**Basic Histopathological Diagnosis** (**MLS-HIST-421**
***Histopathology and cytology department***
***Pathology department***
Lec 40
LIVER TUMORS

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# Objectives :

- By the end of the lecture you will be able to :
- Classify the liver tumors.
- Identify the causes of hepato cellular ca.
- discuss the pathogenesis of the each classification.
- Discuss the morphological features of each classfication

- *the most common hepatic neoplasms are metastatic carcinomas,* with colon, lung, and breast heading the list of the primary sites.

- *Primary hepatic malignancies* are almost all *hepatocellular carcinomas*

# Hepatocellular Carcinomas HCC

- Hepatoma
- 85% of cases occur in countries with high rates of chronic HBV infection
- 90% of cases, tumors develop in the setting of cirrhosis
- The highest incidences of HCC are found in :

1. Asian countries (southeast China, Korea, Taiwan) and
2. sub-Saharan African countries

- peak incidence of hepatocellular carcinoma in these areas is between 20 and 40 years of age.
- 50% of cases, the tumor appears in the absence of cirrhosis.

# CAUSES

1. HBV
2. HCV (Japan and Central Europe)
3. alcoholic cirrhosis,
4. aflatoxin exposure.
5. NAFLD
6. hemochromatosis,
7. α1 -antitrypsin deficiency, and
8. hereditary tyrosinemia, (40% of patients )

# PATHOGENESIS

- China and southern Africa, especially Mozambique, where HBV is endemic, high-level exposure to dietary afltoxins derived from the fungus *Aspergillus flvus* is common.

- These carcinogenic toxins are found in “moldy” grains and peanuts.

- Afltoxin can bind covalently with cellular DNA, resulting in mutations in genes such as *TP53*

- HCC develops from small-cell, high-grade dysplastic nodules in cirrhotic livers.

- **An almost universal feature of hepatocellular carcinoma is the presence of structural and numeric chromosomal abnormalities indicative of genomic instability.**

- Inflmmation and regeneration, seen in all forms of chronic hepatitis, are believed to be main contributors to acquired mutations in genomic DNA.

- Neither HBV nor HCV contains oncogenes.

- The tumorigenic capacity of these viruses probably relates primarily to their capacity to cause chronic inflammation and increased cell turnover.

