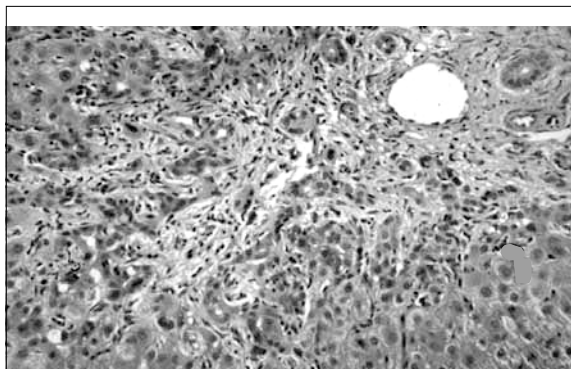
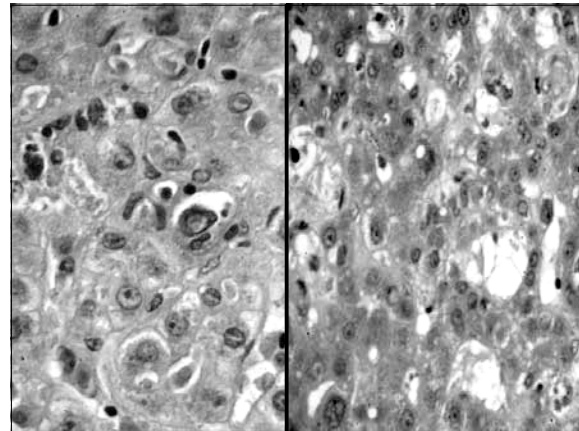
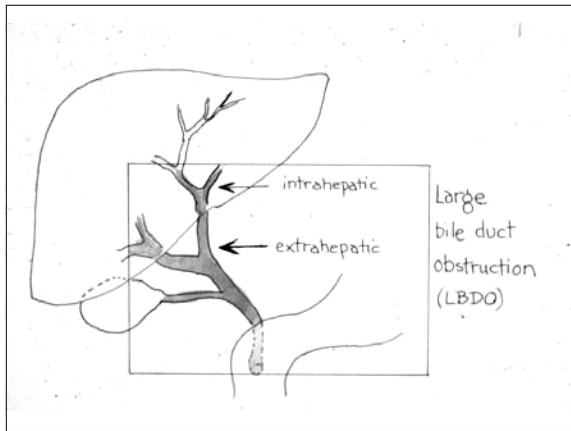
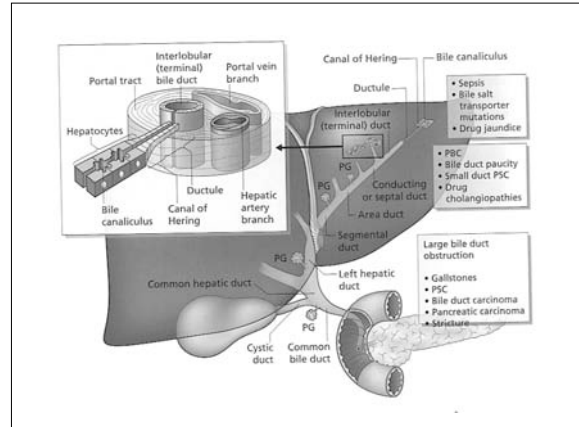
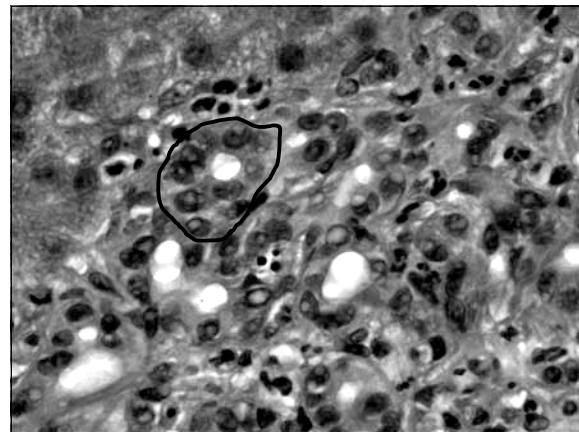


