BENIGN LIVER TUMOURS

EPITHELIAL
Hepatocellular: (i)hepatocellular adenoma (ii)focal nodular hyperplasia (iii)nodular transformation
Cholangiocellular: (i)bile duct adenoma (ii)bile duct cystadenoma (iii)bile duct hamartoma

MESENCHYMAL
Fat: (i)lipoma (ii)myolipoma (iii)angiomyolipoma
Muscle: leiomyoma
Vascular: (i)infantile haemango-endothelioma (ii)haemangioma
Mesothelial: mesothelioma (benign form)

MIXED
Mesenchymal hamartoma/teratoma

MISCELLANEOUS
Adrenal rest tumour/pancreatic heterotopia/inflammatory pseudotumour

BENIGN EPITHELIAL TUMOURS

HEPATOCELLULAR ADENOMA
Epidemiology: 90% women 20-40yo
Aetiology: drugs= (i)**OCP** (ii)Anabolic steroids (iii)iron overload ||metabolic= DM/glycogen storage disease/galactosaemia
Macro: solitary/round with capsulated/soft + pale yellow cut surface
Micro: (i)benign-appearing hepatocytes (no portal triad; pale due to glycogen) (ii)venous lakes (peliosis hepatis)
Transformation risk: male/large/telangiectasia/B-catenin (less if steatosis)
Symptoms: Pain (sudden if bleeding)
Signs: Mass
Investigaions: (i)bloods: LFTs, aFP, CEA all normal (ii)imaging: US-FNAC/CT Liver (iii)Tissue: US-FNAC/CT liver-guided Bx
Management: (i)Conservative (asymptomatic, small, <10 adenoma)
(ii)Surgical: resect if symptoms/>5cm/>10 adenoma

FOCAL NODULAR HYPERPLASIA
Hyperplasia with normal liver constituents in disorganed pattern
Epidemiology: 90% women 10-30
Aetiology: *no relationship to OCP*
Macro: solitary/circumscribed with no capsule/firm and lobulated + central scar w/ radiations on cut surface
Micro: benign hepatocytes
Symptoms: Pain
Signs:
Investigations: (i)bloods: LFTs, afp, CEA normal (ii)CT: arterial phase hyperattentates radiations but not central scar
(iii)Bx: exclude adenoma venous phase hyperattenutates central scar but radiations wash out
Management: conservative

BILE DUCT ADENOMA/HAMARTOMA
Mass of entangled bile ducts surrounded by fibrous stroma

BILE DUCT CYSTADENOMA
Epidemiology: women >40
Macro: solitary
Micro: cuboidal/columnar cells with papillary projections
Features: as for all hepatic SOLs
Investigations: (i)bloods: LFTs, CA 19-9 to r/o cholangio (ii)US/CT Liver
Management: excision (malignant potential)

MESENCHYMAL TUMOURS

HAEMANGIOMA
Epidemiology: 20-40
Aetiology: unclear
Macro: encapsulated
Micro: mesenchymal features
Investigations: CT Liver (hyperechoic) + as per hepatic SOLs
Symptoms:
Signs:
Management: TAE/resection if symptomatic, bleeding, >10cm

OTHERS Lipoma/myolipoma/angiomyolipoma/leiomyoma/benign mesothelioma all exceedingly rare

LIVER CYSTS

SIMPLE CYSTS

Congenital malformation of intrahepatic bile ducts

Macro: unilocular+serous fluid (no septae, no debris, thin wall) *complicated= debris/septae/nodular wall; Ca^{2+} if hydatid*
Micro: Lined by **single cell layer** (biliary cuboid/columnar)
Features: as for hepatic SOL
Imaging: US= **well-defined wall, anechoic** (complicated if septae, debris, nodular wall; Ca^{2+} if hydatid); CT Liver=plan Tx
Management: (i)Conservative: asymptomatic (ii)Radiological drainage + sclerosant (iii)Surgical: deroof/resect if recurrent

POLYCYSTIC DISEASE

APKD associated liver cysts
Similar to simple cysts but multiple
Micro: von Meyenburg complexes (clusters of bile ductules)
Symptoms: abdo discomfort
Signs: **hepatomegaly**
Investigations: as for simple cysts
Management: as for simple cysts

