

# **Liver tumors**

**Pr : Mohsen BILAL**



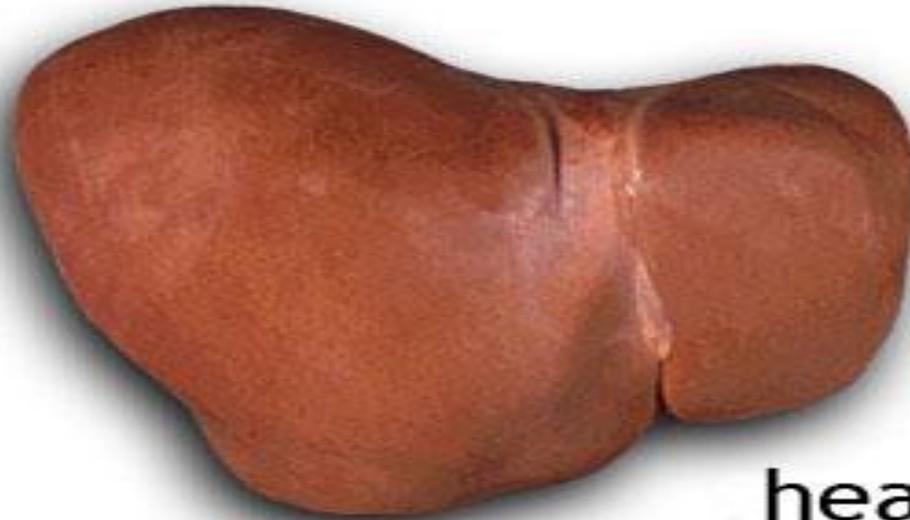
# Liver tumors

**Tumors can either be benign or malignant .**

**benign tumors grow uncontrolled , then do not break off and spread beyond where they started and not invade into the surrounding tissues .**

**malignant tumors , will invade and damage other tissues around them . they can also gain the ability to break off from where they started and spread to other parts of the body (metastasize) , usually through the blood stream or through the lymphatic system where the lymph nodes are located.**

# Liver tumors



healthy



cancer

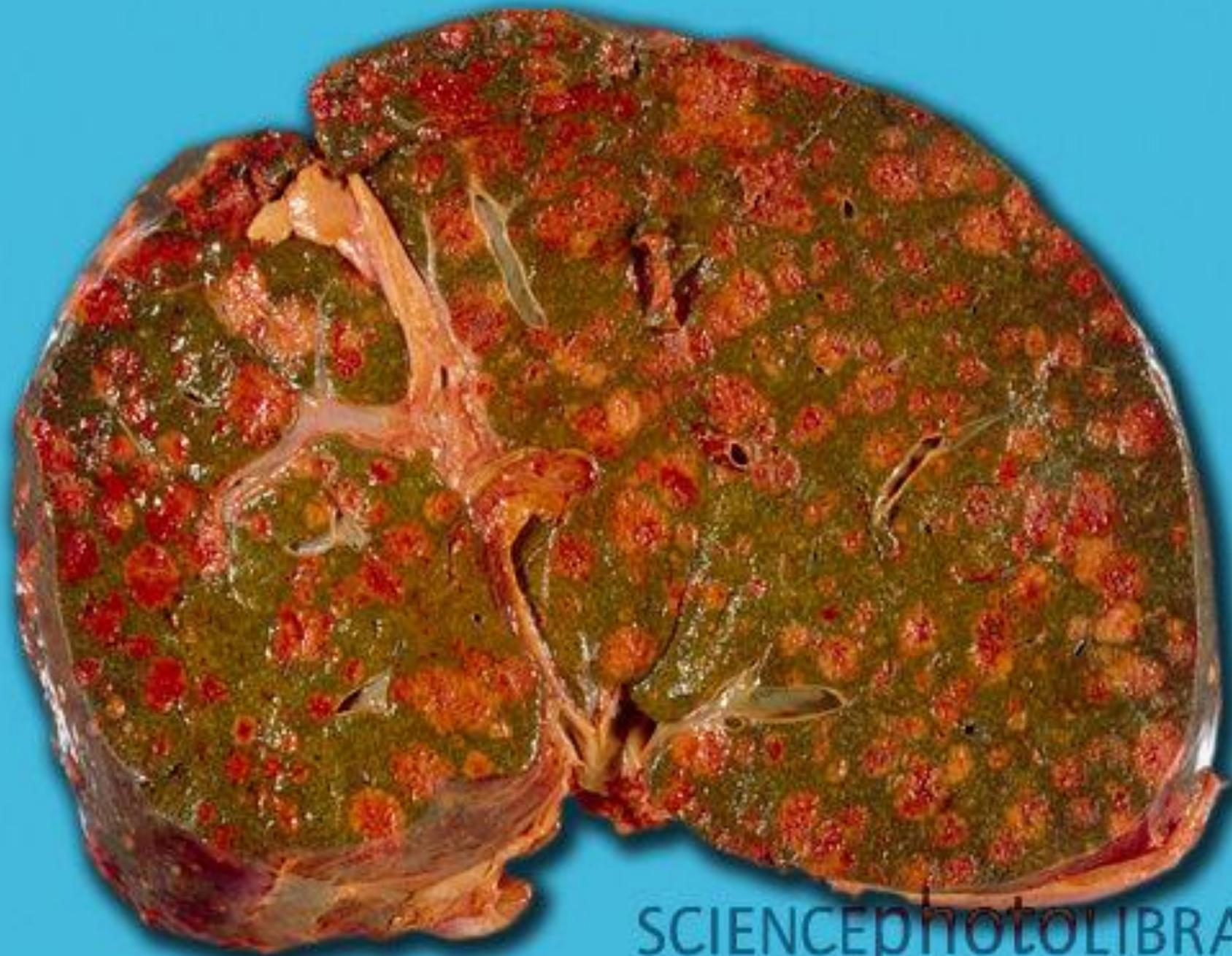
# Liver tumors

over time , the cells of a malignant tumor become more abnormal and appear less like normal cells . this change in the appearance of cancer cells is called the tumor grade , and cancer cells are described as being **well – differentiated , moderately – differentiated , poorly – differentiated , or undifferentiated**

well – differentiated cells are quite normal appearing and resemble the normal cells from which they originated . undifferentiated cells are cells that have become so abnormal that , we cannot tell what types of cells they started from .

