Brief History

- Identification :
  - Name : 陳x — Admission : 94/09/12
  - Gender : male
  - Age : 51 y/o
- Chief Complaint :
  - Abnormal echo finding in regular examination
- Past History : HBV carrier with regular follow for 13 + years

Brief History

- The patient was a HBV carrier and had regular follow up every 6 months for 13+years
- No abnormal AFP elevated
- Acute urinary retention few days ago.
- Admitted on 94/09/12 to receive further study.

Brief History

- Pathology 9/19 :
  - they are yellow with focal white, soft and cord-like. All for section. Microscopically, it shows cord-like liver tissue with a small tiny segment at one end composed of compact small liver cell forming thickened liver plates without portal areas. Immunohistochemical study for CD34 showing markedly increased vascular structure formation in this area. It is compatible with a well differentiated hepatocellular carcinoma in this area.
  - **Pathologic Diagnosis : compatible with hepatocellular carcinoma**

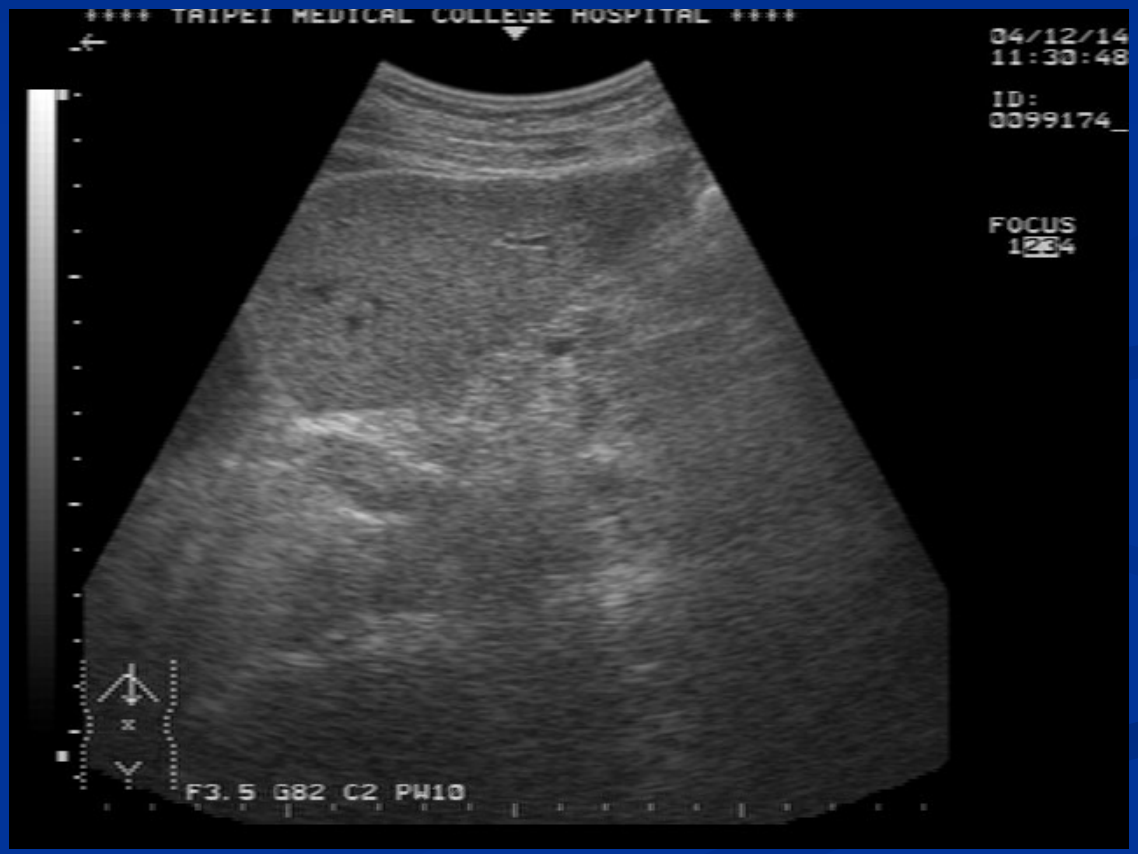
Laboratory Data

- 2005/09
  - AFP

940308	940905	941019	950224
3.59	3.5	3.86	3.66

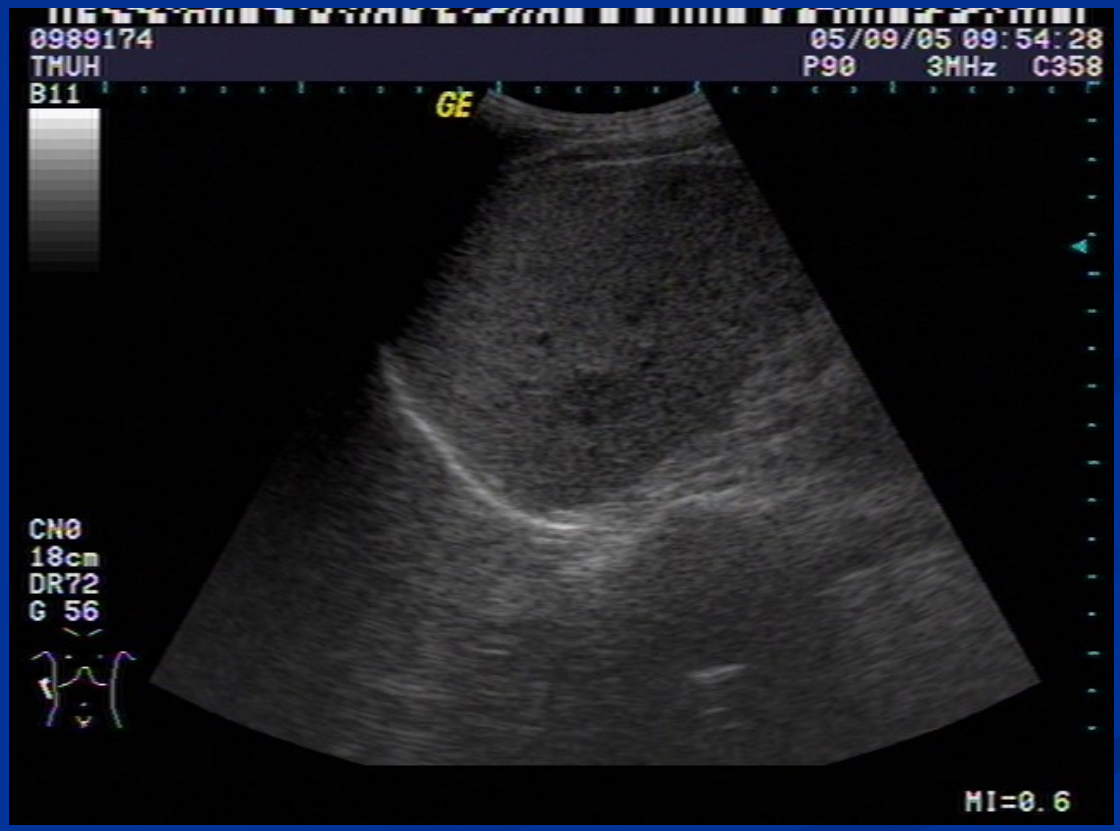
Imaging

- Abdominal Echo : (93/12/14)



