

# *LIVER TUMOR*

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# INTRODUCTION

- **Liver tumours** or **hepatic tumours** are tumours or growths on or in the liver.
- Medical terms pertaining to the liver often start in *hepato-* or *hepatic* from the Greek word for liver, *hepar*.

# CLASSIFICATION

- Several distinct types of tumours can develop in the liver because the liver is made up of various cell types.

THEY ARE CLASSIFIED INTO:

- BENIGN TUMOURS
- MALIGNANT TUMOURS (Most cases are **metastases** from other tumours, frequently of the GI tract)

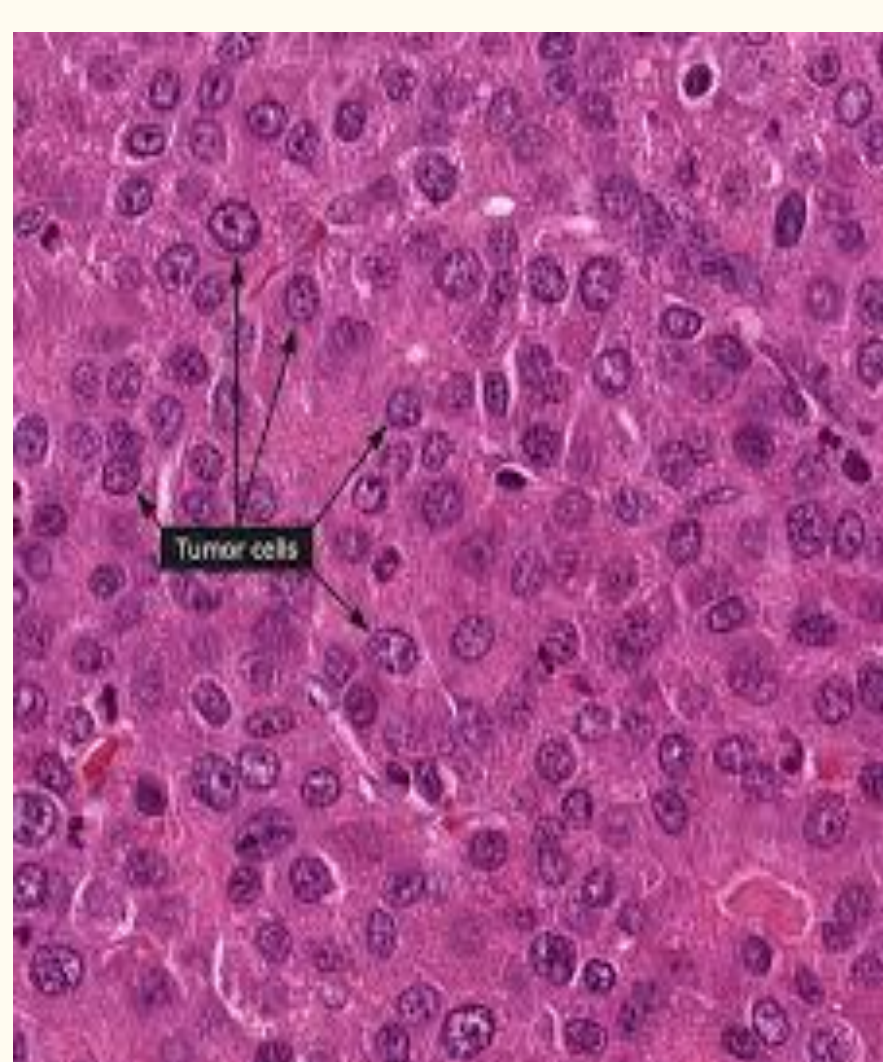
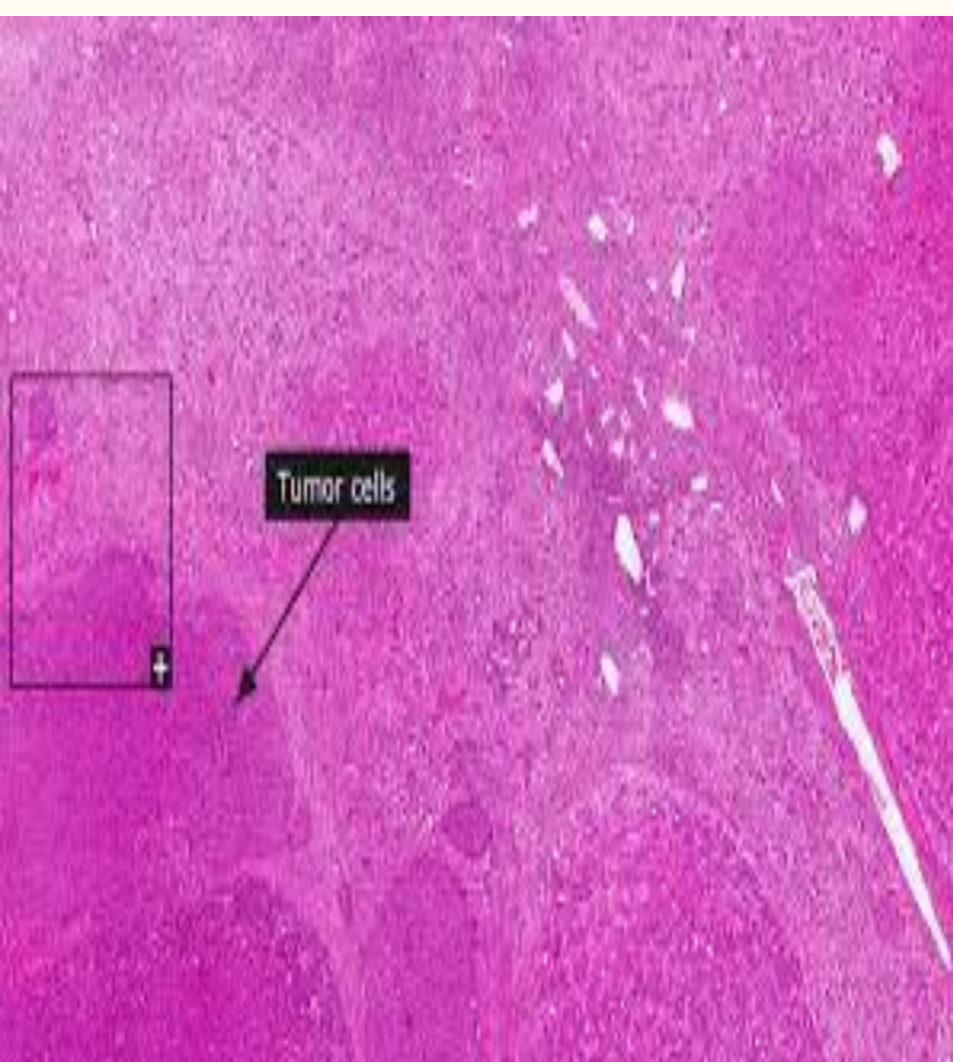
# BENIGN TUMOURS