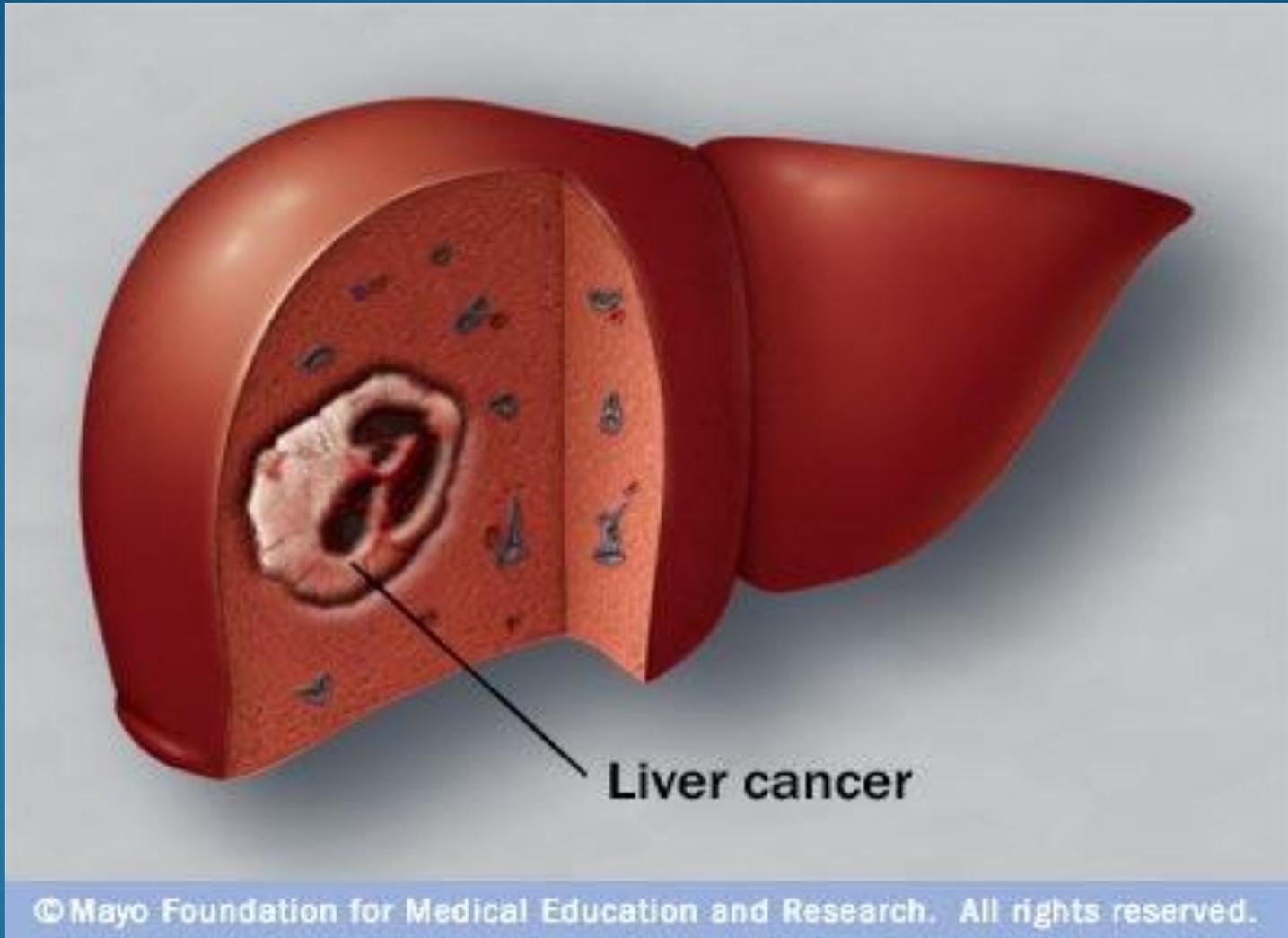


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# Liver cancer



# Liver tumors

There are a number of benign liver tumors :

adenomas

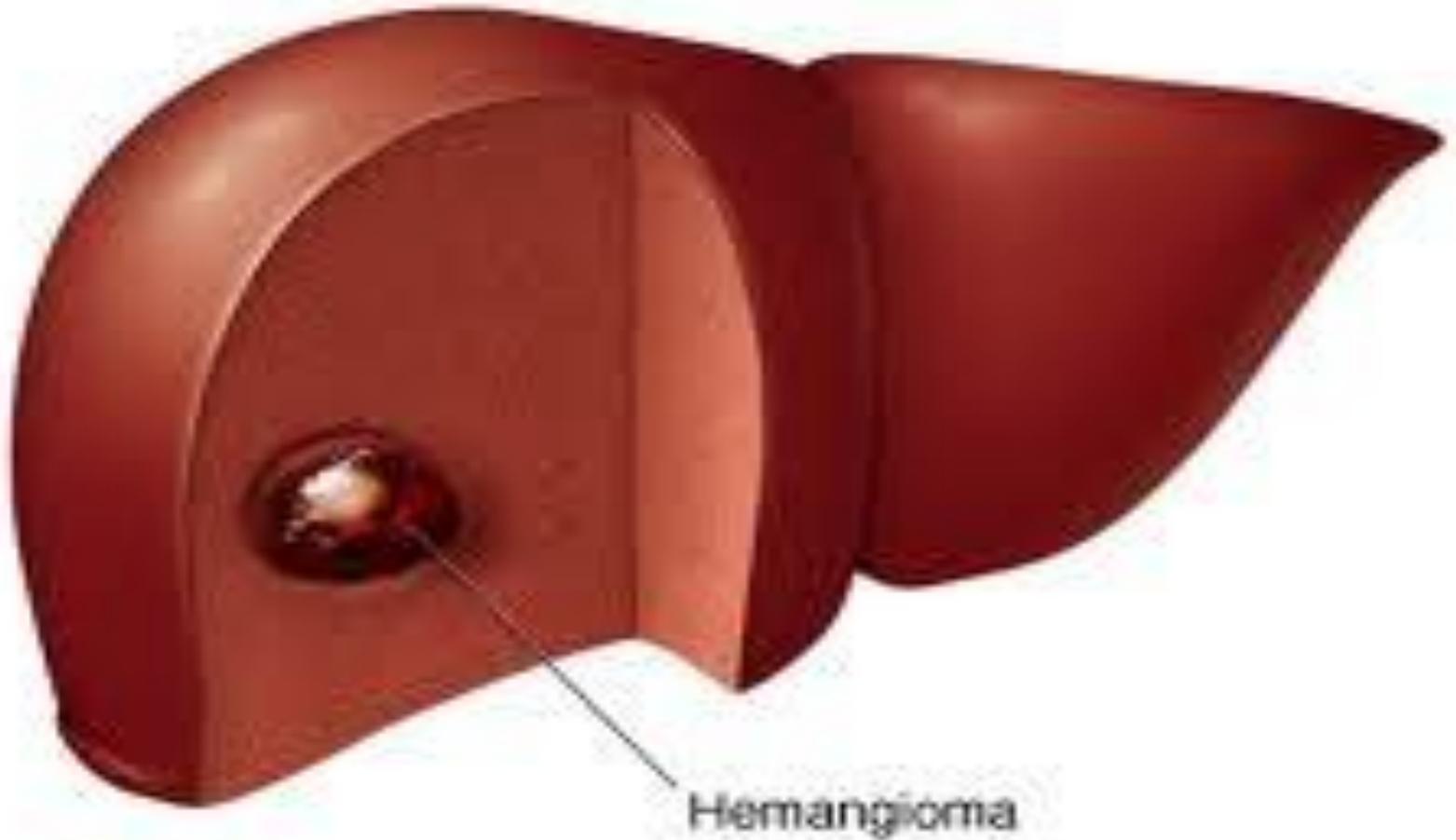
Hemangiomas

primary liver cancers can arise from within the liver is the most itself . **hepatocellular carcinoma (HCC)** , is the most common type of primary liver cancer and accounts for around 70% of all liver cancers