# Liver Pathology 4:

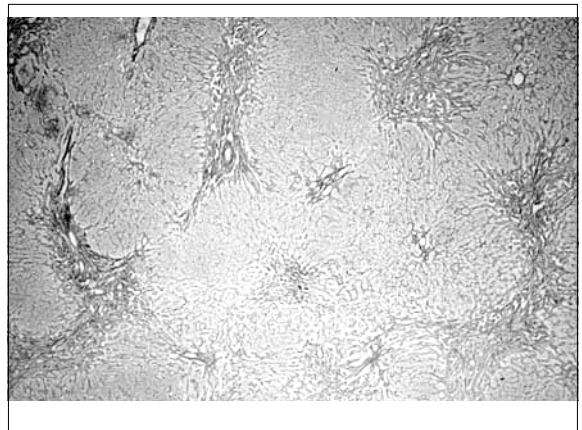
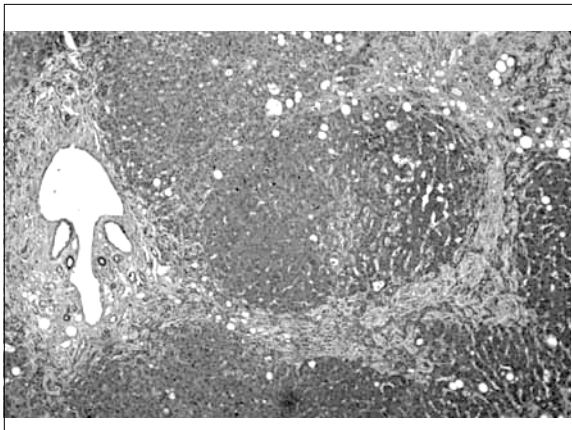
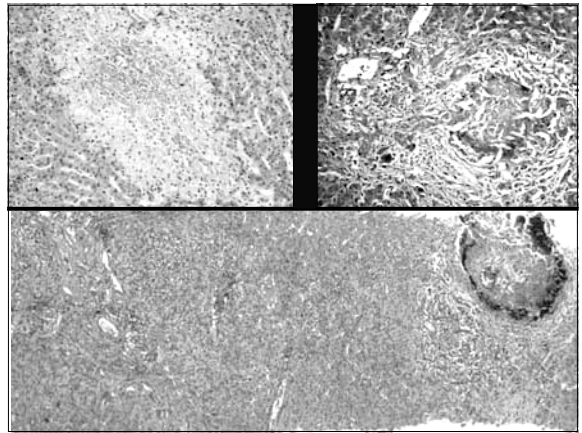
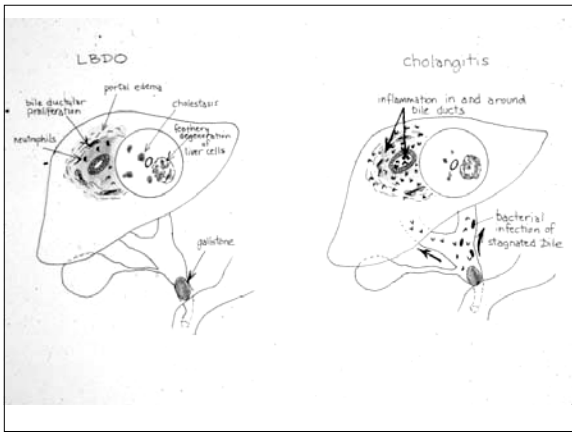
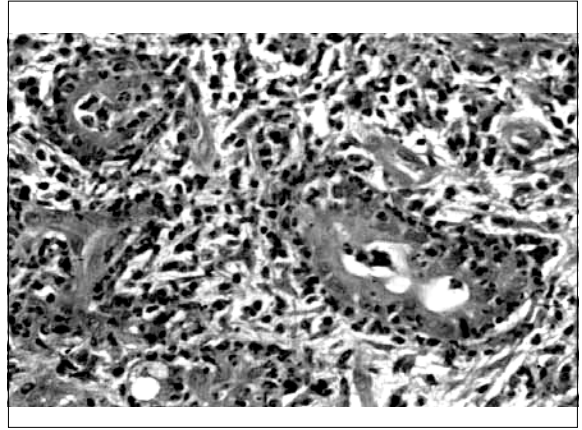
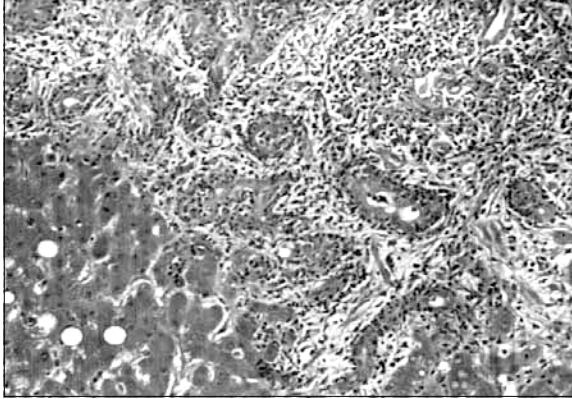
- Biliary diseases
- Vascular diseases
- Tumors

