

Pathology Lectures

Gastro-esophageal reflux disease

Peptic Ulcer Disease

Pancreatitis

Diarrhea

Malabsorption

Inflammatory bowel disease-1

Inflammatory bowel disease-2

Colonic polyps and carcinoma-1

Colonic polyps and carcinoma-2

Cirrhosis

Cholecystitis

Cirrhosis

Tumors of liver and pancreas

Cancers of the liver and pancreas

Tumors of the liver and pancreas

1. Describe the clinical features of benign and malignant tumors of liver and pancreas.
2. Describe the pathological features of benign and malignant tumors of liver and pancreas.
3. Describe the etiology of hepatocellular carcinoma
4. Understand the frequency of metastatic disease to the liver.
5. Recognize the rarity of primary liver neoplasms in children.

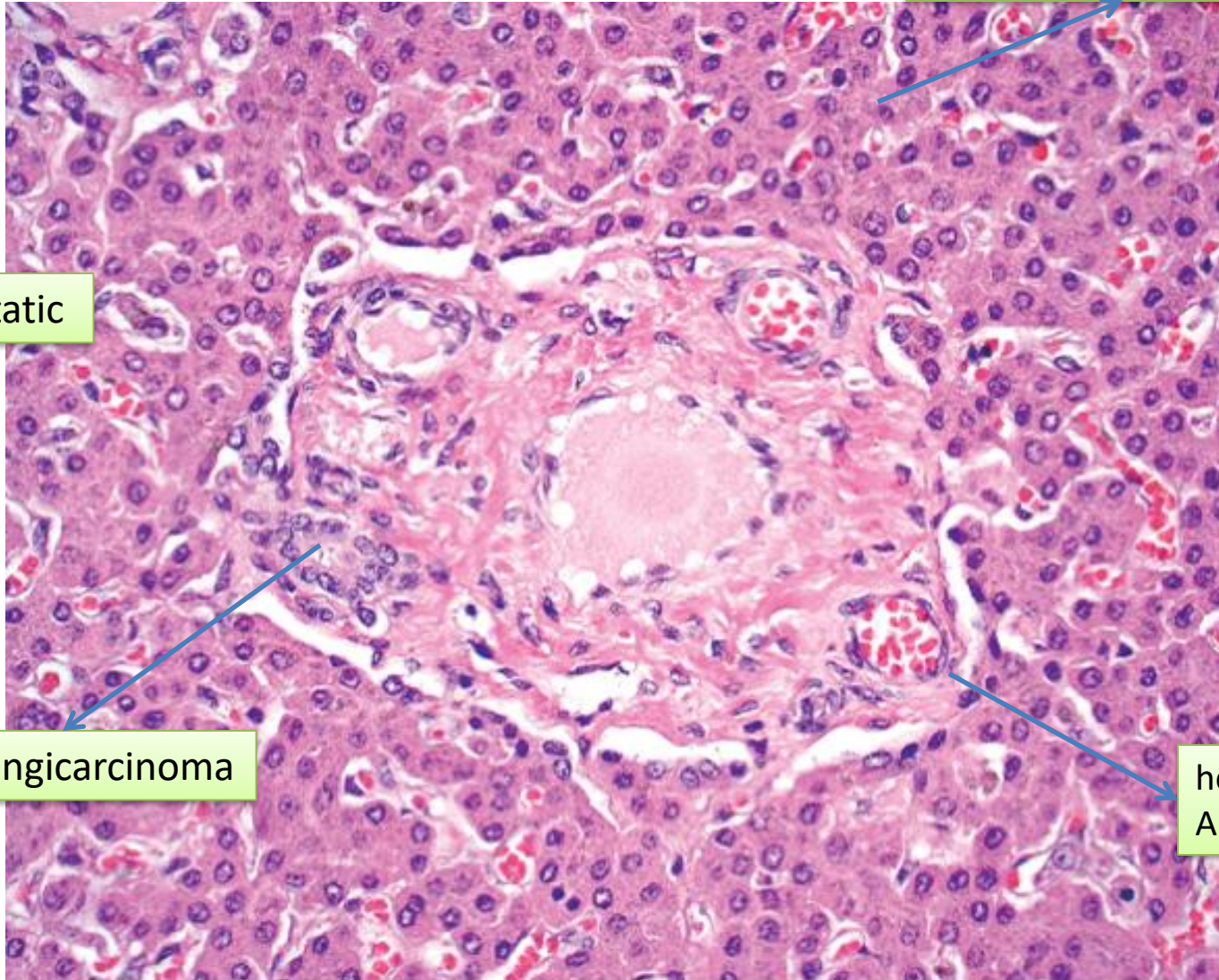
Liver tumors

Liver cell adenomas
Hepatocellular carcinoma
Hepatoblastoma

Metastatic

cholangiocarcinoma

hemangioma
Angiosarcoma



Hepatocellular Carcinomas (HCC)

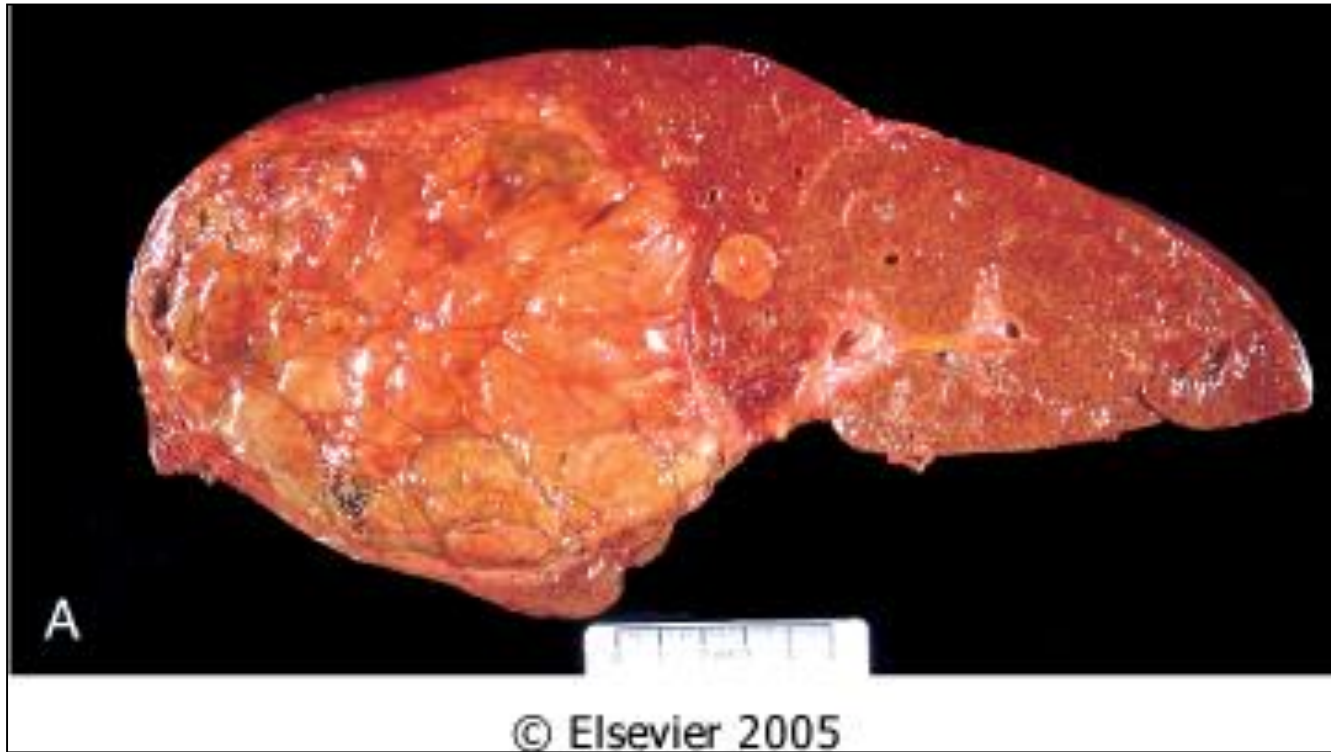
- Male predominance
- *More than 85% of cases of HCC occur in countries with high rates of chronic HBV infection.*
- In the Western world where HBV is not prevalent, cirrhosis is present in 85% to 90% of cases of HCC, usually in the setting of other chronic liver diseases