# Liver tumors



# Hemangioma



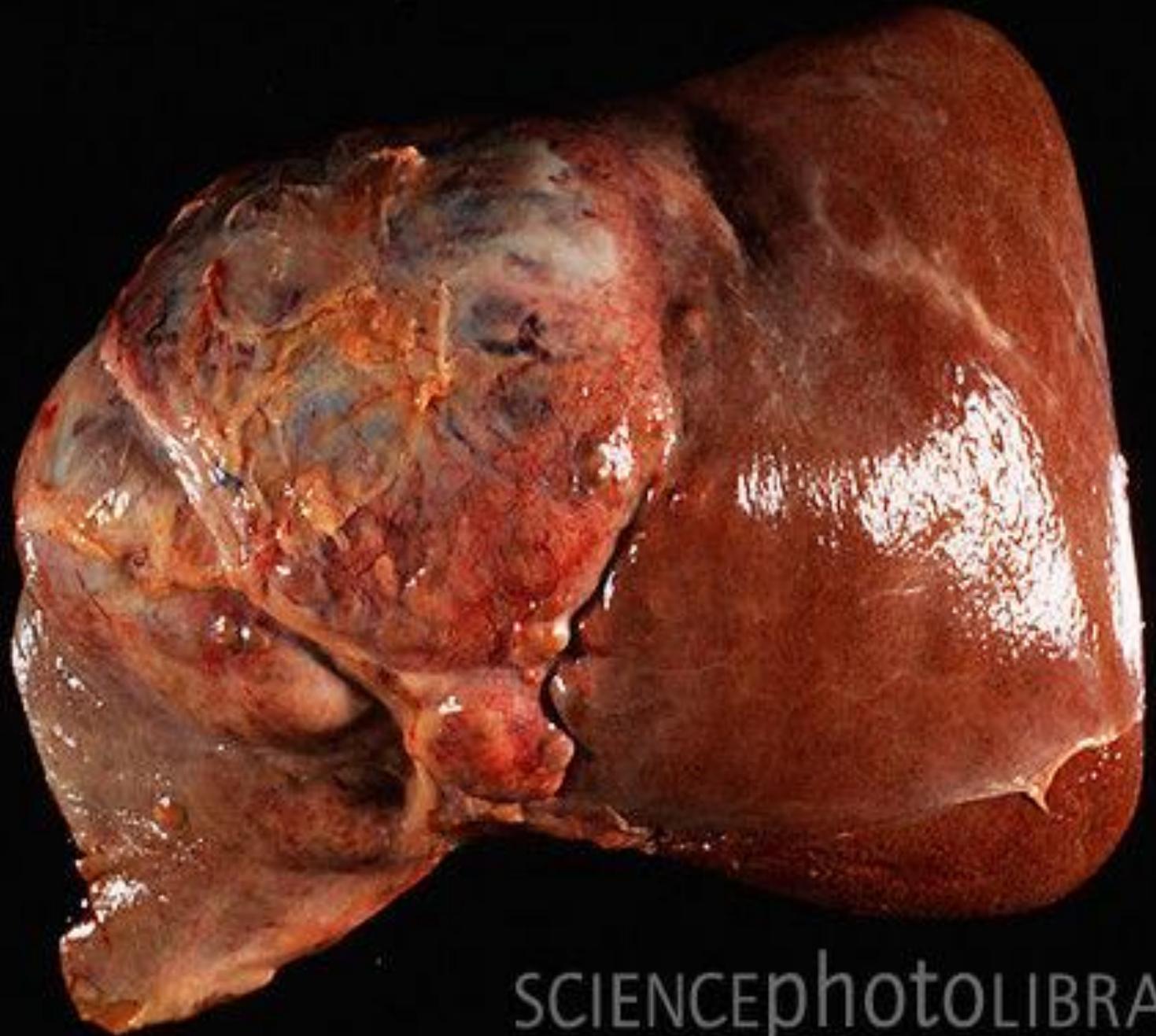
# Hemangioma



# Liver tumors

cancers that arise from the bile ducts within the liver are known as cholangiocarcinomas and represent 10 – 20% of all liver cancers .

