Cancers of the liver and pancreas

Liver

- Liver & Lung → most involved by metastatic tumors.
- Rare 1ry liver cancer: Hepatoblasoma (affect child) & Angiosarcoma.

Hepatocellular Carcinomas

- Male more, 3:1
- Big association with chronic HBV → HBV carrier state in infancy happened by vertically transmission. → 200-fold ↑ risk for HCC by adulthood. → 20-40 yrs.
- Pathogenesis:
  - Viral infection (HBV, HCV) → Worldwide, is the most common cause.
  - Cirrhosis.
  - Chronic alcoholism (MCC in US)
  - Food contaminants (aflatoxins from A.flavus) found in grains & peanuts.
  - Tyrosinemia, herdiatry hemochromatosis.
- Morphology:
  - Gross:
    - Unifocal mass or multifocal, multiple nodules or diffusely infiltrative cancer.
    - Large, well differentiated nodules.
    - Extensive extra-hepatic metastases may occur.
    - May invade the portal vein → extending into the **right side of the heart**.
    - Lymph node metastases.
    - Greenish cast.
    - Satellite nodules.
  - All patterens of HCC have strong propensity for invasion of vascular channels (mainly hepatic & portal veins)
  - Microscopic:
    - Well-differentiated & moderately well differentiated, can become poorly differentiated.
    - Bile pigment is usually present.
- Clinical features:
  - Ill-defined upper abdominal pain, malaise, fatigue, weight loss.
  - The liver may be palpated.
  - Uncommon jaundice & fever.
  - ↑ serum AFP, ALP, GGT
- Death occurs from: cachexia, GI or esophageal variceal bleeding, liver failure w\ hepatic coma or rupture of the tumor w\ fatal hemorrhage.

Fibrolamellar carcinoma

- Distinctive variant of HCC.
- Young male, Adult female.
- No association w\ HBV or cirrhosis.
- **Better prognosis** than HCC.
- Morphology:
  - Gross:
    - Single large, hard, scirrhous (scar, fibrosis) w\ **fibrous bands coursing through it**.
  - Microscopic:
    - Well differentiated polygonal cells growing in nests or cords.
    - The cell separated by **parallel lamellae of dense collagen bundles**.

Cholangiocarcinoma

- Most common malignancy of bile ducts.
- Arise from the bile duct within and outside of the liver. (extra & intra hepatic ducts)
- Hematogenous metastases to the lungs, bones (mainly vertebrae), adrenals, brain. Lymph node metastases to the regional lymph nodes are also found.
- Risk factors:
  - **1ry sclerosing cholangitis**.
  - Congenital fibropolycystic disease of the biliary system (Caroli disease & choledocal cycst)
  - Previous exposure to Thorotrast (thorium dioxide) (radiography of the biliary tract)
  - The incidence rates are higher, due to chronic infection of the biliary tract by the Chinese liver fluke ***Opisthorchis sinensis*** (Clonorchis sinensis)
- Morphology:
  - Gross:
    - Intrahepatic cholangiocarcinoma occur in the non-cirrhotic liver & may track along the intrahepatic portal tract system to create → tree-like tumorous mass within the liver, or a massive tumor nodule.
  - Microscopic:
    - It resembles adenocarcinomas.
    - Well to moderately differentiated.
    - Rarely bile stained! → bc bile duct epithelium doesn't synthesize bile.
- Clinical features:
  - Intrahepatic → detected late → obstruct the bile flow → prognosis is poor.
  - Alpha-fetoprotein is ***not*** elevated.

° obstructive jaundice, if GB palpable → Courvoisier sign

Metastatic tumors

- Multiple nodular metastases.
- Multiple necrosis may be found.
- came from lung (mainly)

Angiosarcoma

- Pleomorphic endothelial cells w\ large hyperchromatic nuclei.
- Giant cells, frequent mitosis.
- **Irregular anastomosing vascular channels**.
- Linked to **vinyl chloride** (plastic pipe) **& thorostrast** exposure.

Pancreatic carcinoma

- Highest mortality rates.
- Carcinoma of the *exocrine* cells.
- Smoking (most common cause)
- Arise from ductal epithelial cells.
- 6th to 7th decade, Black > whites, Male > females, Diabetic > non-diabetic.
- 60% arise in the head, 15% in the body, 5% in the tail. 20% diffusely in all pancreas.
- Hard, stellate, gray-white, poorly defined masses.
- Majority are ductal adenocarcinoma.
- Characteristics:
  - Highly invasive
  - Elicits an intense non-neoplastic host reaction → Desmoplastic response.
- Peripancreatic, gastric, mesenteric, omental & portohepatic lymph nodes are frequently involved.
- Metastasized to lungs & bones.
- Metastasis to the left supraclavicular node (Virchow node)
- **Less common** variant of pancreatic cancer include acinar cell carcinomas, adenosquamous carcinomas & undifferentiated carcinomas w\ **osteoclast-like giant cells**.
- Clinical features: **Jaundice**, weight loss, pain, massive metastasis to liver & **migratory thrombophlebitis**.

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