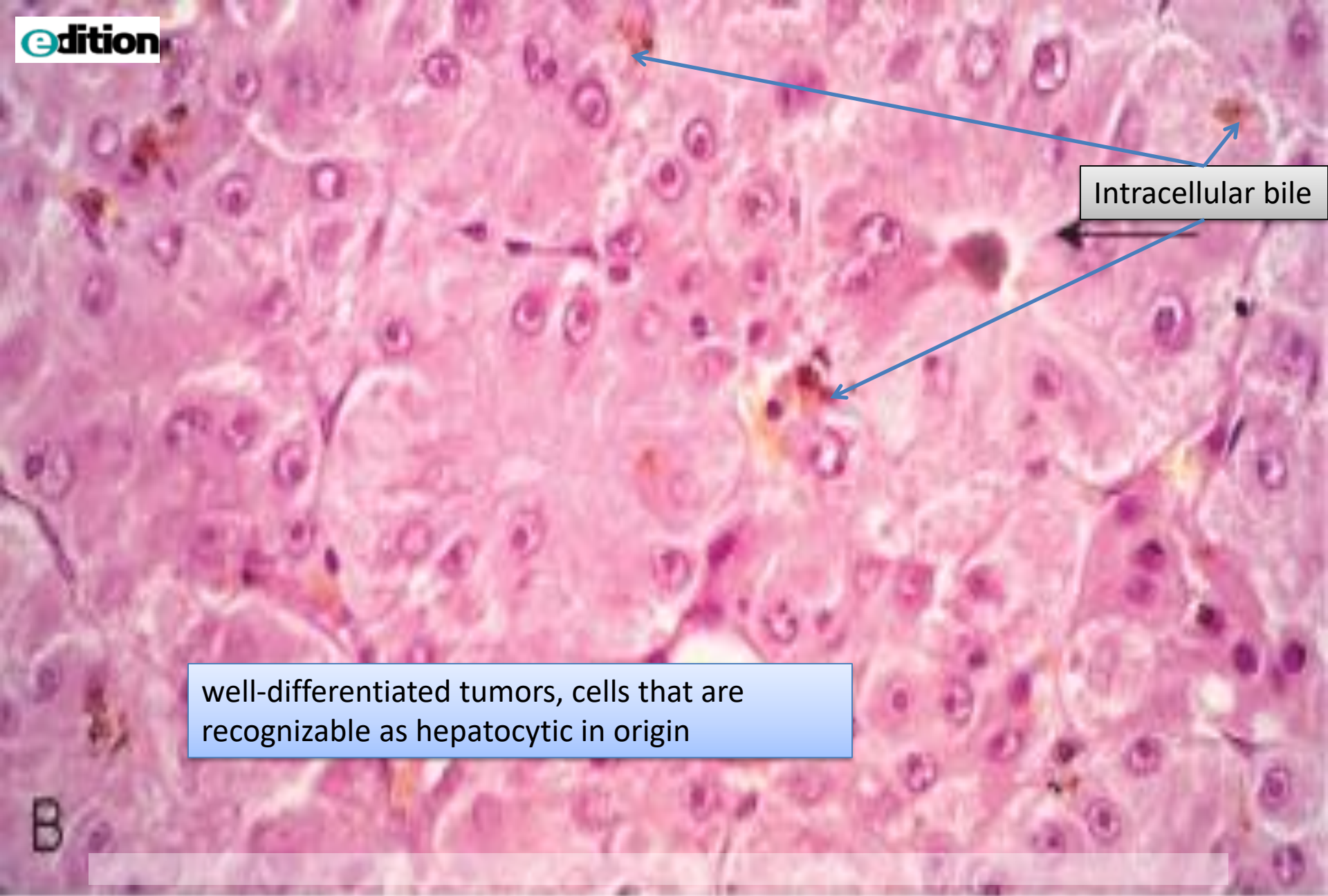
Etiology of HCC

- 1) viral infection (HBV, HCV): *More than 85% of cases of HCC occur in countries with high rates of chronic **HBV** infection.*
- 2) Cirrhosis.
- 3) Chronic alcoholism.
- 4) Food contaminants (primarily aflatoxins from aspergillus). found in "moldy" grains and peanuts
- 5) Tyrosinemia and hereditary hemochromatosis

Pathogenesis of HCC

- Cell death, hepatocyte replication, and inflammation, seen in all forms of chronic hepatitis, are believed to be main contributors to *DNA damage*.
- Poor regulation of hepatocyte replication can occur by point mutations or overexpression of specific cellular genes (such as *β-catenin*).





