LIVER LESIONS

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CLINICAL QUESTIONS

- Which liver lesions do I need to worry about?
- If lesion is benign, does the size matter?
- In what situations would I need to advise patients to change/stop medications?
- Who needs further investigations?
- Who needs ongoing follow up scans?

LIVER LESIONS

- Increasingly common with increasing use of scans
- Incidental finding
- Approach depends on whether patient has underlying liver disease
- Commonly need further imaging to characterise: triphasic CT or MRI
- If still unsure after CT/MRI → follow up imaging after an interval
- If highly suspicious lesion → USS guided liver lesion biopsy

BENIGN LIVER LESIONS

- Hemangioma
- Focal nodular hyperplasia
- Hepatic adenomas
- Focal fatty sparing
- Liver cysts

MALIGNANT LIVER LESIONS

- Hepatocellular carcinoma
- Metastatic lesions
- Cholangiocarcinoma

CASE 1

- 34 year old female
- Abdominal discomfort after meals
- USS showed well defined 5mm hyperechoic lesion in segment 6, thought most likely to be a hemangioma.

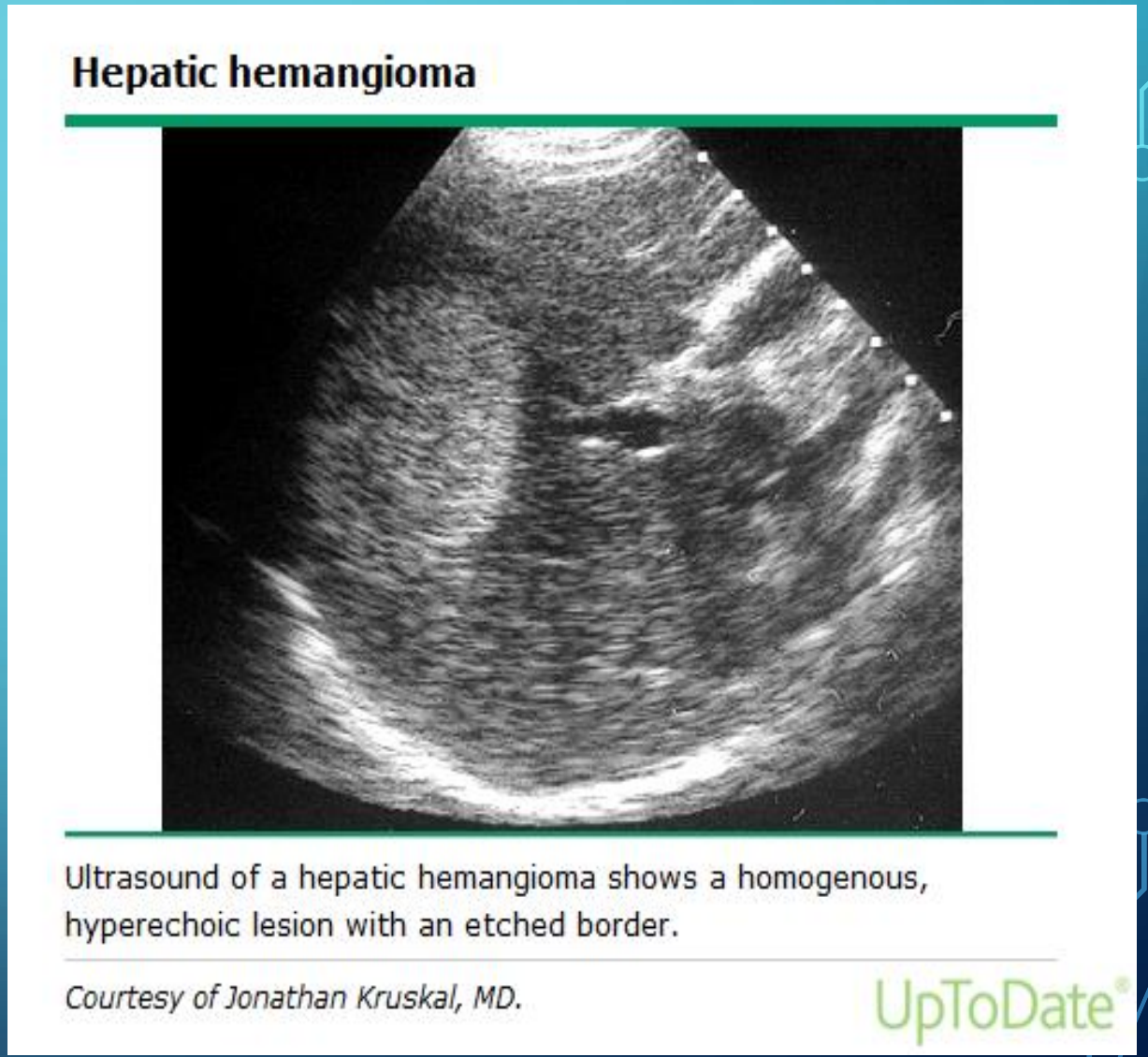
- Does she need any further follow up?