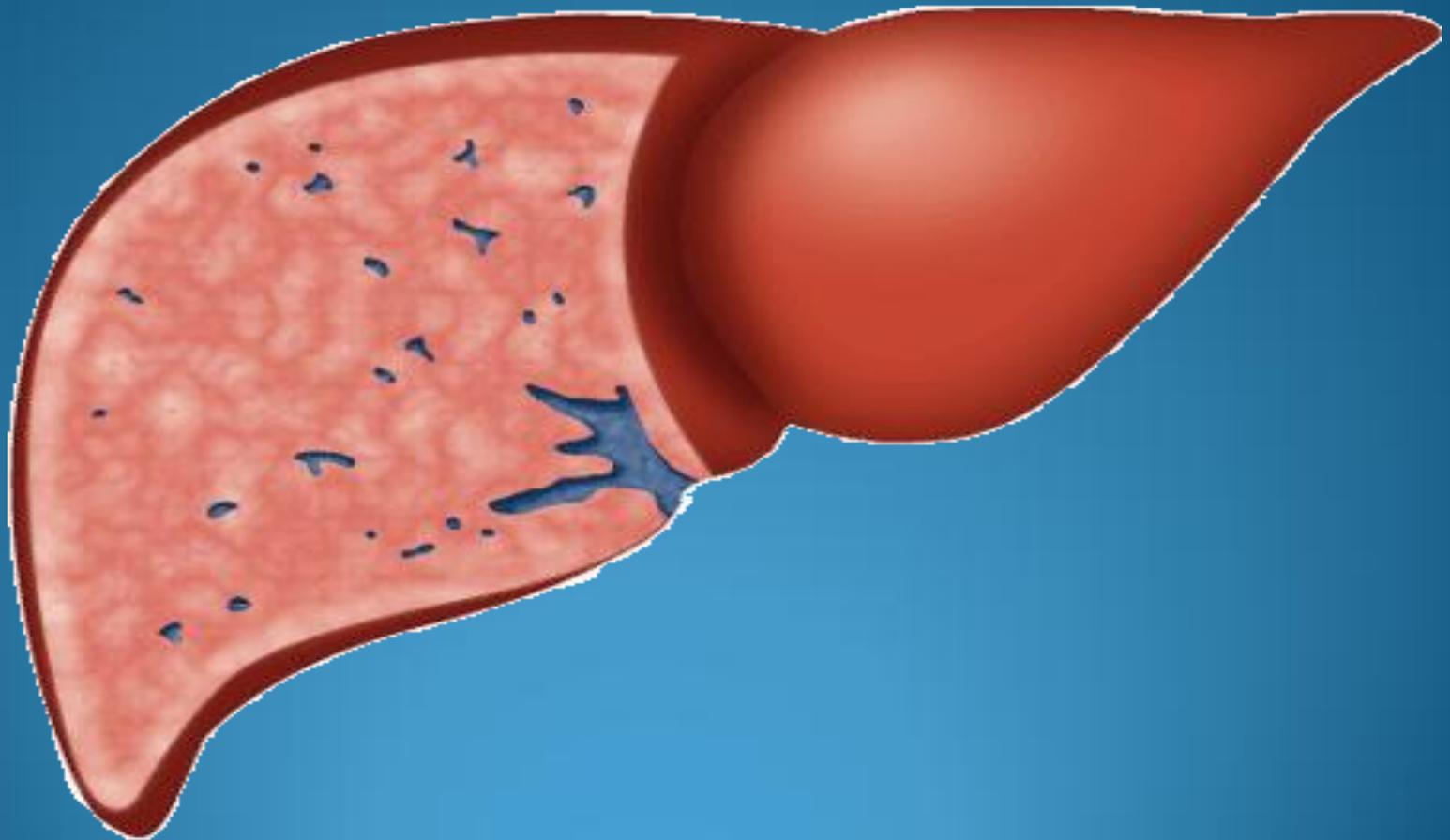
other types of rare cancers can occur within the liver . these include **hemangiosarcomas** (malignant blood – filled tumors ) and **hepatoblastoma** ( a rare cancer that develops in very young children ) ..



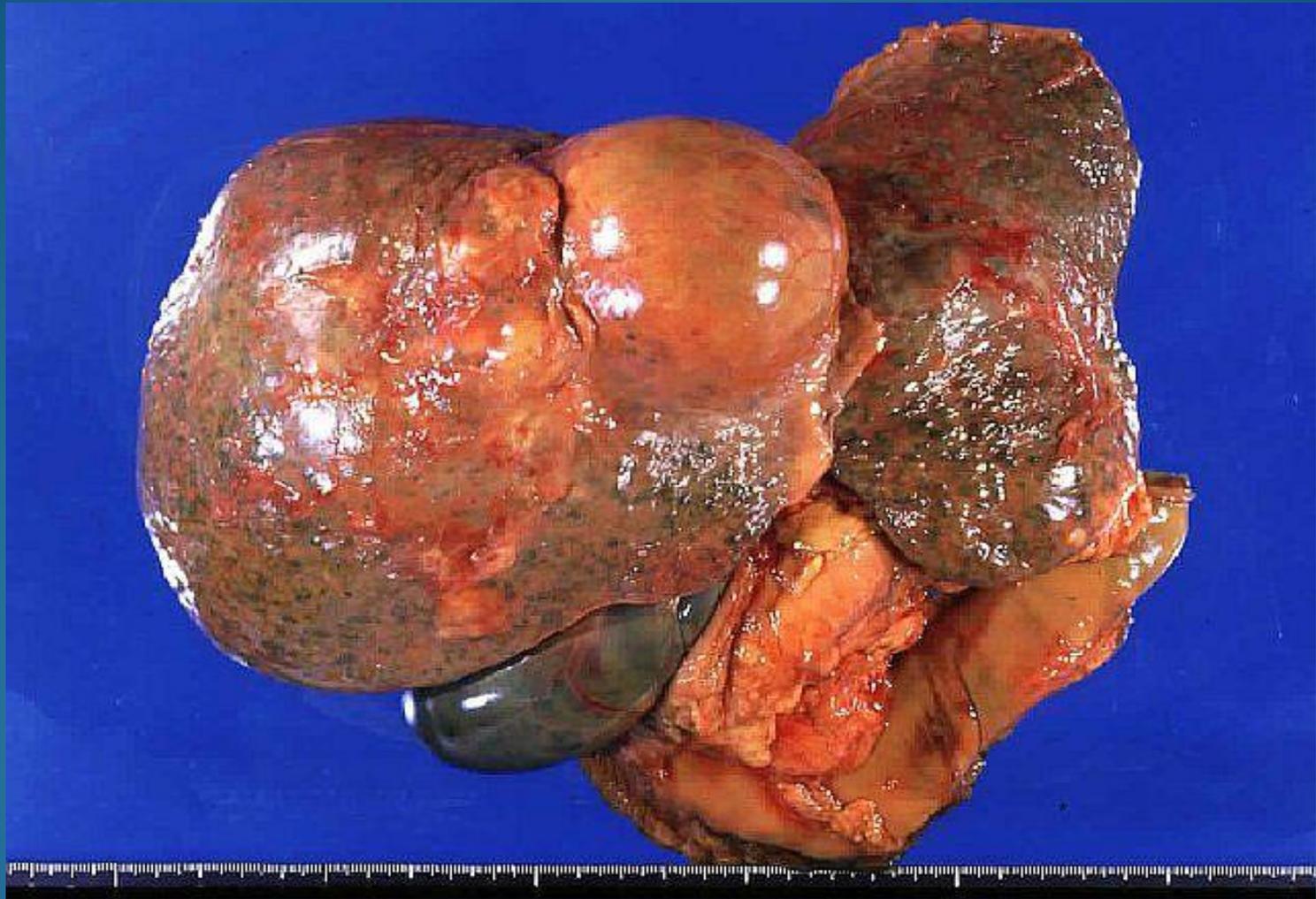
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# HCC

Hepatocellular carcinoma tumor spreads until it reaches the surface of the liver



# HCC



# Risk factors

**Cirrhosis :**

**chronic alcohol**

**chronic infection with hepatitis B , C virus (HBV, HCV)**

**Tobacco**

**aflatoxin B food contamination .**

**environment factors** include exposure to thorium dioxide (thorotrast , a contrast agent previously used for radiographic imaging . .