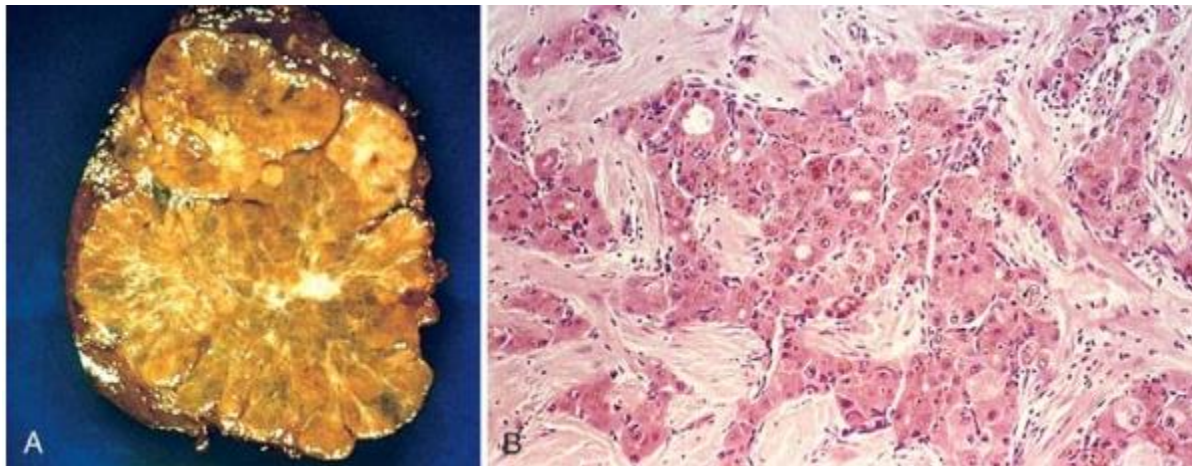
Intracellular bile

well-differentiated tumors, cells that are recognizable as hepatocytic in origin

B

Fibrolamellar carcinoma

- A distinctive variant of hepatocellular carcinoma.
- Young male and female adults (20 to 40 years of age),
- No association with HBV or cirrhosis
- often has a better prognosis.
- well-differentiated polygonal cells growing in nests or cords and separated by parallel **lamellae of dense collagen bundles**



Clinical Features

- Ill-defined upper abdominal pain,
- Laboratory studies: Elevated levels of serum α -fetoprotein are found in 50% to 75% of patients with HCC.

Overall, death usually occurs from

- (1) cachexia
- (2) gastrointestinal or esophageal variceal bleeding
- (3) liver failure with hepatic coma
- (4) rupture of the tumor with fatal hemorrhage.

Hepatic adenoma

- Occurs as a solitary, sharply demarcated mass up to 40 cm
- It is a complication of oral contraceptive use in women.
- In about 30% of patients, the tumor tends to bleed into the peritoneal cavity, inducing hypovolemic shock that requires emergency treatment.

Cholangiocarcinoma

- Cholangiocarcinoma is a malignancy of the biliary tree, arising from bile ducts within and outside of the liver.

Risk factors of Cholangiocarcinoma

1. Primary sclerosing cholangitis.
2. Congenital fibropolycystic diseases of the biliary system (particularly Caroli disease and choledochal cysts).
3. Previous exposure to Thorotrast (formerly used in radiography of the biliary tract).
4. In the Orient, the incidence rates are higher, and it is due to chronic infection of the biliary tract by the liver fluke *Opisthorchis sinensis*.

Morphology

- **Intrahepatic cholangiocarcinomas** resemble adenocarcinomas arising in other parts of the body. Most are well to moderately differentiated.
- **Cholangiocarcinomas are rarely bile stained**, because differentiated bile duct epithelium does not synthesize bile.

Cholangiocarcinomas



Adenocarcinomas
Desmoplastic stroma

Rarely bile stained
because differentiated
bile duct epithelium does
not synthesize bile.