CASE 2

- 56 year old female
- RUQ pain after meal
- USS showed cholelithiasis, new 14mm liver lesion segment 6/7 ?avascular hemangioma
- Liver tests normal
- Background of previous RLL lobectomy 2019 for stage 1 adenocarcinoma of lung
- Question: Does she need any further follow up

HEMANGIOMA

- Most common liver lesion
- Majority diagnosed between 30-50 years of age but can be diagnosed at any age
- Female:male = 3:1
- Most commonly solitary but multiple hemangiomas may be present
- Symptomatic usually >10cm



HEMANGIOMA

- Asymptomatic patients
- ●≤5 cm: No further imaging
- ●>5 cm: Contrast-enhanced magnetic resonance imaging (MRI) in 6 to 12 months:
- •If the lesion size remains stable on surveillance imaging (ie, growth rate ≤3 mm per year), no further imaging is performed.
- •If the lesion appears to be growing at a rate >3 mm per year, repeat surveillance with contrast-enhanced MRI in 6 to 12 months. If the lesion appears stable, no further imaging is performed.
- If the lesion continues to grow at a rate of >3 mm per year, the patient is evaluated by a multidisciplinary team (eg, hepatologist, hepatobiliary surgeon) for consideration of surgical intervention
- Surgical options include resection, enucleation, transcatheter arterial embolization for large hemangiomas preoperatively