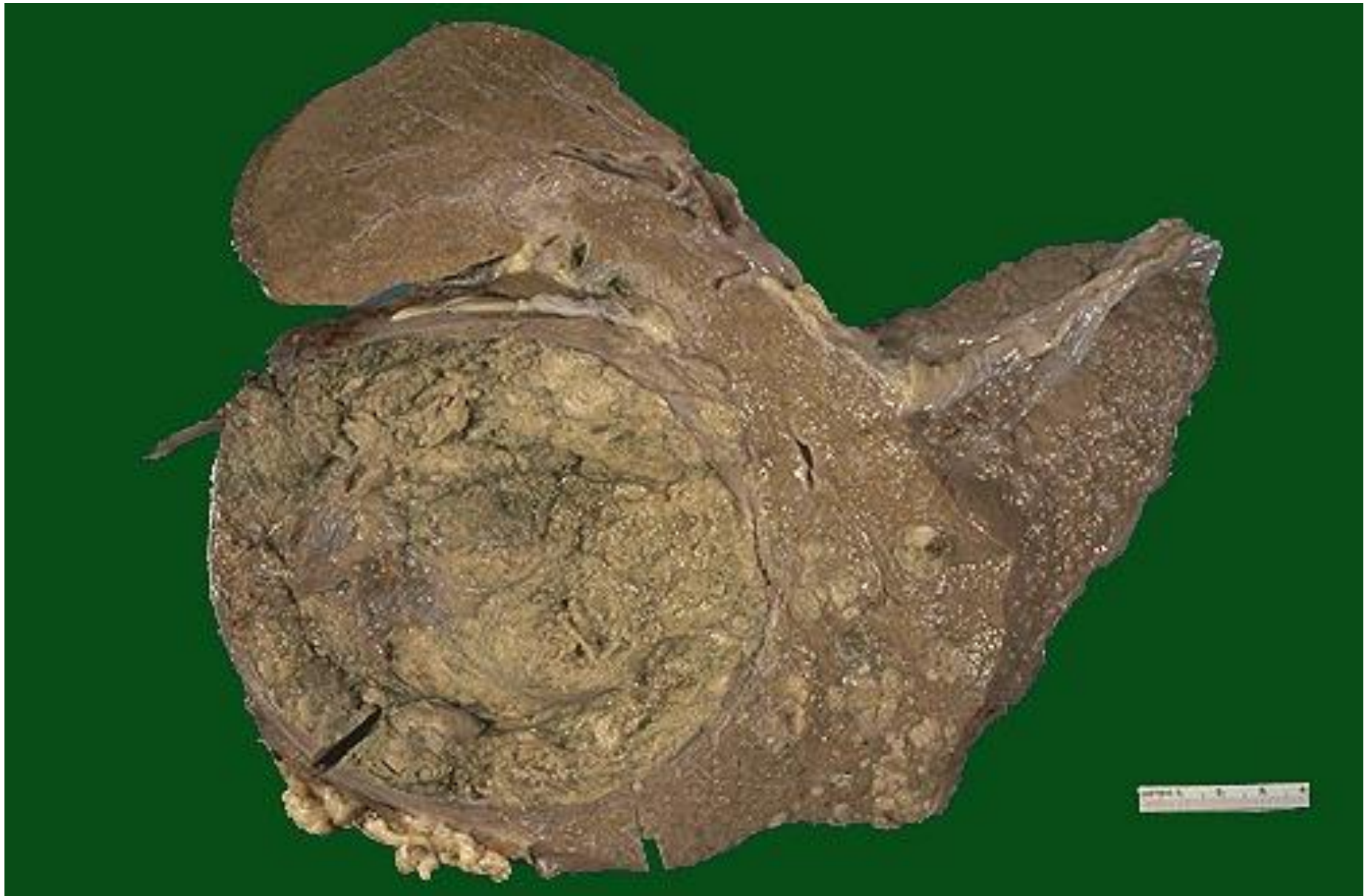
# MORPHOLOGY

- HCC may appear grossly as
- (1) a uni focal, usually massive tumor;
- (2) a multifocal tumor made of nodules of variable size; or
- (3) a diffusely infiltrative cancer and sometimes involving the entire liver,

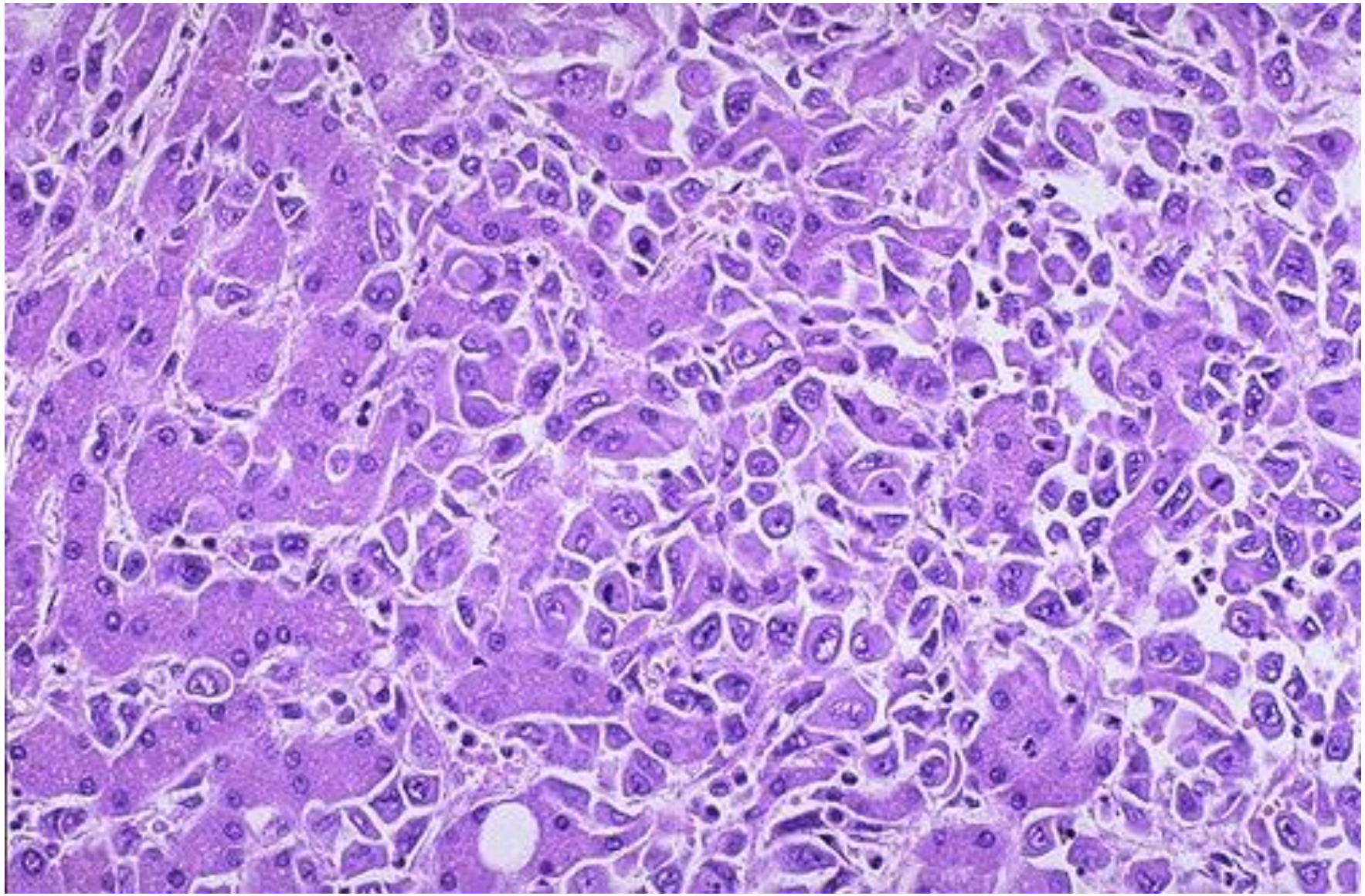
- HCC has a strong propensity for vascular invasion.