Clinical Features

- Intrahepatic cholangiocarcinoma is usually **detected late in its course**, either as the result of obstruction to bile flow through the hilum of the liver or as a symptomatic liver mass.
- **Prognosis is poor.**
- Alpha-fetoprotein is not elevated.

Metastatic tumors

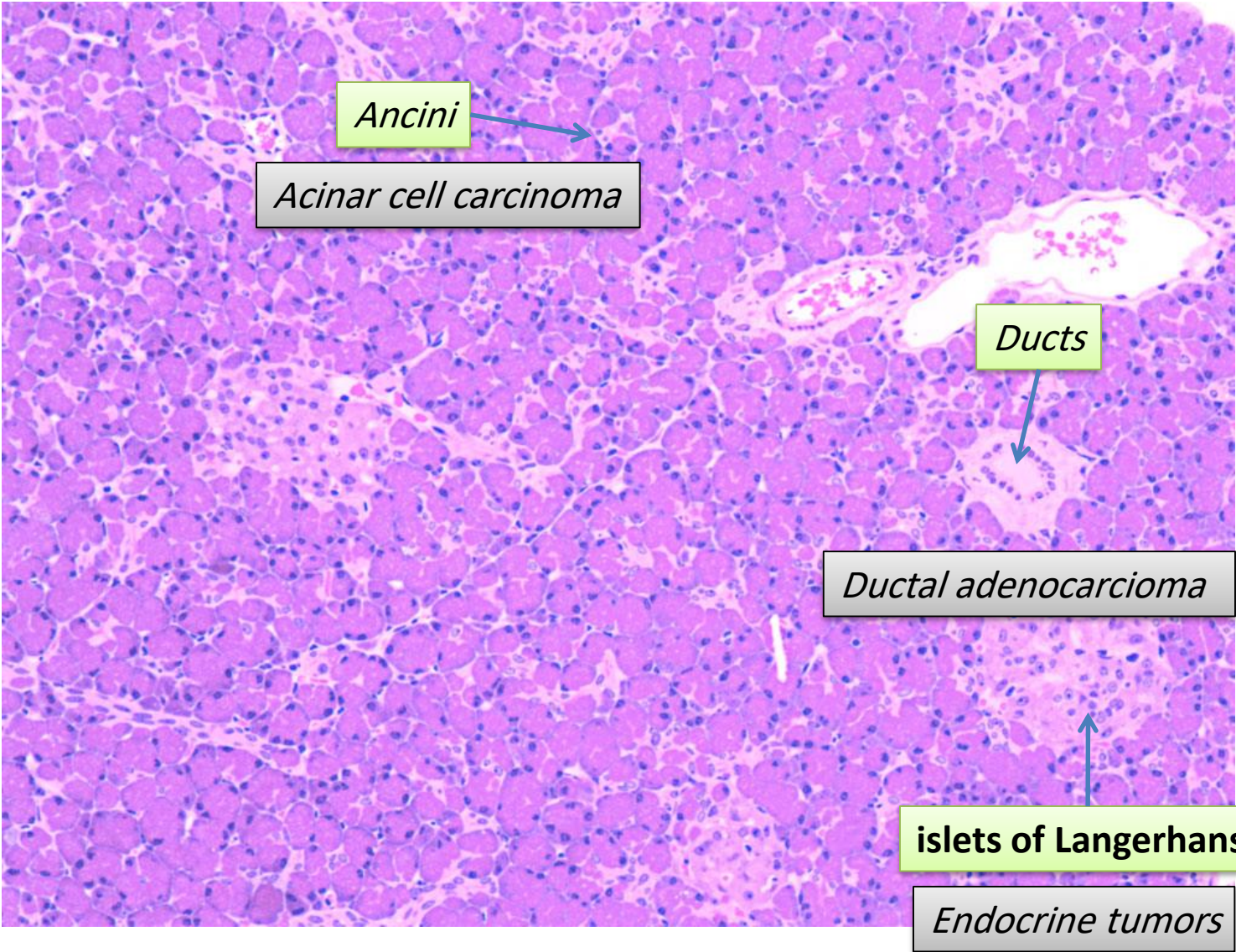
- Metastatic involvement of the liver is far more common than primary neoplasia.
- Typically, **multiple nodular** metastases are found



ANGIOSARCOMA

- Malignant tumor of **endothelial cells**
- Cirrhosis is present in 20% to 40% of the cases.
- These have also been linked to **vinyl chloride and thorostrast** exposure.