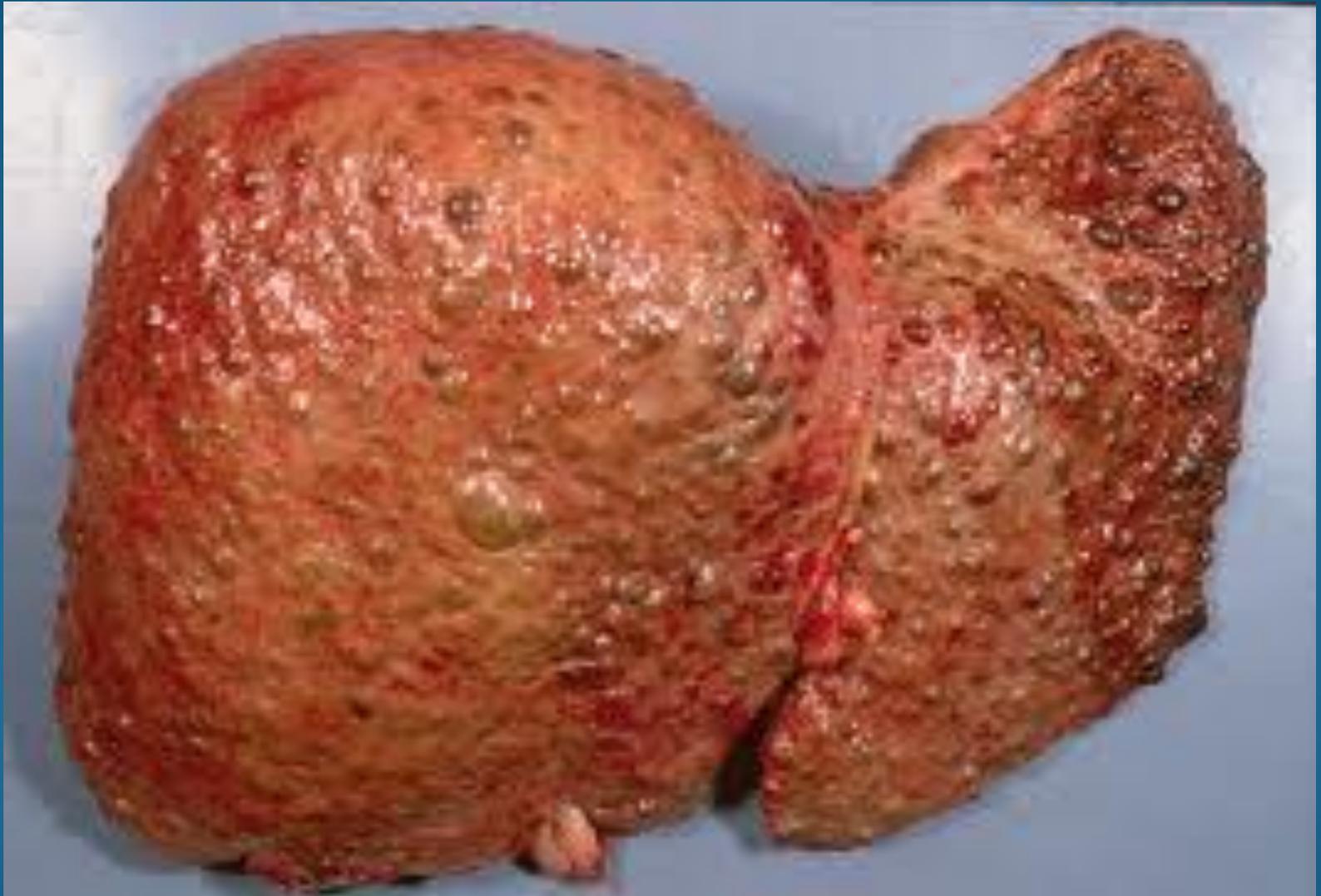
**family history**

**hemochromatosis .**

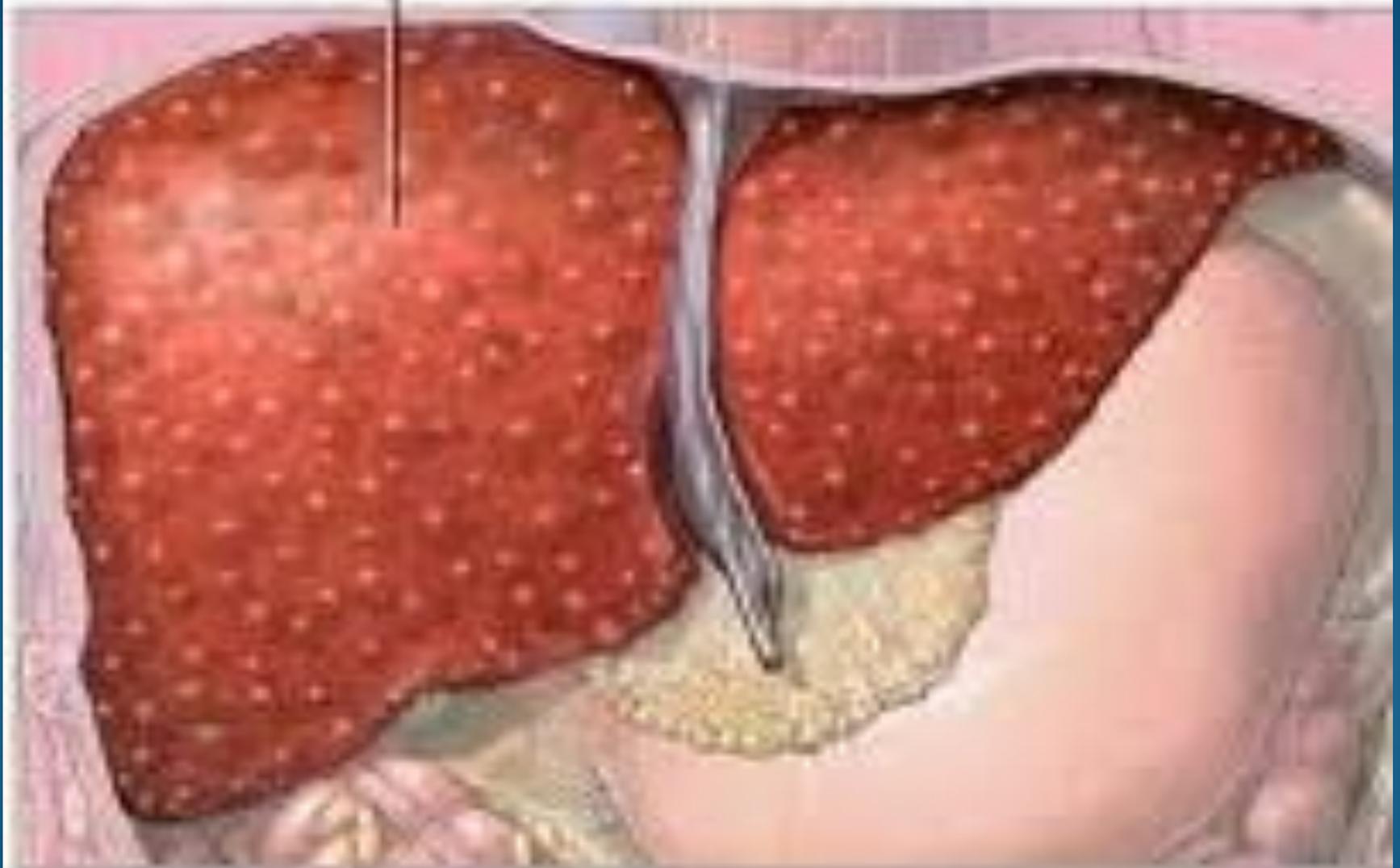
# cirrhosis



# cirrhosis



# Cirrhosis of the liver



# Varices Increase in Diameter Progressively



No varices

Small varices

Large varices

7-8%/year

7-8%/year



# How to prevent liver cancer ?

avoiding the excessive use of alcohol and quitting smoking can reduce the risk of liver cancer .

treating HBV and HCV infections .

altering the way that foods are stored and processed can decrease the risk of aflatoxin exposure .

treatment of inherited diseases associated with cirrhosis and liver cancer .