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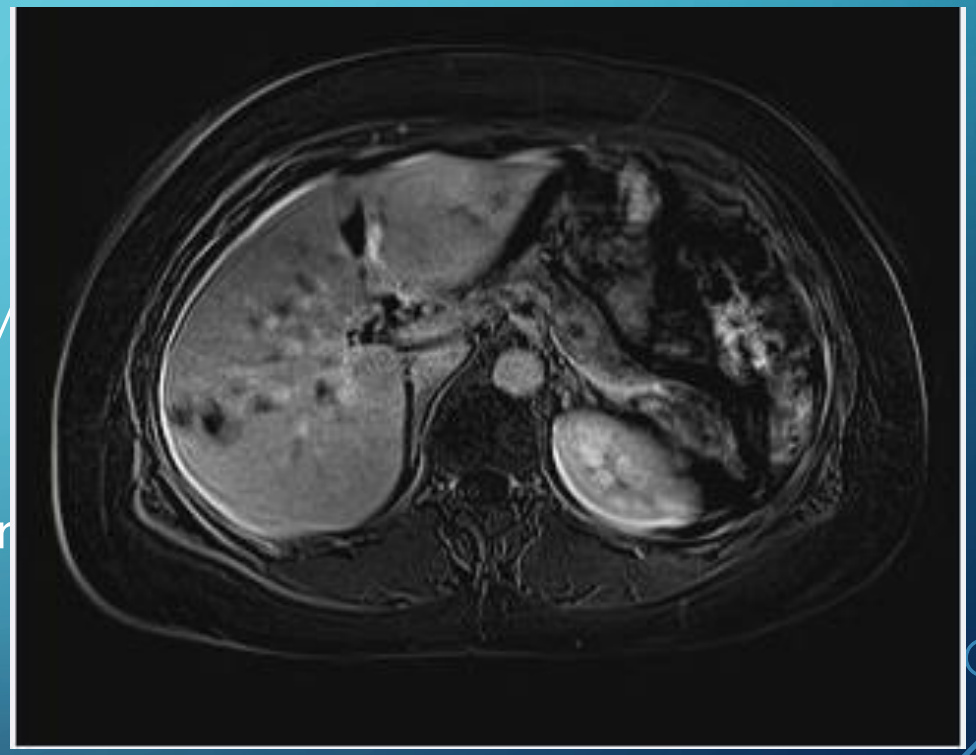
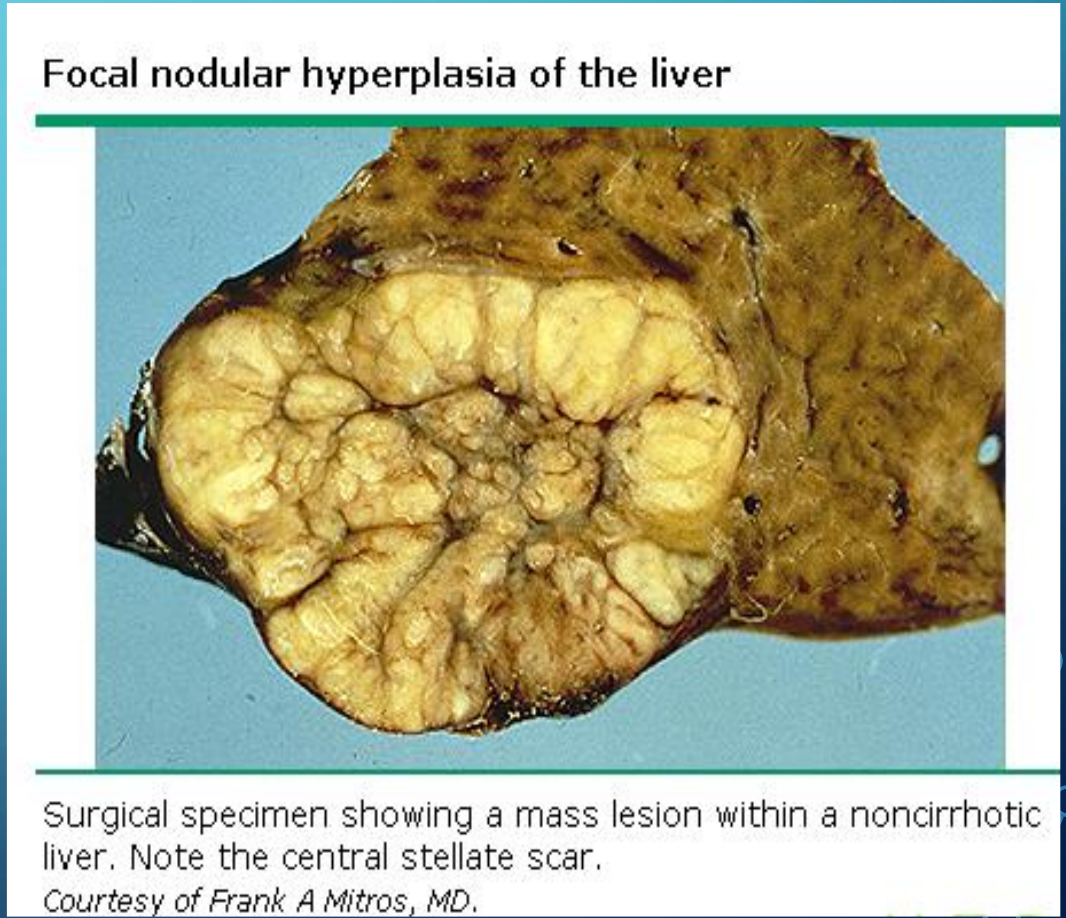
CASE 3

