Lecture 8[2hrs]
Hypersplenism

*Hypersplenism is a syndrome in which there is an enlargement of the spleen, accompanied by a deficit in one or more of the circulating cell lines of the peripheral blood (anemia, thrombocytopenia, and granulopenia), together with demonstrated active Hematopoiesis of the affected cell line(s) in the bone marrow.
*Patients with severe hypersplenism appear to be at increased risk of variceal bleeding, spontaneous bacterial peritonitis, and death

NEOPLASMS OF THE LIVER
*Neoplasms of the liver can be divided into benign and malignant.
*Malignant tumors may be primary or secondary from cancer that has metastasized from elsewhere.
*The sites from which metastases occur include lung, colon, pancreas, breast, stomach, and ovary.
Benign Tumors of the liver include
1-Hepatocellular adenoma.
*Characterized by a benign proliferation of hepatocytes.
*Commonly seen in females in their third and fourth decades.
* Localized in the right lobe, maybe >10 cm in diameter, usually single, rarely multiple.
Clinical features
*Maybe asymptomatic *Right hypochondrial pain *Palpable mass.
Investigations
* Liver function tests are usually normal
*Diagnosis by ultrasound and or CT scanning.
*Radio-nuclear scanning may show the characteristic lack of colloid uptake due to the absence of Kupffer cells in the adenoma.
*Because adenomas mimic normal hepatic tissue liver biopsy is of limited diagnostic use.
*The risk of malignancy in up to 10% with an increased risk in the larger, multiple tumors.
Management includes
*Stopping oral contraceptives.
*Surgery - Resection of larger, symptomatic tumors.
Complication - *Rupture of the adenoma causing hemoperitonum.
2-Focal Nodular Hyperplasia. [FNH].
*More common in females between the ages of 30 and50 years.
*Size ranges from 1 mm to 19 cm.
*The lesion is usually asymptomatic and incidentally discovered on an imaging study for an unrelated reason.
Investigations
*Liver enzymes are usually normal with occasionally an elevation of glutamyl transpeptidase * CT scan.
Treatment –No treatment if the patient is asymptomatic.
3-Nodular Regenerative Hyperplasia. [NRH]
*Benign condition in which hepatic architecture is replaced by diffuse regenerative nodules of hepatocytes.
*It occurs in patients with other conditions like rheumatoid arthritis, amyloidosis, vasculitis, collagen vascular diseases, drugs, toxins, and anabolic steroids.

*The histologic findings include the nodular regeneration and lack of fibrous scar that distinguishes it from cirrhosis.

The Clinical Presentation
*Usually, the associated condition predominates and the NRH is an incidental finding.
*Liver enzymes are normal.
*The physical findings may include hepatomegaly and splenomegaly with evidence for portal hypertension. **Management** is the primary predisposing disease.
4-Cavernous Hemangiomas.
*Hemangiomas are the most common benign tumor of the liver.
*These are usually detected by imaging techniques done for other reasons.
*Hemangiomas present at all ages
*More common in women in the third to fifth decades.
*Lesions larger than 4 cm are called *giant cavernous hemangiomas*
Clinical feature
*Usually, asymptomatic.
*Pain is the most common complaint.
*The only physical sign may be an enlarged liver with an arterial bruit heard over the lesion.
investigation
*Ultrasound findings include an echogenic lesion
* Diagnosis confirmed by RBC-labeled nuclear scan, bolus-enhanced CT scan, MRI, or angiography.
*The lesion does not require any treatment as there is no malignant potential and hemorrhage is rare**.**
6-Solitary Hepatic Cyst.
*Solitary hepatic cysts are relatively common and usually asymptomatic.
*They are usually discovered incidentally during the evaluation of the abdomen with ultrasound for an unrelated reason.
*Solitary cysts are found in 3.5% of the population,
*More common in females and the right lobe of the liver.
Clinical features
*Maybe symptomatic
* localized RUQ pain if large.
Complications
*Rarely may be intracystic hemorrhage, infection, or more rarely malignancy.
Treatment For symptomatic lesion include
*Percutaneous cystic drainage with alcohol or doxycycline sclerotherapy or surgery.
7- Adult Hepato-Renal Polycystic Disease.
* inherited as an autosomal dominant trait.
* Hepatic cysts may be discovered incidentally
*Kidneys are predominantly affected.
*hepatic cysts present in over ½ the patients with renal cysts
*Hepatic cysts usually not communicate with the biliary system.
*Cerebrovascular aneurysm sometimes develop.
Complications include;- *pain* jaundice* hemorrhage*infection* PHT and bleeding varices are very rare

Malignant Tumors of the Liver

1-Primary Hepato-Cellular Carcinoma

*it is the most common primary malignant tumor of the liver.
*It usually affects old patients with an M: F ratio of 3:1.