# Signs & symptoms

abdominal pain , feeling of abdominal fullness or bloating (sometimes due to ascites , or a collection of fluid within the abdominal cavity ) , fatigue , loss of appetite , and weight loss .

liver cancer generally does not have symptoms .

nonspecific symptoms that can be associated with HCC may include :

yellowish color of the skin (jaundice)

inability to eat (anorexia)

weight loss

abdominal pain and /or swelling

# Diagnosis

Ultrasound echo -

MRI -

computed tomography CT

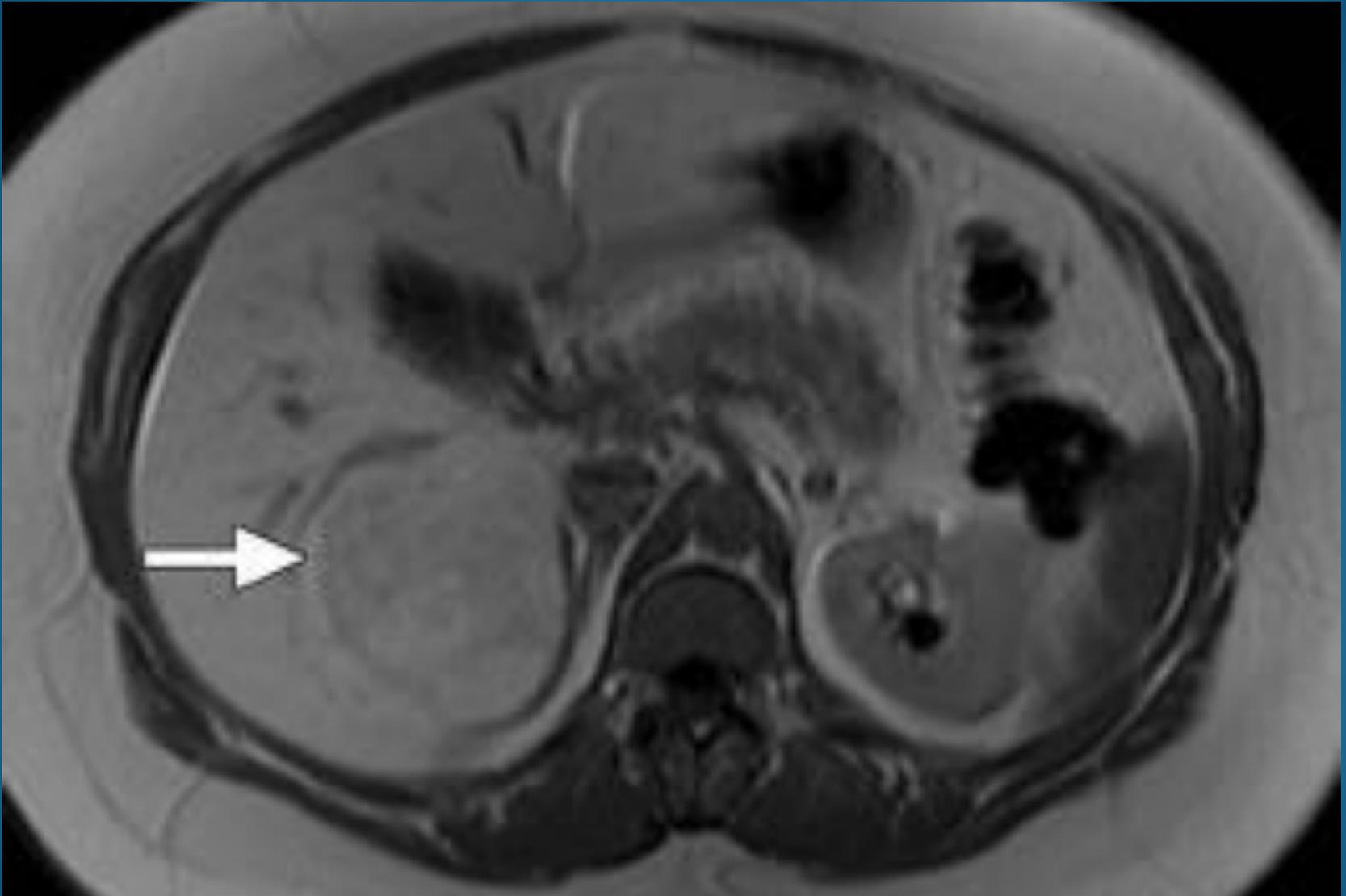
Angiography

**elevated AFP**

**Biopsy**



# adenocarcinoma



# adenocarcinoma



# hemangioma



# Liver cancer stages

## T stages :

**TX** : primary tumor cannot be assessed .

**T0** : no evidence of primary tumor .

**T1** : solitary tumor without invasion of blood vessels in the liver (not including major branches of the portal of hepatic vein ) .

**T2** : solitary tumor with invasion of blood vessels in the liver (not including major branches of the portal of hepatic vein ) or multiple tumors , non of which are  $> 5$  cm in size .

**T3a** : multiple tumors at least one of which is  $> 5$  cm in size .

**T3b** : single tumor or multiple tumors of any size that involves a major branch of the portal vein or hepatic vein .

**T4** : tumors that directly invade into adjacent organs (not including the gall bladder ) or a tumor that invades the lining of the abdomen .