- 42 year old woman with abdominal pain and multiple non specific symptoms (dizziness, chest pain)
- USS showed isoechoic 4.5cm lesion in segment 2/ unable to characterise further
- MRI liver showed large lesion in left lobe (segmer 3) 46x67mm in size, partially exophytic with central scar likely FNH
- “Doctor, do I need surgery?”



FOCAL NODULAR HYPERPLASIA

- 2nd most common benign liver lesion
- Proliferation of hyperplastic hepatocytes surrounding a central stellate scar
- Congenital malformation or 2* to oxidative vascular stress
- Typically solitary
- More commonly seen in women
- Prevalence ~1% in amongst patients undergoing USS
- Most commonly asymptomatic



FNH

- Asymptomatic small lesions → no further follow up
- Symptomatic lesions → surgery, transarterial embolization, radiofrequency ablation
- No malignant transformation reported
- Excellent prognosis

WHAT SHOULD WE DO WITH PATIENT 2?

- A) Reassure and discharge
- B) repeat MRI scan in 6 months
- C) Refer to surgeons

HEPATIC ADENOMA

- Uncommon solid, benign liver lesion
- Usually solitary but phenotype changing to multiple lesions 2* to increasing incidence of obesity and metabolic syndrome
- More common in women esp in association with estrogen use (30-40x increased incidence with OCP use)
- 34 per million risk vs 1-1.3 per million not on OCP
- Usually OCP with higher doses of estrogen and prolonged use (73.4 mths vs matched controls 36.2 mths, $P<0.001$)
- Anabolic androgen steroid use, PCOS, Klinefelter syndrome, glycogen storage diseases
- Advise patients to stop OCPs and lose weight

Edmondson NEJM 1976.

CASE 4

- 33 yr old woman, G8P4, presented at 21 weeks gestation (2011)
- Large liver mass noted incidentally on anatomy scan
- MRI liver: single lobulated mass 24cm diameter segments 4 and 5 ?adenoma vs HCC with possible hemorrhage into the mass
- Planned to have c-section combined with liver resection at 31 weeks due to risk of rupture of this very large liver lesion
- Operative note: “Very large, firm, lobulated liver tumor 35 x 18x18cm.
- Histology- weight of tumor 3.77kg, poorly differentiated HCC, no underlying liver disease
- No recurrence, well at last follow up in 2020

HEPATIC ADENOMA- MANAGEMENT

- Complications: Hemorrhage risk greatest if diameter >5cm + exophytic growth
- Malignant transformation: Overall risk 4.2%
- Risk greatest if male OR diameter >5cm (only 4.4% of all malignant transformation was in lesions <5cm diameter)
- Risk remains even after contraceptive or steroid use discontinued
- Women with adenoma <5cm – monitor with regular imaging
- Women with adenoma >5cm- consider resection
- Men with hepatic adenoma regardless of size → resection

Gordon, Ann Int Med 1986.