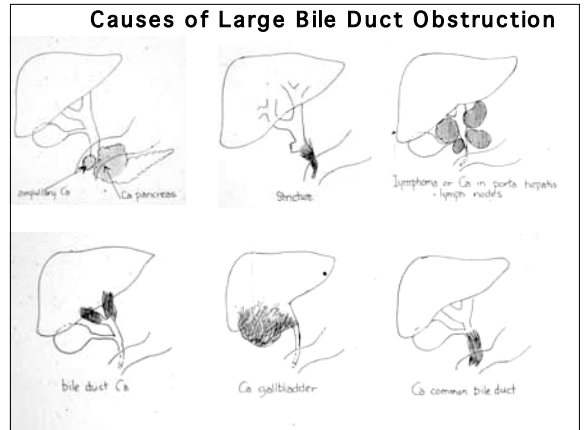
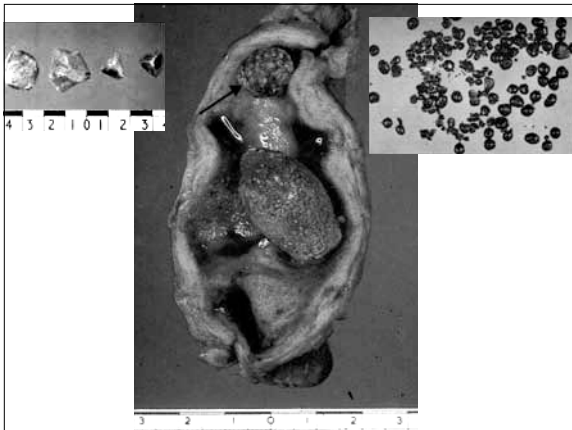
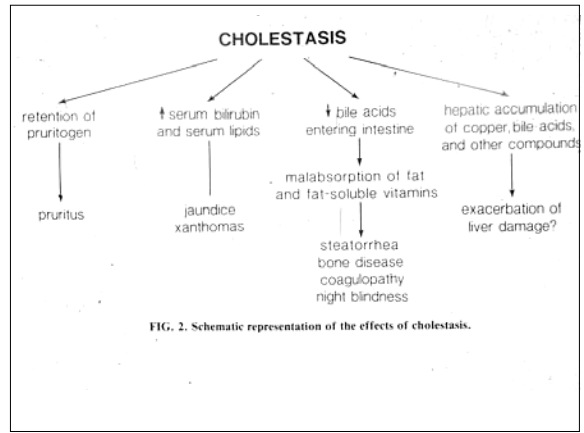
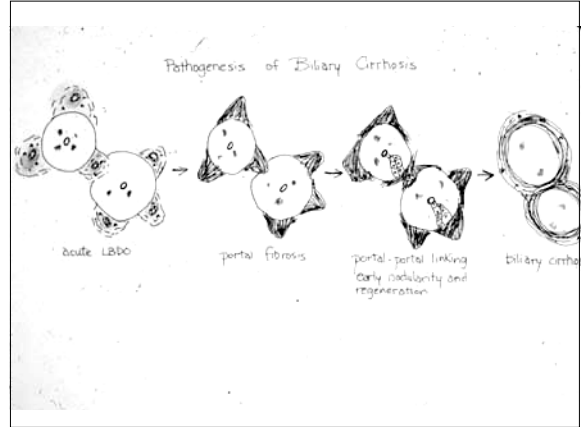
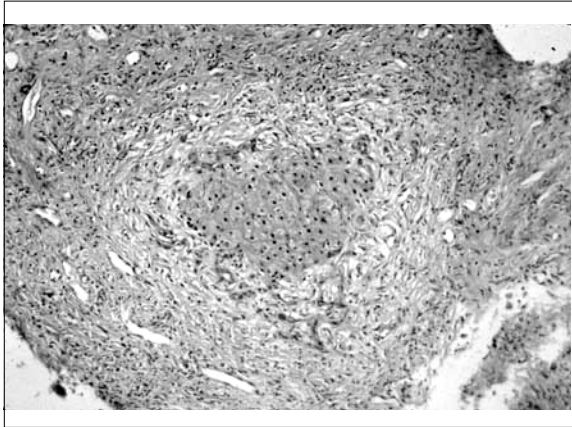


