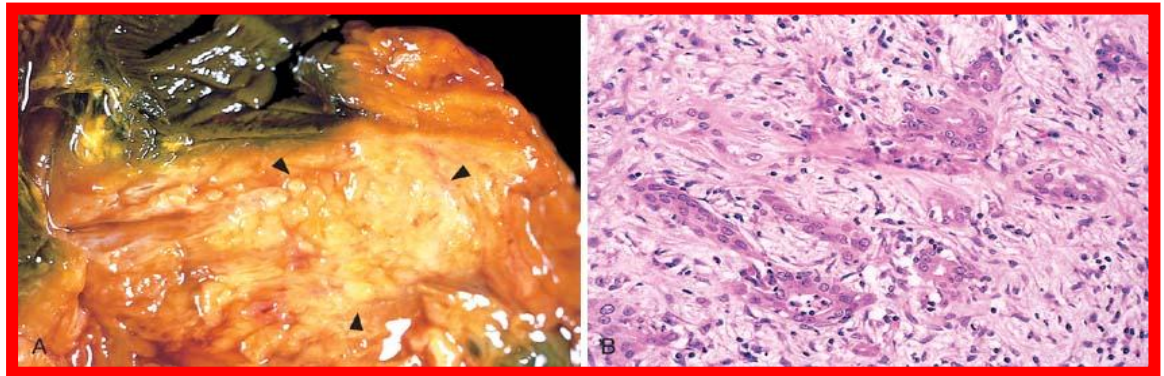
**Loss of acini** and **ductal tissue** with relative sparing of islets, irregularly distributed **bland peri-ductal fibrosis**.

**Chronic inflammation** around lobules and ducts.

What is every pathologist's nightmare?

Ans: Getting a small needle biopsy of sclerosing pancreatitis and calling it cancer, getting the "Whipple" specimen the next day, and realizing you were **WRONG!** The patient has now undergone an operation which has a 10% mortality rate, for no reason, and the malpractice attorneys are at your door like jackals.

## 19 -Pancreatic Adenocarcinoma

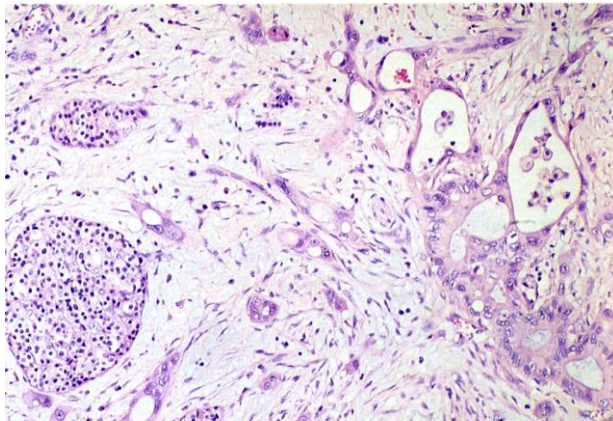


Ill defined pale and firm pancreatic mass

Malignant glands or acini surrounded by desmoplastic fibrous stroma.

**the risk factors are**

Smoking ,chronic pancreatitis and diabetes mellitus



Malignant glands surrounded by desmoplasia

**Done by :**

**Sadeem al-dawas**

**Nawaf al-jarboa**