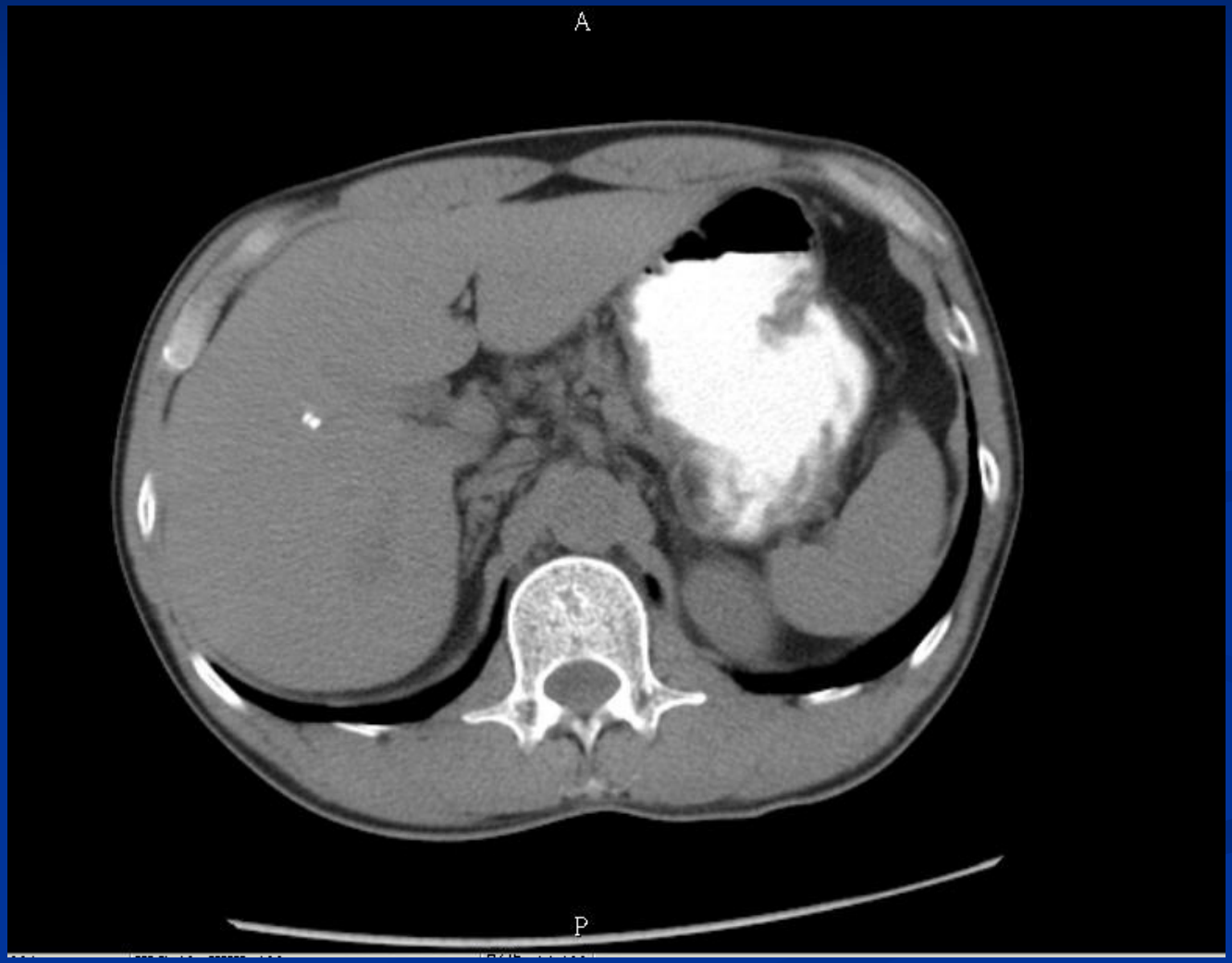

**** TAIPEI MEDICAL COLLEGE HOSPITAL ****
04/12/14
11:31:21
ID:
0399174_
FOCUS
1234
DISTANCE
+:03.8cm
F3.5 G82 C2 PW10
MEASURE
B
CLEAR
DIST
AREA-E
AREA-T
VOLUME
NEXT