- Extensive intrahepatic metastases are characteristic, and occasionally snakelike masses of tumor invade the portal vein (with occlusion of the portal circulation) or inferior vena cava, extending even into the right side of the heart

# Large hepatocellular carcinoma + smaller satellite tumours



# Histology of hepatocellular carcinoma (left)



# Secondaries in liver

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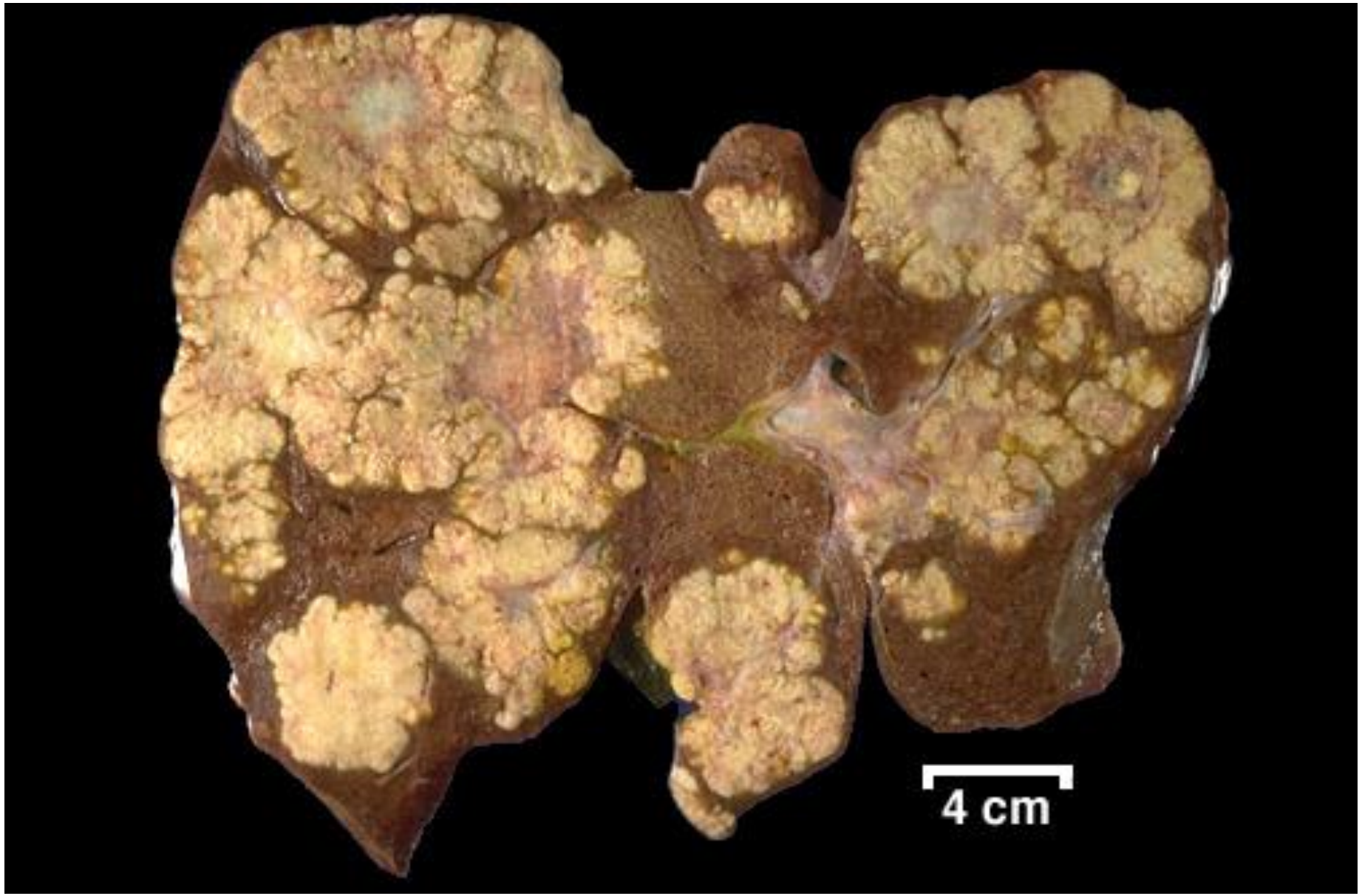

# Secondaries in liver (surface)