# Liver cancer stages

## N stage :

**NX**: the regional lymph nodes cannot be assessed .

**N0** : no evidence of spread to the lymph node .

**N1** : regional lymph nodes are involved with tumor .

# Liver cancer stages

## M stage :

**Mo** : no evidence of distant spread of the cancer .

**M1** : evidence of distant spread of the cancer including spread to non – regional lymph node chain .

# Diagnosis of Gallbladder and Bile Duct Cancers

## RADIOLOGY TESTS:

**MRI**

**ERCP**

**Computed Tomography (CT) Scanning**

**Ultrasound echo**

PATHOLOGY TESTS: FNA , biopsy

SEROLOGY TESTS: **CA19-9**

# Liver cancer stages

**Stage I : T1 N0 M0**

**Stage II : T2 N0 M0**

**Stage IIIA : T3a N0 M0**

**Stage IIIB : T3b N0 M0**

**Stage IIIC : any T N0 M0**

**Stage Iva : (any T N) M0**

**Stage IVb : any T any N M1**

# Liver cancer treatment

**Surgery**

**Cryosurgery**

**Radiofrequency ablation (RFA)**

**Ethanol injection**

**Chemotherapy**

**Transarterial chemoembolization (TACE)**

**Radiation therapy**

# Gallbladder cancer

## Symptoms of Gallbladder and Bile Duct Cancer

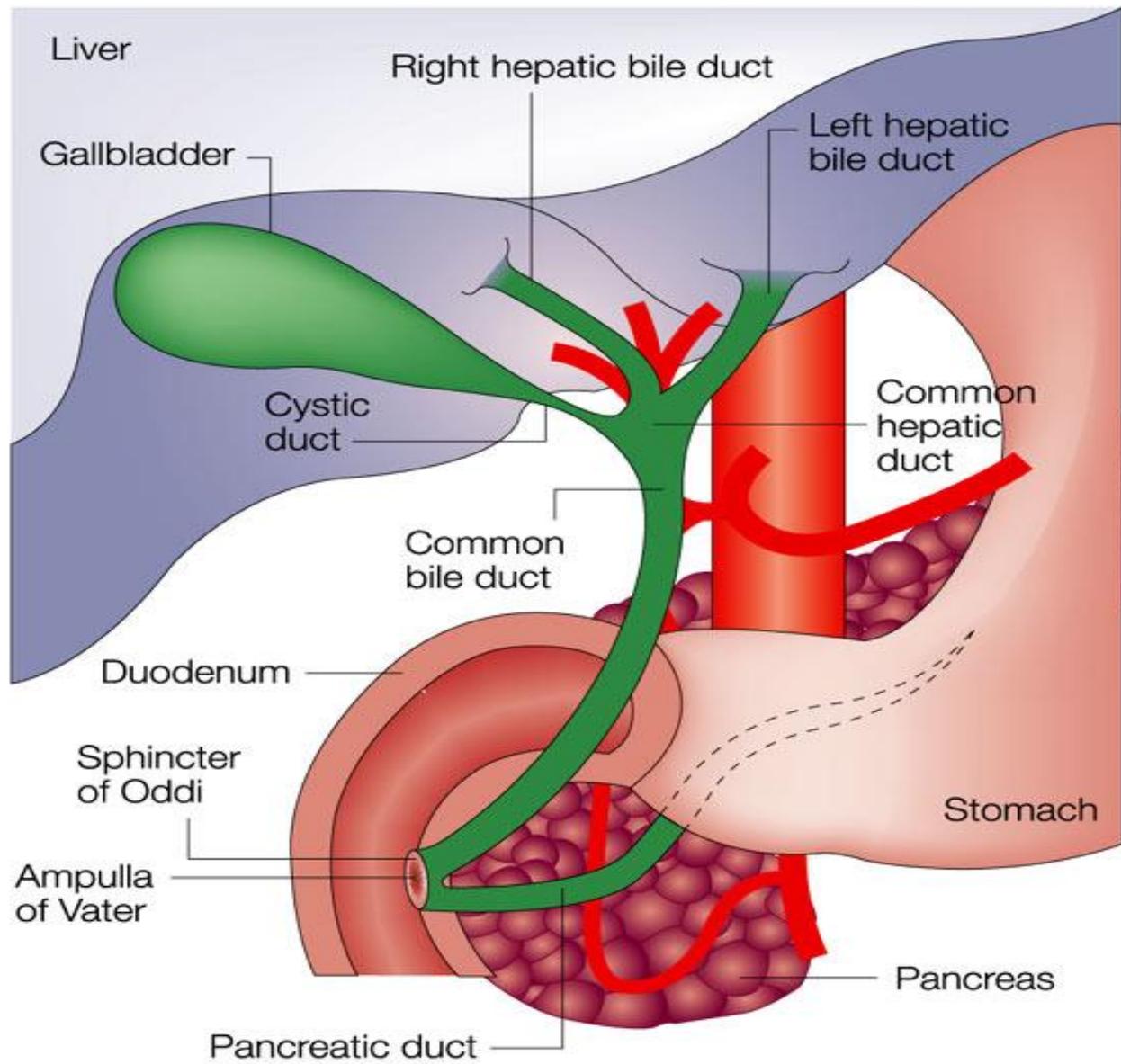
### Obstruction of bile ducts :

jaundice (yellowing of the skin and the whites of the eyes) in 90% of patients.

The **jaundice** is usually associated with itching of skin ( also called pruritus ).

Dark urine (cola colored ) , stools become white (clay colored).

pain in the right upper portion of the abdomen.



Gallbladder cancer



# Types of Cancers

adenocarcinomas

cholangiocarcinoma

papillary tumors.