PANCREATIC TUMORS



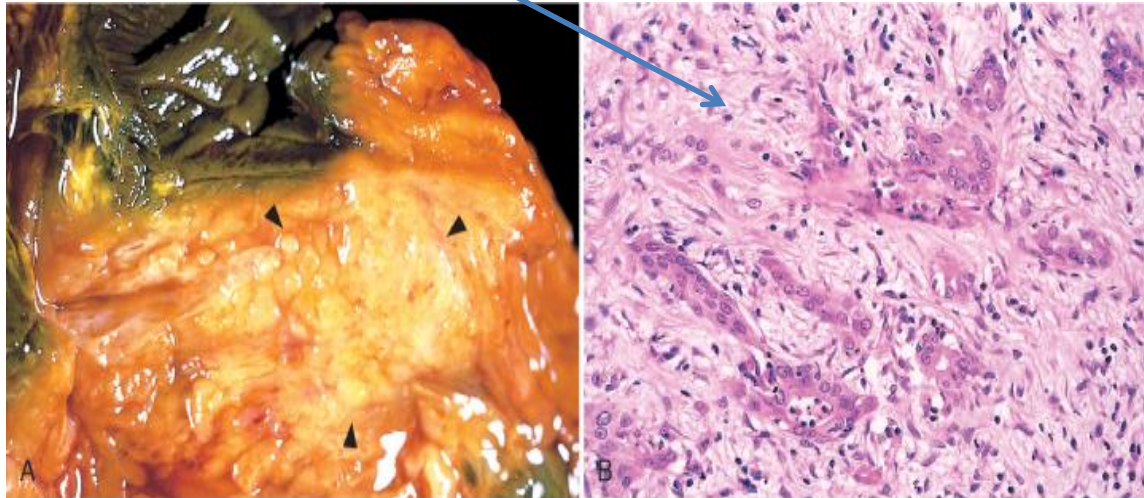
Pancreatic ductal adenocarcinoma

- Pancreatic cancer has one of the highest mortality rates of any cancer. It is carcinoma of the exocrine pancreas. It arises from ductal epithelial cells.
- It occurs in the 6th to 8th decade, blacks more than whites, males more than females, diabetics more than non-diabetics.
- **Painless jaundice** is a frequent initial symptom of pancreatic cancer
- **Cigarette smoking** is associated with a fivefold increased risk for adenocarcinoma of the pancreas.
- A ***K-RAS*** mutation is an early event in pancreatic carcinogenesis