HEPATIC ADENOMA AND PREGNANCY

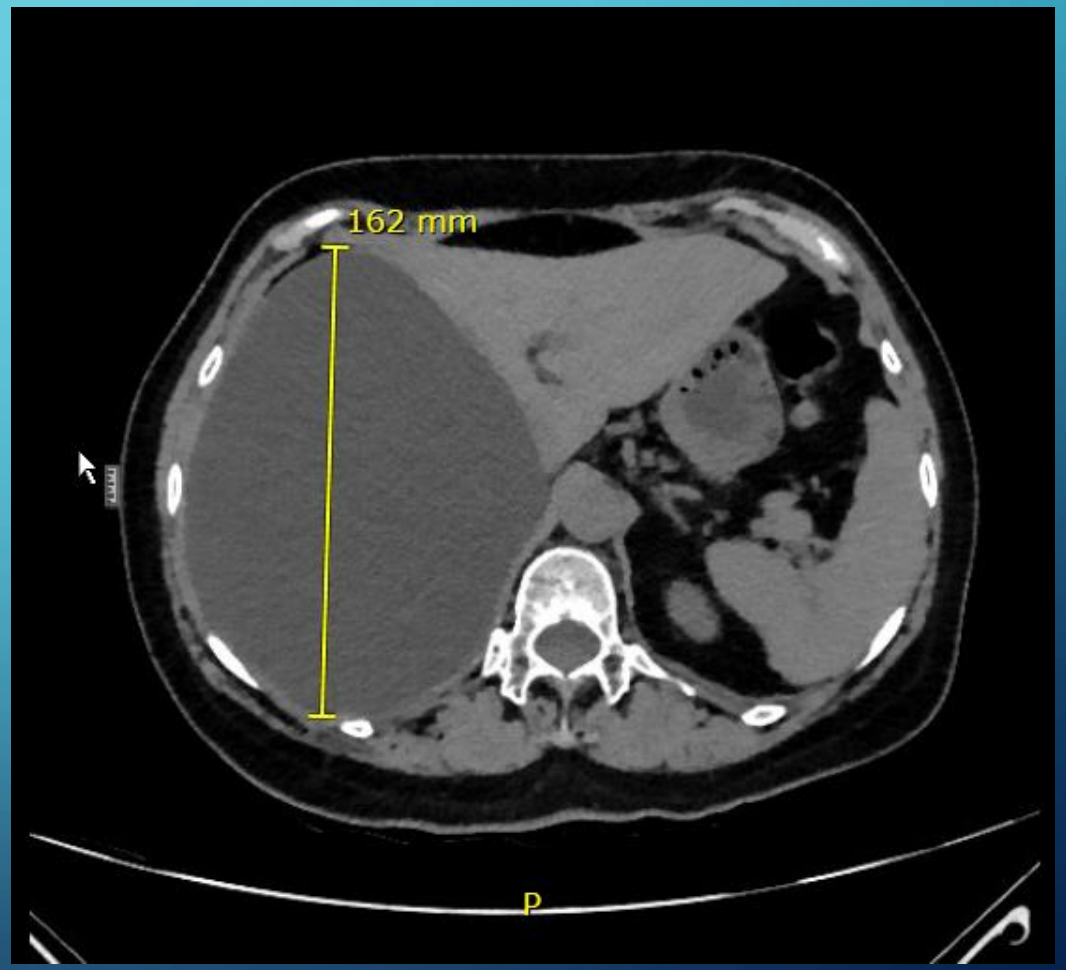
- Pregnancy can increase adenoma growth
- Increased risk of adenoma rupture 2*to size
- 44% maternal mortality and 38% fetal mortality
- Prospective study followed 51 pregnancies with adenomas <5cm
- Growth of adenoma in 13 pregnancies (25.5%), median increase was 14mm (IQR 8-19)
- One woman's adenoma grew to >70mm → successful transarterial embolization at week 26
- Other 50 pregnancies no complications
- Conclusion: Risk of rupture minimal if adenoma <5cm
- If surgery required, this should be done <24 weeks gestation to reduce fetal complications
- Monitor with USS every 6-12 weeks

Gaspersz et al. J Hepatol 2020

FOCAL FATTY CHANGE

- Usually in the medial segment of left lobe of liver
- Sometimes picked up as a lesion and requires further CT/MRI to characterise

LIVER CYSTS



Majority no follow up required
Issues mainly relate to size
Only intervene if symptomatic

CASE 5- 65YO MRS HC

- Known HBV being followed up in liver clinic
- Known large liver cyst under observation for many years ~10cm in size
- In 2019 developed increasing RUQ discomfort
- USS showed enlarging size of cyst to 16cm
- Referred for surgery (laparoscopic fenestration of liver cyst)