Risk factors for the development of HCC.

*The most powerful risk factor is liver cirrhosis regardless of etiology
*Chronic Hepatitis (Hepatitis B, Hepatitis C)
*Alcoholism
*Aflatoxins, oral contraceptives, and androgens
*Tyrosinemia
*Hereditary hemochromatosis**.**

Pathogenesis:

*HBV has the presence of HBX protein which causes activation of the host cell proto-oncogenes and disruption of cell cycle control.
*Aflatoxins cause mutations in proto-oncogenes or p53 (tumor suppressor gene).

Clinical Features include

*The clinical recognition of HCC may be difficult because signs and symptoms may simply suggest the progression of the underlying liver disease.
*Development of a painful mass in the right upper quadrant accompanied by anorexia and weight loss.
*In the patient with cirrhosis the presentation may include the development of ascites, encephalopathy, or rapid clinical deterioration.
*Hepatic friction rub or bruit may be heard over the lesion.
*Patients may present with one of the paraneoplastic syndromes, including[erythrocytosis, hypercalcemia, dysproteinemia, or hypoglycemia].

Investigations

*Routine blood tests including liver function usually reflect the underlying chronic liver disease.
*Normal liver enzymes do not rule out the diagnosis
*contrast ultrasound, CT, MRI or angiography that demonstrate the characteristic arterial hypervascularity of a focal lesion and tumor staging
*Percutaneous aspiration for histologic diagnosis with elevated AFP.
*The tumor metastasizes to regional L.N, lung, bones, and Peritoneum with resulting hemorrhagic Ascites, Intravascular invasion, and growth lead to tumor spread into the portal vein or I.V.C.

Prognosis.

usually poor and dependent on:
(a) The stage, aggressiveness and growth rate of the tumor;
(b) The general health of the patient.
(c) The liver function.

Tratment

*For non-invasive localized disease, options include
*Surgical resection for Patients with preserved liver function (Child A)
*Non–surgical techniques include -Percutaneous techniques, ethanol inject, radiofrequency, microwave, Cryotherapy, laser therapy, and arterial embolization for

patients with a single HCC < 5 cm or three nodules smaller than 3 cm without evidence of metastasis.
*Liver transplantation for Patients with poor liver function (Child B and C)
Screening for HCC in patients with cirrhosis include
Ultrasound and AFP determinations every six to 12 months.

2-Fibrolamellar HCC

*More common in young people (5-35 yr) of both sexes.
*Occur in Non- cirrhotic liver
* it is unrelated to sex hormones
*Not associated with hepatitis B or C.
Presentation
*Abdominal mass, some time with pain
Investigations
*Serum AFP is usually normal.
*CT shows atypical stellate scar with radial septa which shows persistent enhancement.
*Liver biopsy shows- polygonal malignant hepatocytes in a dense fibrous tissue stroma.
Prognosis is better than for other forms of liver cancer (survival [32 – 62 m].
Treatment -*Surgical resection for localized tumor *Liver Transplantation**.**

Metastatic liver tumors.