Portal tract changes in acute large bile duct obstruction:

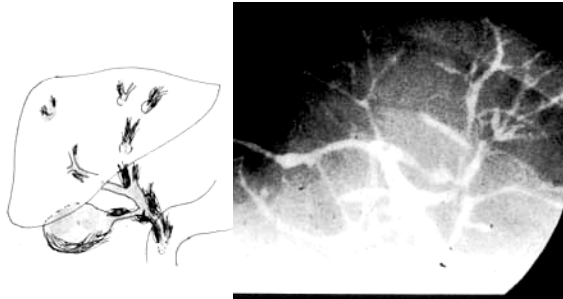


**Acute Cholangitis (ascending cholangitis)**

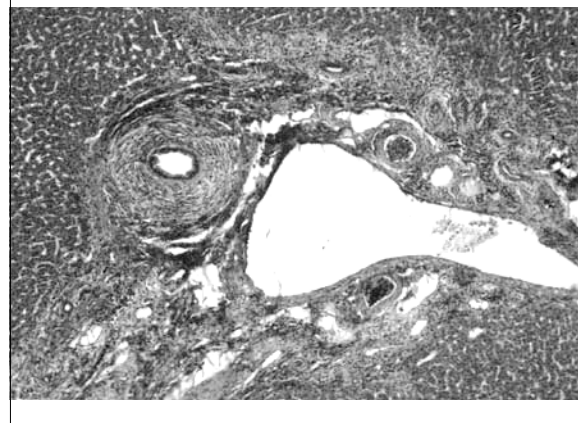




## Primary Sclerosing Cholangitis (PSC)



ERCP: endoscopic retrograde

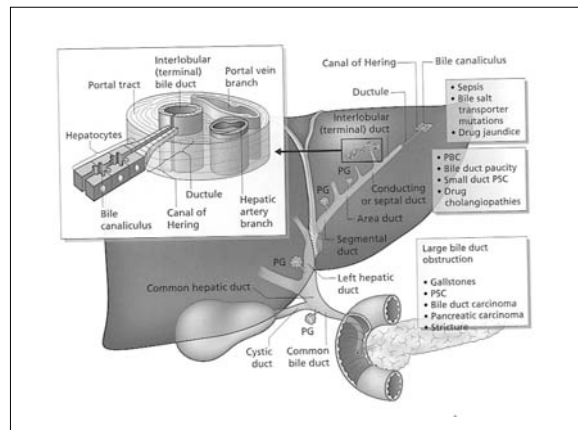


## Primary Sclerosing Cholangitis (PSC)

*Idiopathic fibrosing, stricturing and inflammatory disorder affecting extrahepatic bile ducts ± intrahepatic bile ducts*

### Associations

- Ulcerative colitis (75%) fewer Crohn's
- Positive serum pANCA
- Retroperitoneal fibrosis
- Riedel's struma of thyroid
- Mediastinal fibrosis
- Retroorbital tumor & fibrosis