rhabdomyosarcoma

carcinomas

# *Other risk factors for gallbladder cancer*

**Calcification of the gallbladder wall**

**Benign polyps**

**Chronic bacterial infections of the biliary tract**

## *Other risk factors for gallbladder cancer*

**Carcinoma of the extrahepatic and intrahepatic bile ducts:**

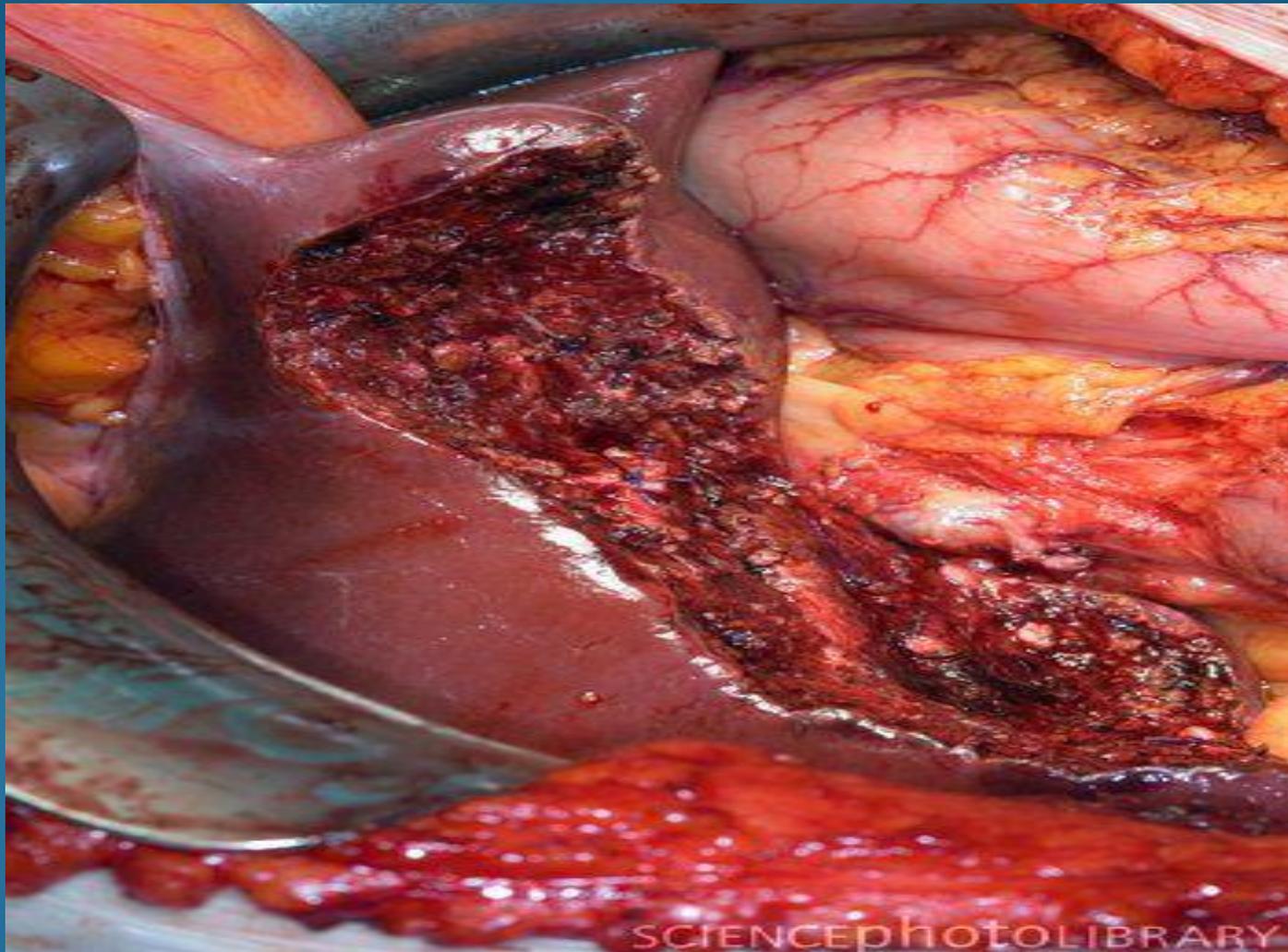
- 1- History of Primary Sclerosing Cholangitis (PSC)**
- 2- Congenital abnormalities**
- 3- Benign tumors of the bile ducts**
- 4- Hepatobiliary parasitic infection**
- 5- Toxic exposures thorium dioxid**

# Treatment of Gallbladder and Bile Duct Cancer

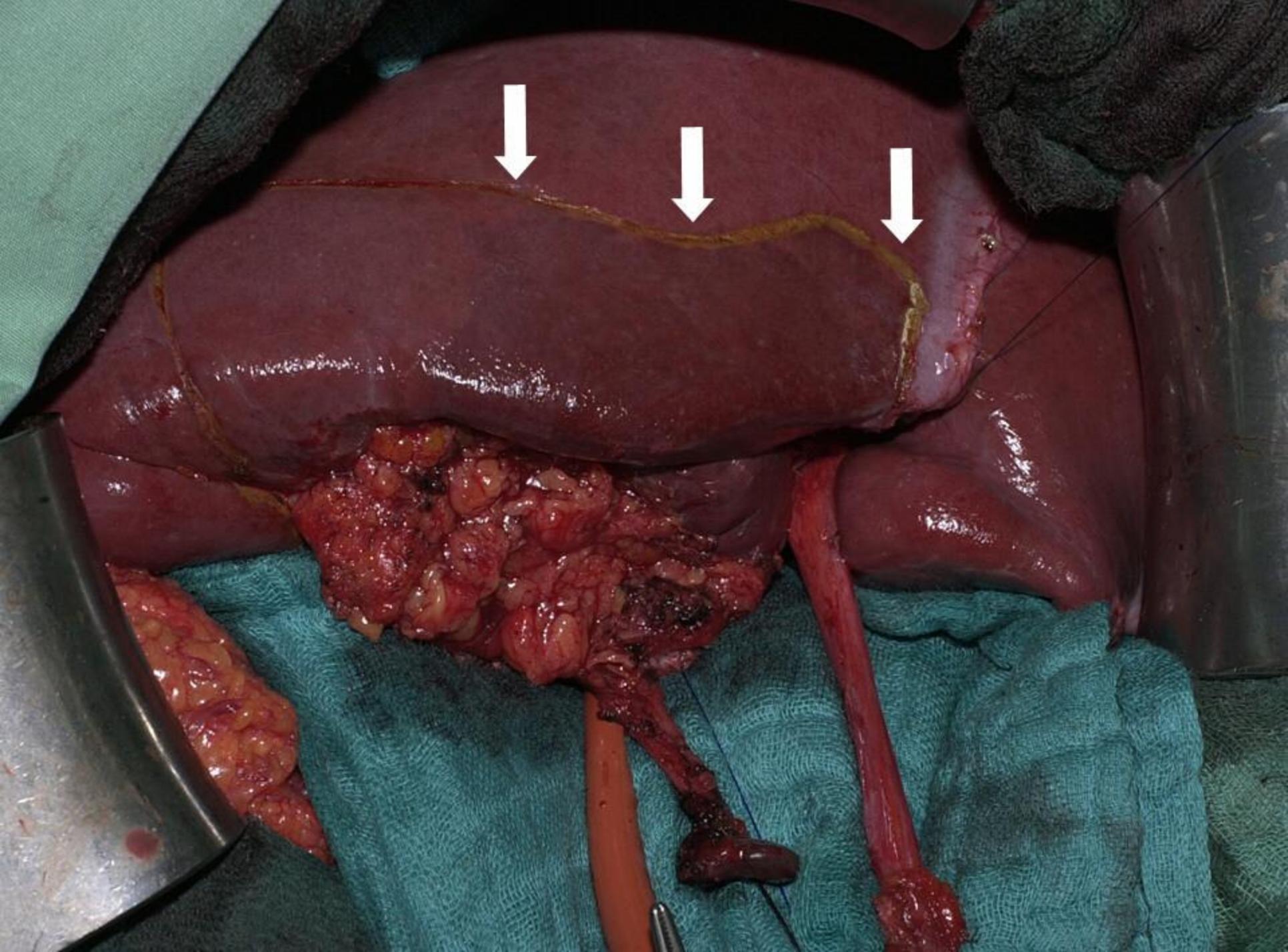
complete removal of the liver (hepatectomy) with  
liver

transplantation Surgical removal (resection)

# Gallbladder cancer surgery



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