Liver Pathology 4:

- Biliary diseases
- Vascular diseases
- Parasites
- Tumors
- Liver transplantation
Large bile duct obstruction (LBDO)
FIG. 2. Schematic representation of the effects of cholestasis.
Causes of Large Bile Duct Obstruction

- Ampullary Ca
- Ca pancreas
- Stricture
- Lymphoma or Ca in porta hepatitis - lymph nodes
- Bile duct Ca
- Ca gallbladder
- Ca common bile duct
Extrahepatic Biliary Atresia (EHBA)

- Reovirus 3
- Rotavirus
- Immune targeting?
Primary Sclerosing Cholangitis (PSC)

ERCP: endoscopic retrograde cholangiopancreatography
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

Molecular Mimicry?
Gram – bacteria

florid bile duct lesion

PDC-E2

AMA

HLA II

bile duct

T

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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
- Sinusoids
- Arteries

- Liver is often involved in heart disease or other outflow problems ("hepatic venous outflow obstruction")
Budd-Chiari Syndrome
(Hepatic venous outflow obstruction)

- oral contraceptives
- coagulopathy (prot. S, C, factor V Leiden def., anti-cardiolipin Ab’s)
- tumor invasion of hep. V’s or IVC: renal cell CA + HCC
- small vein disease: VOD
Peliosis hepatis: blood lakes of the liver
-HIV, C17-alkylated steroids (OC’s, anabolic steroids; systemic inflamm.)
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

**BENIGN**
- hemangioma
- liver cell adenoma
- focal nodular hyperplasia (FNH)

**MALIGNANT**
- *metastasis is most common tumor in the liver*
- hepatocellular carcinoma (HCC)
- bile duct carcinoma
LIVER-CELL ADENOMA
- oral contraceptives
- hepatocyte nuclear factor 1α (HNF-1α) mutations
  - benign hepatocytes, bld vessels, NO b.d.’s

FOCAL NODULAR HYPERPLASIA (FNH)
- malformation: central scar with artery, outgrowth of cirrhosis-like mass
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
Hepatocellular carcinoma (HCC)

FIBROLAMELLAR Ca: young, no risks
-better prognosis with resection/tx

No cirrhosis
Cholangiocarcinoma (bile duct Ca)

Cholangiocarcinoma associated with:

• Liver flukes:
  - Clonorchis sinensis
  - Opisthorchis viverrini
• PSC
• Gallstone disease, hepatolithiasis
Liver Transplantation

- Cirrhosis
  - HBV, HCV
- PBC
- PSC
- Extrahepatic biliary atresia
- AFLD/NAFLD
- Metabolic disorders

Acute Rejection
Liver Transplantation Pathology

1. Acute rejection: triad
2. Preservation injury (ischemia/reperfusion)
3. CMV hepatitis
4. Recurrent original disease
5. De novo autoimmune hepatitis
6. Chronic rejection

Dame Sheila Sherlock
The Royal Free Hospital
London, U.K.
“Diseases of the Liver & Biliary System”
Peter J. Scheuer

Hans Popper

Peter J. Scheuer, M.D.

Royal Free Hospital
Prof. of Histopathology

“Liver Biopsy Interpretation”
-1st Edition: 1968
-7th Edition: 2005