## Primary Biliary Cirrhosis (PBC)

Guys' Hospital Report  
London, 1851

Addison & Gull

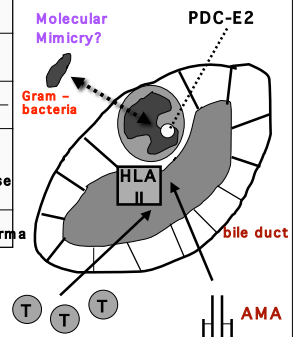


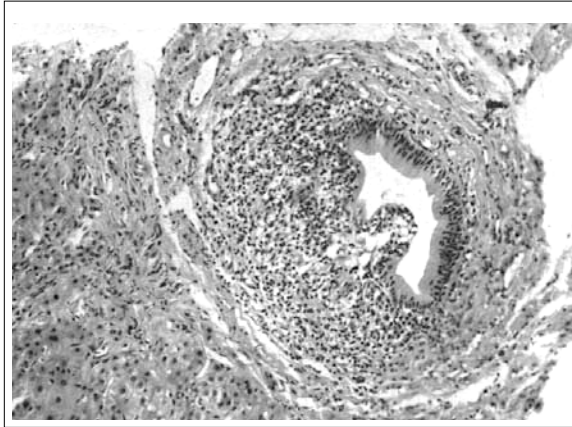
Mrs. Elizabeth Peacock

## PBC: Primary biliary cirrhosis----

### Chronic nonsuppurative destructive cholangitis

- middle-aged women
- + AMA (anti-mitochondrial antibodies); M2 subtype
- ↑ Alkaline Phosphatase
- ↑ IgM
- AMA directed against inner mitochondrial membrane PDC-E2 (pyruvate dehydrogenase complex-E2)
- Assoc. with other autoimmune dis: e.g. RA, sicca, celiac, scleroderma





#### 4 Stages of PBC

Stage 1: florid bile duct lesion



Stage 2: bile ductular proliferation



Stage 3: scarring

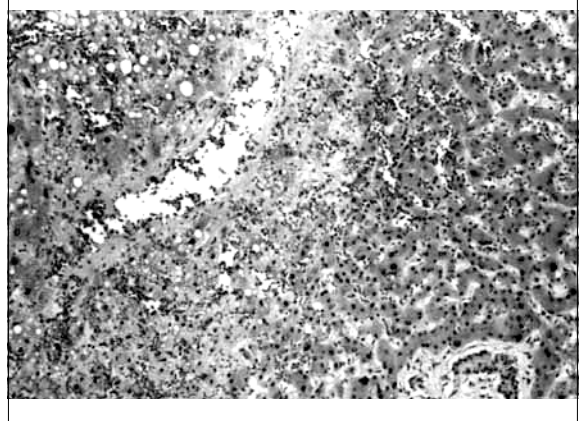
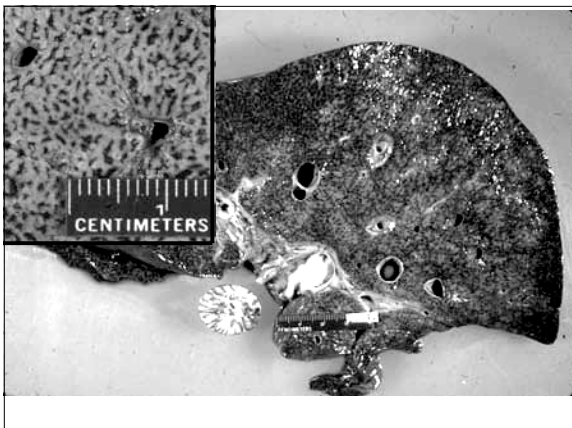
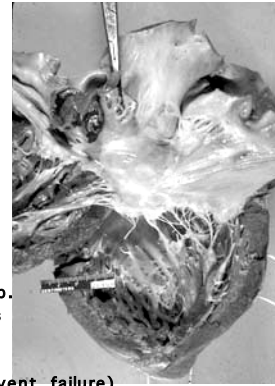
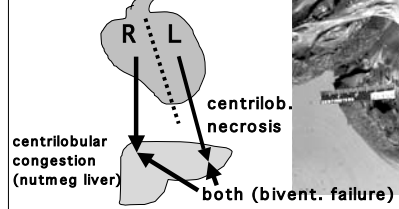