- The more common benign tumours of the liver include:
  1. Hepatic Haemangioma
  2. Hepatic adenoma ( Hepatocellular adenoma/Hepadenoma)
  3. Focal nodular hyperplasia
- Other benign tumour which are very rare include fibroma, lipoma, leiomyoma and cystadenoma.

# 1- Hepatic Haemangioma

- A liver haemangioma is a tangle of blood vessels in or on the surface of the liver.
- The **most common benign** liver tumour in adults and children.
- They are more ***common in the right lobe of the liver than in the left lobe***
- Liver haemangiomas are **noncancerous**.
- These growths are usually about 4 cm in size ( In some cases, they can grow much larger.)
- Typically, there can occur only one liver haemangioma, however in few cases in which several have been found on liver at once.





# 1- Hepatic Haemangioma

- Causes & Risk factors-

- Haemangiomas are most likely congenital.
- Most liver haemangiomas are diagnosed in patients between the ages of 30 and 50.
- Women are more likely than men to develop liver haemangiomas.
- Women who are on hormone therapy to increase their oestrogen levels are at an increased risk of developing liver haemangiomas.

# 1- Hepatic Haemangioma

- Symptoms and signs-

- In most cases, liver haemangiomas do not cause symptoms.

Few symptoms include( in larger tumours)

1. Pain in the upper-right side of the abdomen
2. Feeling full after eating a small amount of food
3. Nausea
4. Vomiting
5. Lack of appetite (may cause weight loss).

- However, if they have been aggravated by an injury or fuelled by a change in oestrogen levels, symptoms can occur.



# 1- Hepatic Haemangioma

- Diagnosis -
- Usually undiagnosed until accidentally found in other circumstances
- Ultrasound, CT scan, MRI scan, or a single photon emission computerized tomography (SPECT) scan.
- Treatment- Most liver haemangiomas do not require treatment. However, if the haemangioma is large or causes symptoms, it can be removed surgically, hepatic artery ligation, arterial embolization.
- In Extremely rare cases, a liver transplant surgery or radiation treatments may be required



Hepatocellular Carcinoma

This histological image shows liver tissue with two distinct types of cancer. The hepatocellular carcinoma is characterized by large, irregular clusters of cells with prominent nuclei and some central necrosis. The cholangiocarcinoma is seen as a more organized, glandular structure with a clear lumen. The surrounding liver tissue shows normal architecture with cords of hepatocytes and sinusoids.

Cholangiocarcinoma

## 2- Hepatic adenoma

- Uncommon benign liver tumour.
- Also called as **Hepatocellular adenoma/ Hepadenoma**
- Large hepatic adenomas have a tendency to rupture and bleed massively inside the abdomen.