CASE 6- 60 YO MRS OW

Known autosomal dominant polycystic kidney and liver disease
(94% of patients will have liver cysts over the age of 35 years)
Previous infected/hemorrhagic liver cyst in 2014
Recovered and had normal liver tests until 2019 but repeat CT stable
Recent readmission with fevers/rigors

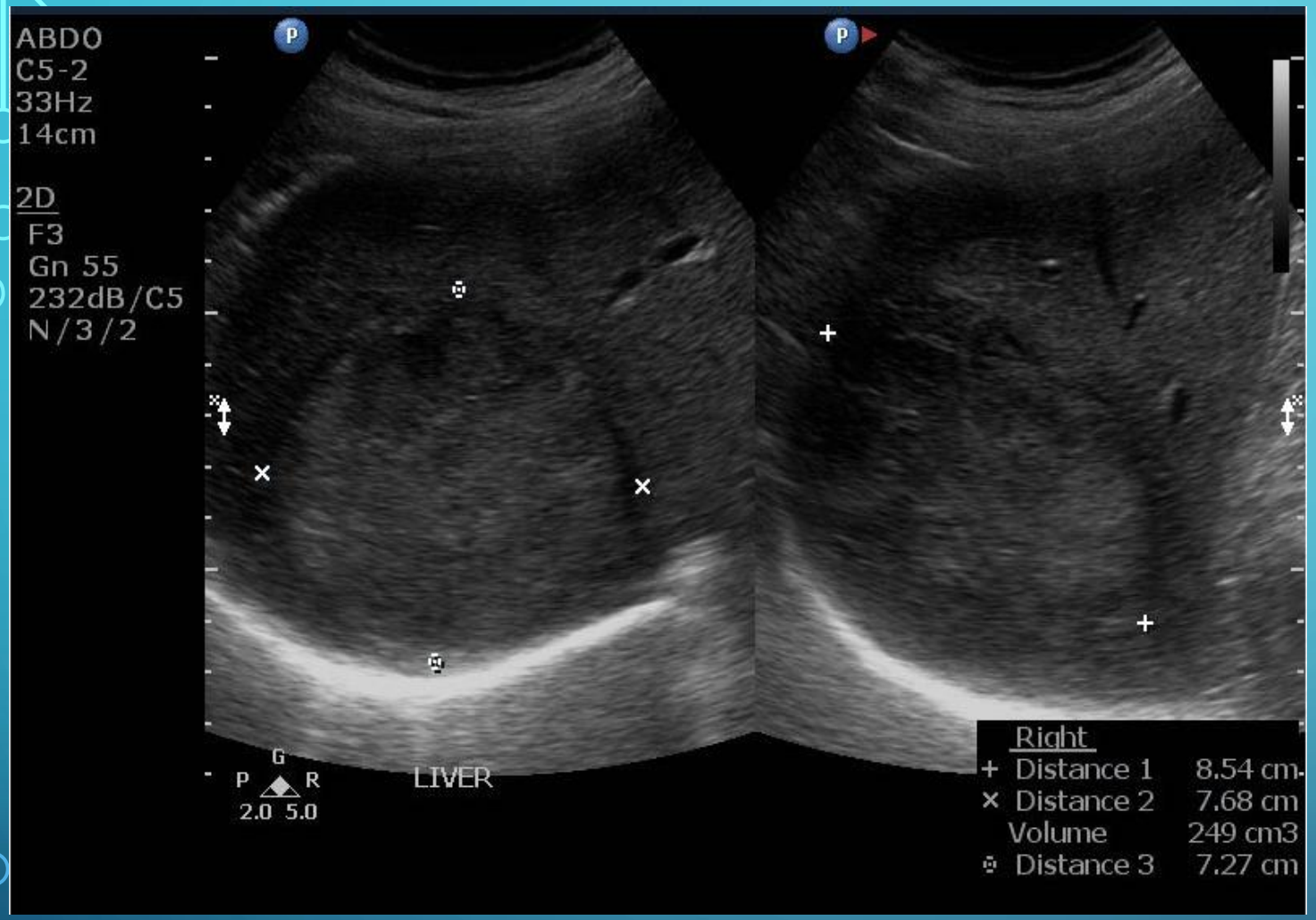
Blood cultures: Klebsiella pneumonia
CT: suspicion of infected liver cyst in upper posterior right lobe of liver