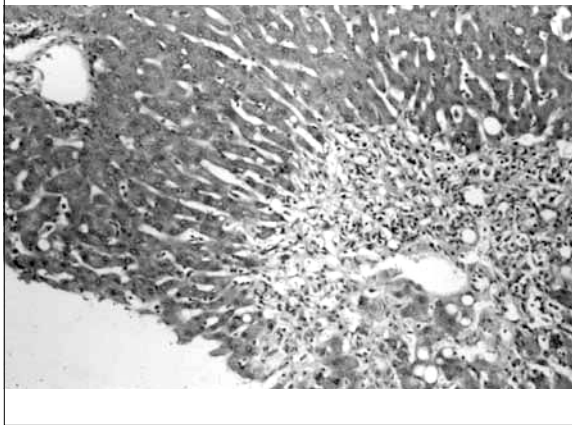
Stage 4: cirrhosis



#### Vascular Disease & the Liver

- Veins: central/hepatic
- Sinusoids
- Effects of heart failure

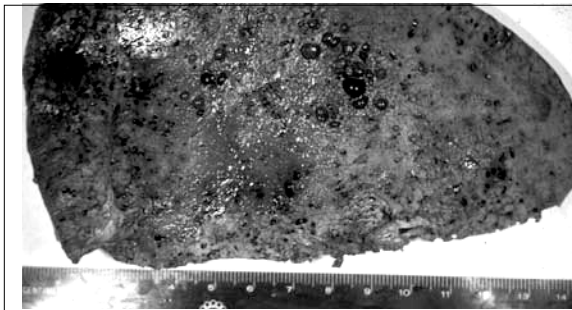
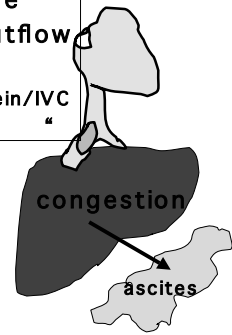




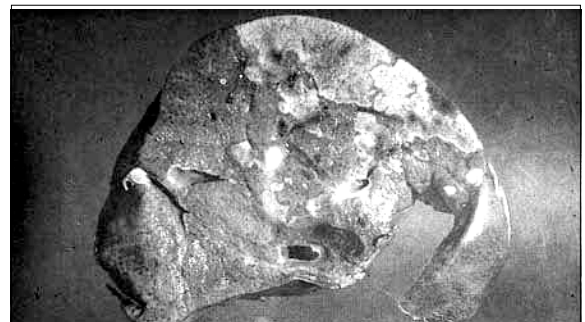
**Budd-Chiari Syndrome**  
(Hepatic venous outflow obstruction)

- Thrombosis of hepatic vein/IVC
- Tumor invasion of “ “ “

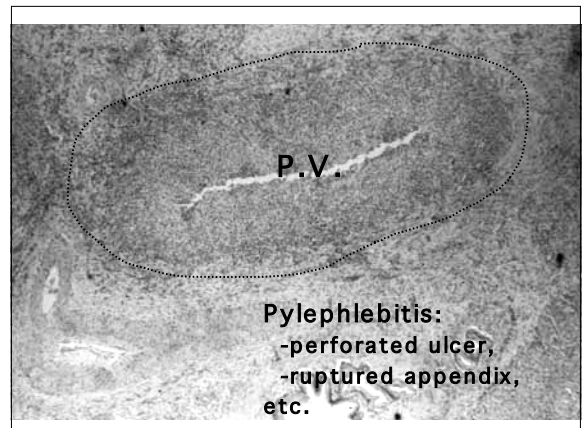
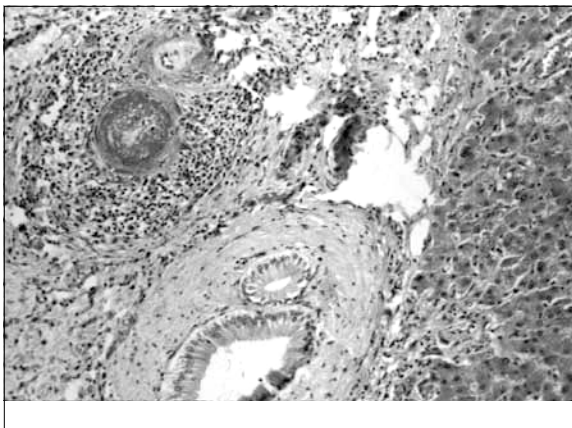
- oral contraceptives
- coagulopathy (prot. S, C, factor V Leiden def., anti-cardiolipin Ab's)
- tumor invasion: renal cell CA + HCC
- small vein disease: VOD (“bush tea”)