Pancreatic ductal adenocarcinoma

Morphology

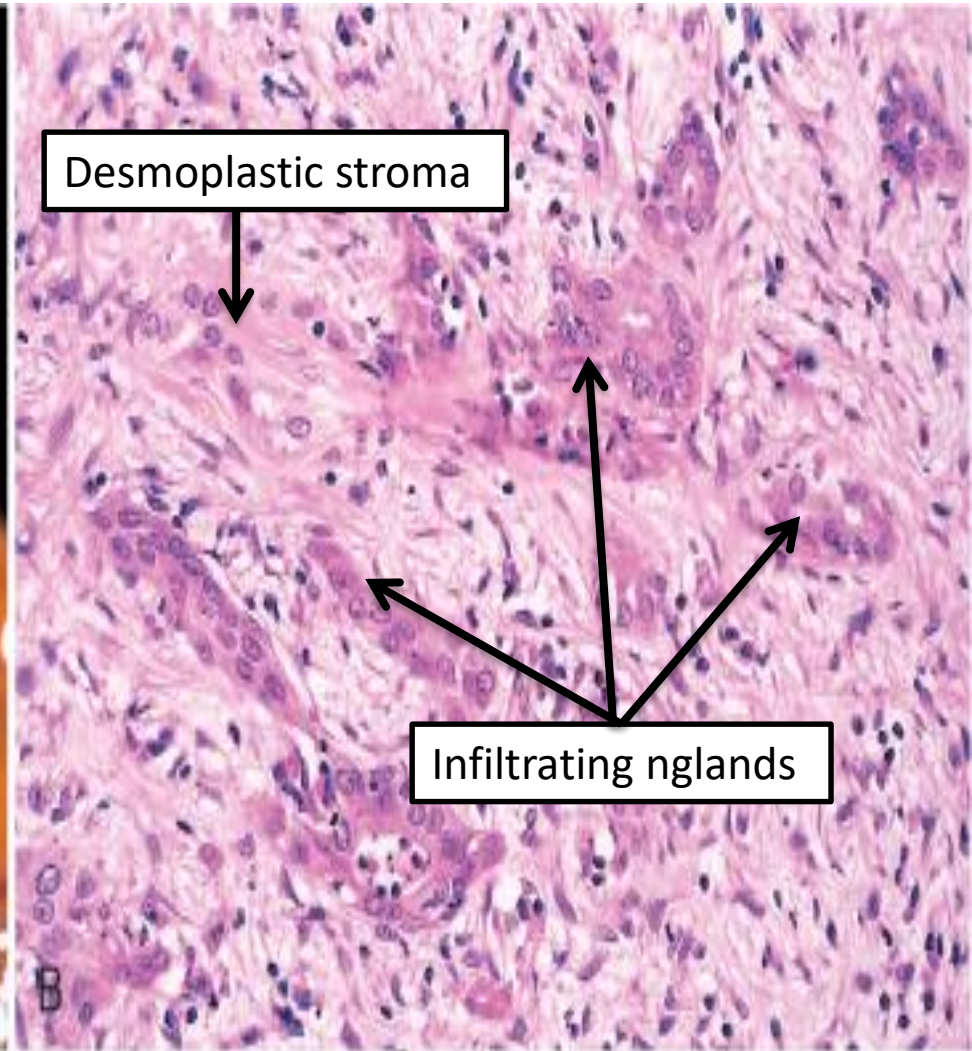
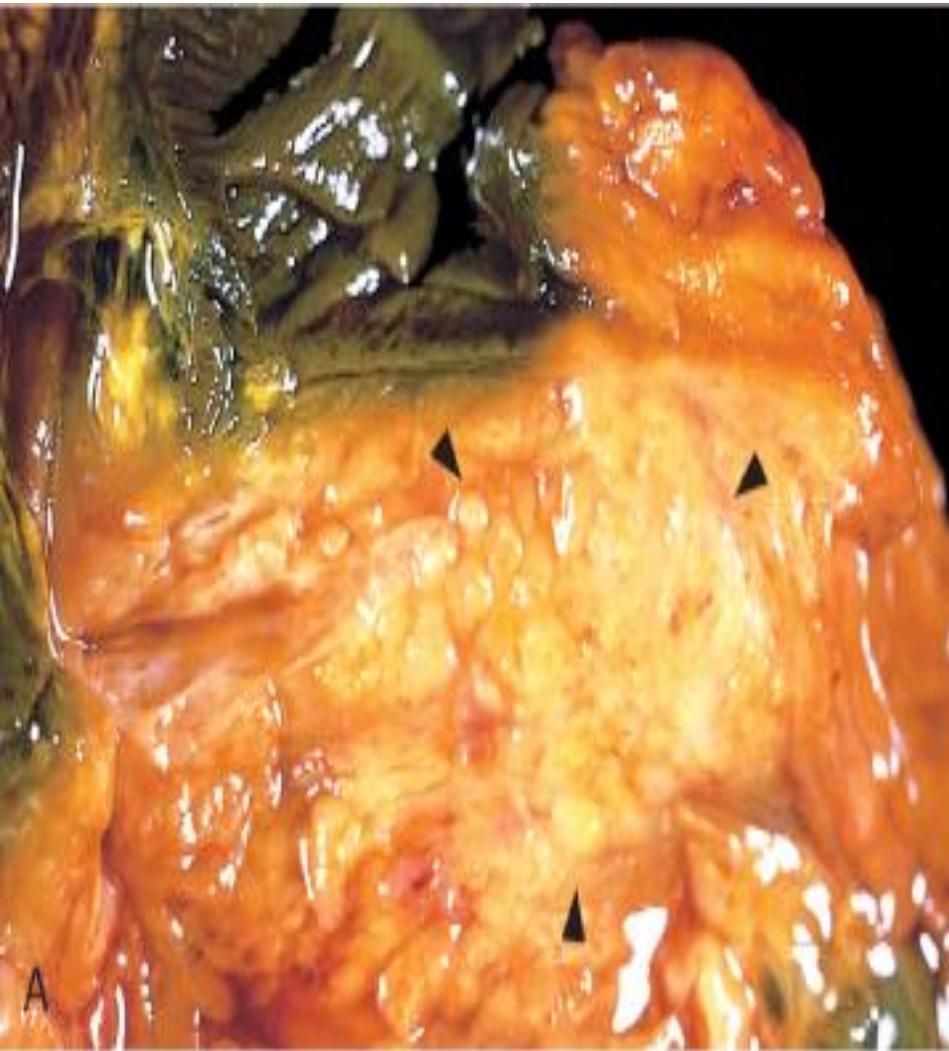
- Approximately 60% of cancers of the pancreas arise in the **head** of the gland, 15% in the body, and 5% in the tail; in 20%, the neoplasm diffusely involves the entire gland.
- It is highly invasive, and it elicits an intense non-neoplastic host reaction called a "desmoplastic response".