LIVER ABSCESS

AMOEBIC ABSCESS

Entamoeba histiolytica → 90% right lobe (left if advanced disease) → grow 1cm/yr → rupture
Symptoms & Signs as for pyogenic infections (usually when 5cm+)
Investigations: (i)bloods: ESR/CRP; antiamoebic Ags on serology (ELISA) (ii)imaging: US/CT Liver
Management (i)Medical" metronidazole (ii)Radiological: PAIR (iii)Surgical: complicated/resistant/recurrent

HYDATID CYST

Echinococcus granulosus (only cestode in UK) and ***multilocularis*** (rare but dangerous) from **sheep/dog** contact
Features: (i)nil when **latent** for years (ii)**RUQ pain**/malaise (iii)**anaphylaxis** when rupture (wheeze, urticaria, jaundice)
Investigations: (i)bloods: eosinophilia, ESR/CRP, LFTs, serology (ii)Imaing: AXR=Ca2+ in cyst US/CT=poorly-defined wall
Management: (i)Medical= **mebendazole** (ii)Surgical: **endocystectomy** (hypertonic saline gauze; no spillage)

PYOGENIC LIVER ABSCESS

(i)Biliary tract pathology (ii)Direct spread (cholecystitis, duodenal or colonic perf (iii)Haematogenous spread
Features: (i)Sepsis (ii)Underlying condition (iii)jaundice
Investigations: US/CT= fluid-filled cyst + source of infection
Management: Resus/treat underlying cause/drain cyst and biliary tree → MC&S → 6wks antibiotics

Simple vs Hydatid cyst:
Simple= well-defined thin wall, anechoic,
Hydatid= poorly-defined wall with $Ca^{2+,}$ purulent

LIVER LESION: APPROACH

HISTORY
Pc:

HPc:
Mass symptoms: pain, N&V, jaundice, bruising and bleeding, oedema,
Infective: fevers chills rigors, night sweats
Malignancy: appetite, weight loss, lethargy

PMHx:
Metabolic disorders (DM/glycogen storage disease/galactosaemia

MEdx:
OCP/anabolic steroids/iron
EtOH

FHx:
Metabolic disorders (DM/glycogen storage disease/galactosaemia)
Liver cancers

SHx:
Exposure to animals
Travel to Mediterranean

EXAMINATION

INVESTIGATIONS
Bloods: WCC/CRP/ESR/LFTs; CA 19-9, aFP, CEA; hydatid serology; antiamoebic Ags ELISA
Imaging:
Tissue:

HEPATOLOGY

CIRRHOSIS

Chronic hepatic injury → hepatocyte necrosis → regeneration with nodular formation/fibrosis

Aetiology

(i)Parenchymal

Alcohol: alcohol and acetaldehyde are hepatotoxic → fatty liver/hepatitis → cirrhosis (AST/ALT ratio 2)
Hepatitis (Hep B/C/D)
Schistosomiasis
Sarcoidosis

(ii)Metabolic

Haemochromatosis
Wilson's
Drugs
a1 ATD
Type 4 galactosaemia

(iii)Biliary

Primary Biliary Cirrhosis: autoimmune inflammatory destruction of small/medium intrahepatic bile ducts
90% Antimitochondrial IgG (AMA)/High ALP/Biopsy=
Treatment: steroids, ursodeoxycholic acid, cholecstyramine , treat fat malabsorption

Secondary Biliary Cirrhosis: prolonged obstruction of extrahepatic biliary outflow → pressure necrosis of hepatocytes
Mironodular cirrhosis develops in 3-12 months

(iv)Venous outflow obstruction

Budd-Chiari: hepatic vein occlusions → RUQ pain, hepatomegaly, ascites and oedema → liver failure (caudate lobe spared)
IR venoplasty/stent, portocaval/splenorenal anastomosis, TIPS, transplant + treat ascites
CCF

Pathogenesis

Final common pathway of many types of chronic liver injury
(a)Stellate cells activate → T1/3 collagen into space of Disse → occludes fenestrations which impairs liver function
(b)Nodule formation (fibroblasts)

HEPATITIS

Autoimmune
Viral
Drugs