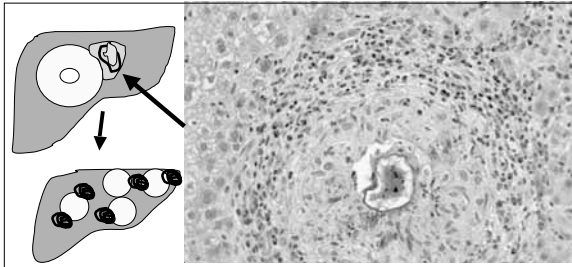
**Peliosis hepatis:** blood lakes of the liver  
-HIV, C17-alkylated steroids, (OC's, anabolic steroids); systemic inflam



**Infarct:** Arterial disease (PAN, ligation, chemoRx installation)  
**Portal vein:** Zahn infarct



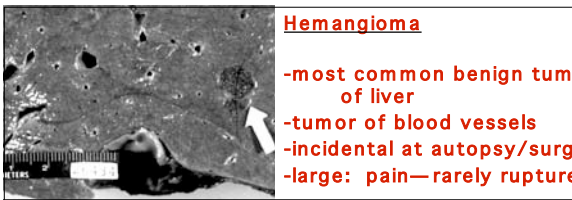
**Pylephlebitis:**  
-perforated ulcer,  
-ruptured appendix,  
etc.



**Schistosomiasis:** Pre-sinusoidal, intrahepatic portal hypertension (Symmers' "clay pipestem fibrosis")

## Liver Tumors

<p><b><u>BENIGN</u></b></p> <ul style="list-style-type: none"> <li>• hemangioma</li> <li>• liver cell adenoma</li> <li>• focal nodular hyperplasia (FNH)</li> </ul>	<p><b><u>MALIGNANT</u></b></p> <ul style="list-style-type: none"> <li>• metastasis is most common tumor <u>in</u> the liver</li> <li>• hepatocellular carcinoma (HCC)</li> <li>• bile duct carcinoma</li> </ul>
---	---



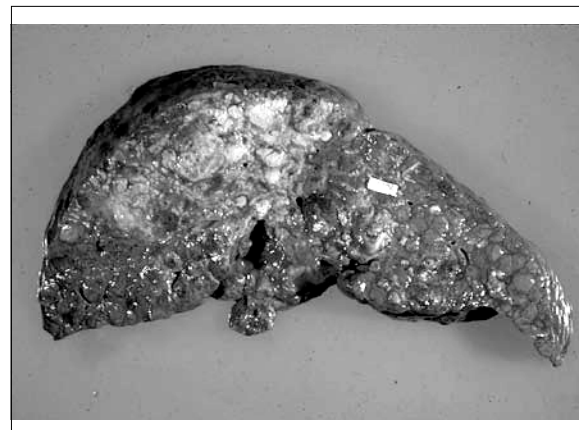
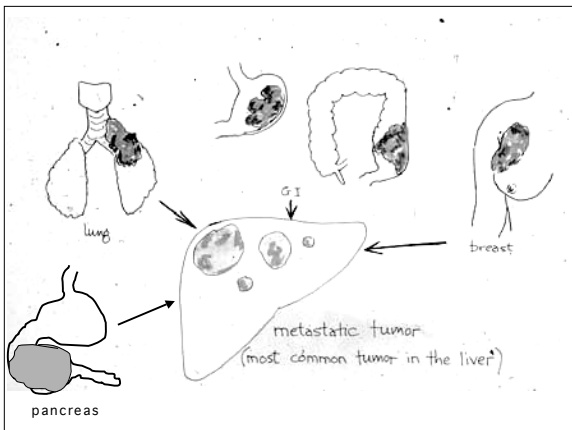
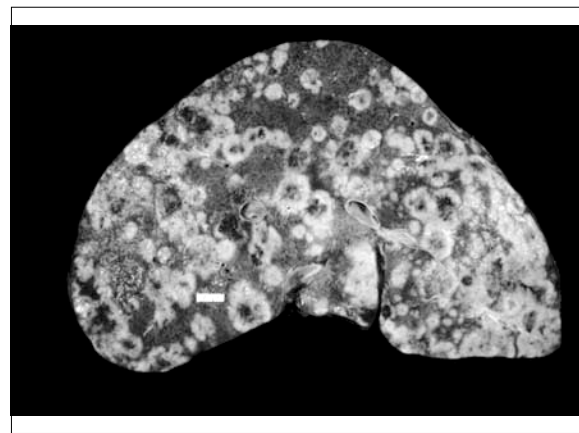
**Hemangioma**