CASE 6 - CONTINUED

- Aspiration of liver cyst – 330mL purulent green pus aspirated immediately
- Treated with 4 weeks antibiotics

CASE 7 -MR FP, 71 YO REFERRED TO GASTRO CLINIC

- HPC: few years of non specific abdominal pain
- PMHx: HT, Diabetes, dyslipidemia, IHD with CABG 2009
- Meds: Omeprazole, metformin, simvastatin, aspirin, betaloc, glipizide
- USS in community Nov 2010 showed 8.5cm large right lobe mass
- AFP and liver tests normal



- MRI confirms 8.2cm solitary mass in segment 6/7 of liver but characteristics not typical of adenoma
- Diff dx of hamartoma or hemangioendothelioma

What should we do next?

MR FP (PROGRESS)

- USS guided liver bx confirms well differentiated hepatocellular carcinoma
- Discussed at hepatoma MDM, considered for liver resection Feb 2011
- Right portal vein embolization March 2011 to attempt to induce hypertrophy of the future liver remnant but unsuccessful
- → Transarterial chemoembolization (TACE) of tumor to reduce the size of lesion June 2011
- Complicated by ischemic gallbladder requiring cholecystectomy, arterial dissection

BY MAY 2012

- After 4th cycle of TACE, tumor has reduced in size and left lobe of liver has hypertrophied well
- Right hepatectomy Aug 2012, remnant liver ~50% of standard liver volume
- Histological findings: HCC with good resection margins, mild steatosis and no fibrosis in underlying liver
- Cured from HCC and discharged from clinic 2016
- Patient passed away March 2020 from cardiac causes

CASE 8- MR BS, 58 YEAR OLD

- Fit and healthy professional golf coach
- Presented initially for gastroscopy and colonoscopy for symptoms of bloating + abdominal discomfort, early satiety
- Gastroscopy: grade II varices
- Colonoscopy: multiple polyps
- Further history revealed he has HBV previously on treatment in Korea but no longer on it
- Blood tests: ALT 108, GGT 98, normal Bili and albumin
- AFP 52

CASE 8- CONTINUED

- Triphasic CT showed large 10cm mass in right lobe of liver with portal vein thrombosis + multifocal satellite lesions
- Cirrhosis + portal hypertension + varices

- No curative options available
- Significant pain and recurrent ascites
- Died rapidly within 3 months of diagnosis with large variceal bleed

CASE 8

- Sad case
- HBV lost to follow up
- Could surveillance USS + antiviral treatment have prevented this?

- Any patients >40 with HBV should be referred for fibroscan
- Cirrhotics need 6 monthly USS in addition to blood tests

HCC

- Usually occurs in patients with underlying liver disease eg cirrhosis or HBV
- Needs confirmation with triphasic CT/MRI
- Treatment options depends on liver synthetic function/size and number of lesions/comorbidities

METASTATIC DISEASE

- Colorectal cancer (up to 50% of hyperechoic liver mets)
- Breast cancer
- Endocrine tumors of pancreas
- Renal cell carcinoma
- Thyroid carcinoma
- Melanoma
- Some sarcomas
- Choriocarcinoma

SUMMARY

- Liver lesions are common
- Definitive characterisation important
- Hemangiomas, FNH, focal fatty change and small liver cysts → reassure and discharge
- Adenomas – stop OCP, lose weight, ongoing surveillance USS
- HCC – prognosis can still be good if detected early, USS surveillance in all cirrhotics + older non cirrhotic HBV patients