Pancreatic ductal adenocarcinoma :
CLINICAL FEATURES

- Jaundice, weight loss, pain ,massive metastasis to liver and migratory thrombophelebitis

Pancreatic ductal adenocarcinoma



PANCREATIC CARCINOMA Morphology

- Less common types of pancreatic carcinoma include
 1. **Acinar cell carcinomas,**
 2. **Adenosquamous carcinomas,**
 3. **Undifferentiated carcinomas with osteoclast-like giant cells.**

Match the correct answers

• **Describe the clinical features of benign and malignant tumors of liver and pancreas.**

1. Hepatocellular carcinoma
2. Hepatic adenoma
3. Cholangiocarcinoma
4. Metastatic tumors to the liver
5. Angiosarcoma
6. *Pancreatic carcinoma*

- a) raised AFP
- b) Young adults
- c) vinyl chloride and thorostrast exposure
- d) Multiple nodules
- e) Prognosis is poor
- f) bleedshockemergency
- g) Jaundice
- h) female using oral contraceptive

• **Describe the pathological features of benign and malignant tumors of liver and pancreas.**

- Hepatocellular carcinoma
- Fibrolamellar Hepatocellular carcinoma
- Hepatic adenoma.
- Cholangiocarcinoma....
- Metastatic tumors to the liver
- Angiosarcoma
- *Pancreatic carcinoma*

- a) resemble hepatocytes
- b) Intracellular bile
- c) nests or cords of polygonal cells separated dense collagen bundles
- d) endothelial cells
- e) Rarely bile stained
- f) *gland forming(adenocarcinoma)*
- g) desmoplastic stroma

• **Describe the etiology of hepatocellular carcinoma**

- viral infection (HBV, HCV)... Cirrhosis... aflatoxins

• **Understand the frequency of metastatic disease to the liver.**

- Much more common than primary

• **Recognize the rarity of primary liver neoplasms in children.**

- Liver neoplasm in children is rarecommon tumor is hepatoblastoma

• **Describe the clinical features of benign and malignant tumors of liver and pancreas.**

1. Hepatocellular carcinoma (a,g)
2. Hepatic adenoma (h)
3. Cholangiocarcinoma (e,g)
4. Metastatic tumors to the liver
5. Angiosarcoma ©
6. *Pancreatic carcinoma*

- a) raised AFP
- b) Young adults
- c) vinyl chloride and thorostrast exposure
- d) Multiple nodules
- e) Prognosis is poor
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• **Describe the pathological features of benign and malignant tumors of liver and pancreas.**

- Hepatocellular carcinoma (a,b)
- Fibrolamellar Hepatocellular carcinoma ©
- Hepatic adenoma.(a,b)
- Cholangiocarcinoma (e,f,g)
- Metastatic tumors to the liver
- Angiosarcoma (d)
- *Pancreatic carcinoma (e,f,g)*

- a) resemble hepatocytes
- b) Intracellular bile
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