sources include
*Colorectal, Pancreatic, Gastric, Breast, Lung or Urogenital cancer, and Neuroendocrine tumors.
*It is sometimes difficult to distinguish primary from metastatic carcinoma in the liver.
Clinical features:
*These may be due to the hepatic metastases or to the distant primary growth or combination
of both. include
*Malaise, weight loss, abdominal pain, Fever, and sweats
*Hepatomegaly, Friction rub may be heard over the liver, Splenomegaly, Jaundice, Leg edema,
dilated abdominal vein suggests I.V.C obstruction.
*R. supraclavicular L.N enlargement, Ascites, and rarely F.H.F.
Diagnosis by
*Ultrasound, CT or MRI and usually confirmed by needle biopsy.
* Metastases have histologic or immunohistochemical features that suggest a primary.
Prognosis
Metastatic disease
*Indicate advanced disease with poor prognosis and few therapeutic options
Exceptions include
metastatic colorectal carcinoma and neuroendocrine tumors.
Treatment
*Surgical resection for focal metastatic colorectal carcinoma confined to the liver may increase
five-year survival rates up to 40%.
*Cryotherapy and chemotherapy for an unresectable colorectal disease may prolong survival.
*Resection for localized neuroendocrine tumors and drug therapy (interferon, octreotide) for a

more advanced disease may help prolong survival and reduce symptoms from hormone release (carcinoid syndrome, Zollinger-Ellison syndrome).

Liver Transplantation [LT]

*Liver transplantation is a procedure of replacing severely damaged or dysfunctional liver with a functionally normal one in whom the LT would extend life expectancy or improve the quality of life**.**
*Liver transplantation is a life-saving intervention for patients with acute or chronic irreversible liver dysfunction
*About 10% of a liver transplant is performed for acute liver failure,6% for metabolic diseases,71% for cirrhosis, and 11% for hepatocellular carcinoma.
*Most patients are under 60 years of age and only 10% are aged between 60 and 70 years. Patients are matched for ABO blood group and size but do not require HLA-matching with donors as the liver is a relatively immune-privileged organ compared with the heart or kidney.
Indications for Liver Transplant include
1-Biliary atresia, 2-inborn errors of metabolism, 3-acute liver failure
4-Complications of cirrhosis
1-First episode of bacterial peritonitis.
2-Diuretic-resistant ascites.
3-Recurrent Variceal hemorrhage.
4-Hepatocellular carcinoma < 5 cm.
5-Persistent hepatic encephalopathy.
6-Hepato-pulmonary syndrome.
7- Porto-pulmonary hypertension.
8-Bilirubin > 5.8 mg/dL) in primary biliary cirrhosis.
9-MELD score > 12.
10-Child–Pugh grade C.
5-Metabolic Liver Disease
*Alfa 1-antitrypsin deficiency
*Familial amyloidosis, *glycogen storage disease, *Wilson disease,
Absolute Contraindications to transplantation are
*Sepsis, HIV infection, *Extrahepatic malignancy, *Active alcohol or another substance misuse, *Cardiorespiratory dysfunction.
Relative Contraindications
*age >65, *Obesity, *PVT, *Mesenteric vein thrombosis, *Psychiatric illness.
Types of Transplantation
1-Split liver transplantation. A cadaveric donor liver can be split into two, with the larger right lobe used in an adult and the smaller left lobe used in a child.
2- Living donor transplantation- using the left lateral segment or the right lobe.
The donor mortality is significant at 0.5%-1%
Complications of Liver Transplantation include
1-Early Complications
Acute Rejection.
*This occurs in up to 60% of patients, usually within the first 6 weeks after transplantation, and normally responds to 3 days of high-dose methylprednisolone
Surgical Complications include
*Hepatic artery thrombosis, which may necessitate retransplantation.

*Anastomotic biliary strictures * Portal vein thrombosis.

Infections.

*Bacterial infections such as pneumonia and wound infections,

*Cytomegalovirus (primary infection or reactivation) is a common infection in the 3 months after transplantation.

*Patients receive a liver from a donor who has been exposed are at greatest risk of CMV infection and are usually given prophylactic antiviral therapy.

*TB prophylaxis is given to recipients who have had previous exposure to tuberculosis to prevent reactivation.

2-Late Complications These include

*Recurrence of the initial disease in the graft

*Complications due to immunosuppressive therapy, such as renal impairment from cyclosporine.

*Chronic vascular rejection is rare, occurring in only 5% of cases

Prognosis.

*The outcome following transplantation for acute liver failure is worse than for chronic liver disease because most patients have multi-organ failure at the time of transplantation.

*For patients with ALF- The 1-year survival is 65% and falls only a little to 59% at 5 years.

*For patients with cirrhosis -The 1-year survival is 80-90%, falling to 70-75% at 5 years.

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