## 2- Hepatic adenoma

- Causes & Risk factors-

- 90% hepatic adenomas arise in women aged 20-40.
- Patients taking higher potency hormones, patients of advanced age, or patients with prolonged duration of use have a significantly increased risk of developing hepatocellular adenomas.
- When hepatic adenomas grow to a size of more than 6-8 cm, they are considered cancerous and thus become a risk of hepatocellular carcinoma.
- Hepatic adenomas transform into the more dangerous hepatocellular carcinoma in anabolic steroid users.



## 2- Hepatic adenoma

- Symptoms and signs-
- Usually asymptomatic, and may be discovered incidentally on imaging ordered for some unrelated reason.
- Less frequent signs and symptoms include:
  1. Pain in the right upper quadrant or epigastric region(25-50%).
  2. In Large hepatic adenomas (8-15 cm), palpable mass is noted.
  3. If not treated, there is a 30% risk of bleeding. Bleeding may lead to hypotension, tachycardia, and sweating (diaphoresis).
  4. Large hepatic adenomas have a tendency to rupture and bleed massively inside the abdomen.

## 2- Hepatic adenoma

- Diagnosis-

- It is important to distinguish hepatic adenoma from other benign liver tumours, *such as haemangiomas and focal nodular hyperplasia*, because hepatic adenomas have risk of progressing into a malignancy.
- MRI is the most useful investigation in the diagnosis and work-up.
- A poly-phasic CT scan is another useful test for diagnosing hepatic adenoma

## 2- Hepatic adenoma

- Treatment :

- All hepatocellular adenoma should be resected, because of the risk of rupture causing bleeding and because they may contain malignant foci.
- Patients with adenomas should avoid oral contraceptives or hormonal replacement therapy.
- Pregnancy could cause the adenoma to grow faster, so patients with hepatic adenomas should avoid pregnancy.

### 3- Focal nodular hyperplasia

- Its the second most prevalent tumour of the liver.
- Non- malignant
- This tumour is the result of a congenital arteriovenous malformation hepatocyte response.
- This process is one in which all normal constituents of the liver are present, but the pattern by which they are presented is abnormal. Even though those conditions exist the liver still seems to perform in the normal range.



# MALIGNANT TUMOURS

- The *most frequent, malignant, primary liver cancer is hepatocellular carcinoma*
- Most cases are **metastases** from other tumours, frequently of the GI tract.
- More rare primary forms of liver cancer includes
  - Cholangiocarcinoma,
  - Mixed tumours,
  - Sarcoma and
  - Hepatoblastoma(a rare malignant tumour in children).

# Hepatocellular carcinoma

- Also called **malignant hepatoma** ( also named *hepatoma*, which is a misnomer because adenomas are usually benign).
- Most common type of liver cancer.

## Risk factors

- Alcoholism
- Hepatitis B & Hepatitis C (25% of causes globally)
- Aflatoxin
- Cirrhosis of the liver
- Non-alcoholic steatohepatitis (if progression to cirrhosis has occurred)
- Hemochromatosis
- Wilson's disease
- Type 2 diabetes (probably aided by obesity)
- Haemophilia

## Risk factors

- The risk factors which are most important varies widely from country to country.
- In countries **where Hepatitis B is endemic**, such as China, Hepatitis B will be the predominant cause of Hepatocellular Carcinoma.
- Whereas in countries, such as the United States, **where Hepatitis B is rare because of high vaccination rates**, the major cause of HCC is **Cirrhosis** (often due to alcohol abuse).
- The risk of hepatocellular carcinoma in type 2 diabetics is greater (from 2.5 to 7.1 times the non diabetic risk) depending on the duration of diabetes and treatment protocol.



## Signs and symptoms

- Yellow skin ( Icterus )
- Ascities
- Easy bruising from blood clotting abnormalities
- Loss of appetite
- Unintentional weight loss
- Abdominal pain especially in the right upper quadrant, nausea, vomiting or feeling tired.

# Diagnosis

- Rule out past
  - H/O of HEPATITIS-B/C,
  - H/O OF ALCOHOLIC ABUSE,
- ULTRASONOGRAPHY
- ALPHA- FETOPROTEIN & DES-GAMMA\_CARBOXYPROTHROMBIN LEVELS
- CT-SCAN

## Prognosis

- The usual outcome is poor, because only 10-20% of hepatocellular carcinomas can be removed completely using surgery.
- If the cancer cannot be completely removed, the disease is usually deadly within 3 to 6 months.
- However, survival can vary, and occasionally people will survive much longer than 6 months.

## Prevention

- Since hepatitis B or C is one of the main causes of hepatocellular carcinoma, prevention of this infection is key to then prevent hepatocellular carcinoma.
- Thus, childhood vaccination against hepatitis B may reduce the risk of liver cancer in the future.
- In the case of patients with cirrhosis, alcohol consumption is to be avoided. Also, screening for hemochromatosis may be beneficial for some patients.
- It is unclear if screening those with chronic liver disease for hepatocellular carcinoma improves outcomes.