- most common benign tumor of liver
- tumor of blood vessels
- incidental at autopsy/surg
- large: pain—rarely rupture



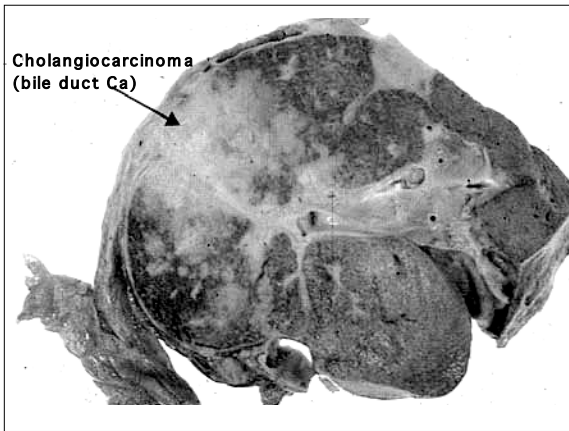
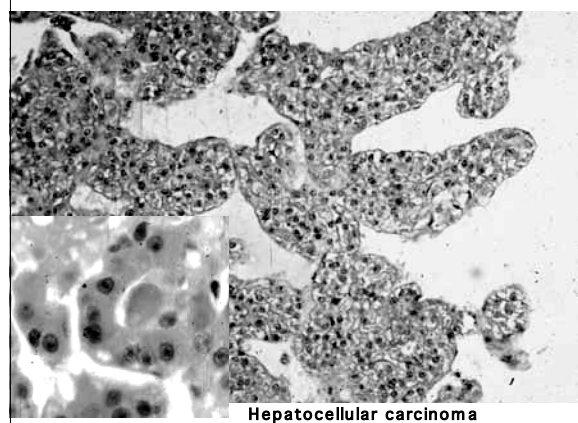
**Liver-cell adenoma (LCA)**

- benign tumor of hepatocytes
- no bile ducts present
- risks: oral contraceptives, hepatocyte nuclear factor 1α mutations, glycogen storage disease type 1



# HCC

- 75% of pts have cirrhosis
- 75% are serum AFP +
- **Risks:** Cirrhosis due to HBV, HCV, alcohol, hemochromatosis
- **Invades veins:** portal vein/hepatic vein/IVC→to lungs



## Cholangiocarcinoma associated with:

- **Liver flukes:**
  - Clonorchis sinensis
  - Opisthorcis viverrini
- **PSC**
- **Gallstone disease, hepatolithiasis**



## Dame Sheila Sherlock

The Royal Free Hospital  
London, U.K.

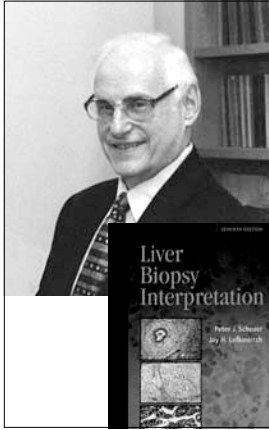
“Diseases of the Liver & Biliary System”



Peter J. Scheuer  
Royal Free Hospital, London

Hans Popper  
Mt. Sinai Med. Ctr





**Peter J. Scheuer, M.D.**  
Nov. 15, 1928 – Mar. 1, 2006

**Royal Free Hospital  
Prof. of Histopathology**

**“Liver Biopsy  
Interpretation”**

**-1<sup>st</sup> Edition: 1968**

**-7<sup>th</sup> Edition: 2005**