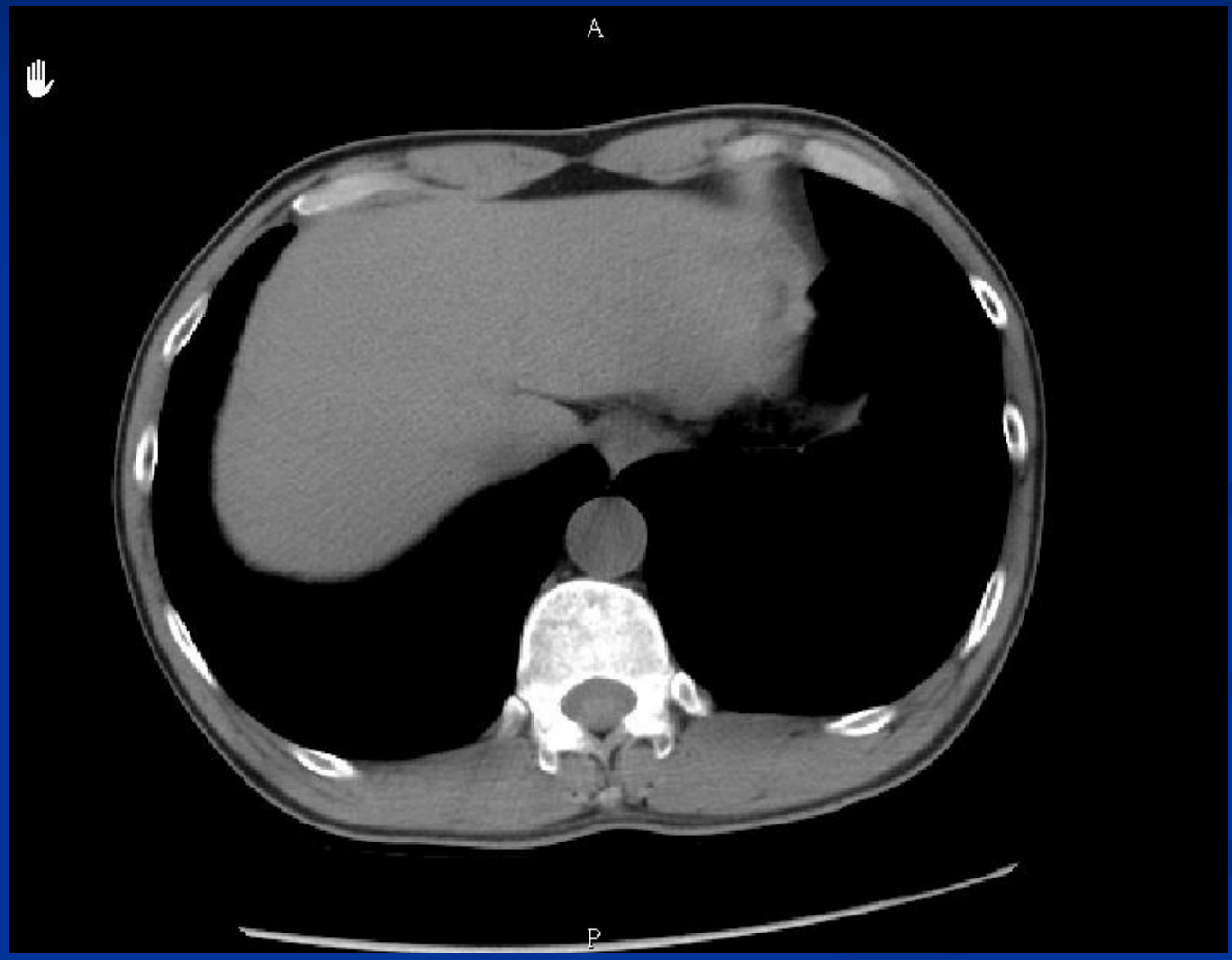
- Abdominal Echo : (94/09/05)




0989174
05/09/05 09:57:56
TMUH
P90 3MHz C358
B11
GE
CN10
18cm
DR72
G 56
+ 20.2mm x 13.9mm
MI=0.6

CT 94/09/07

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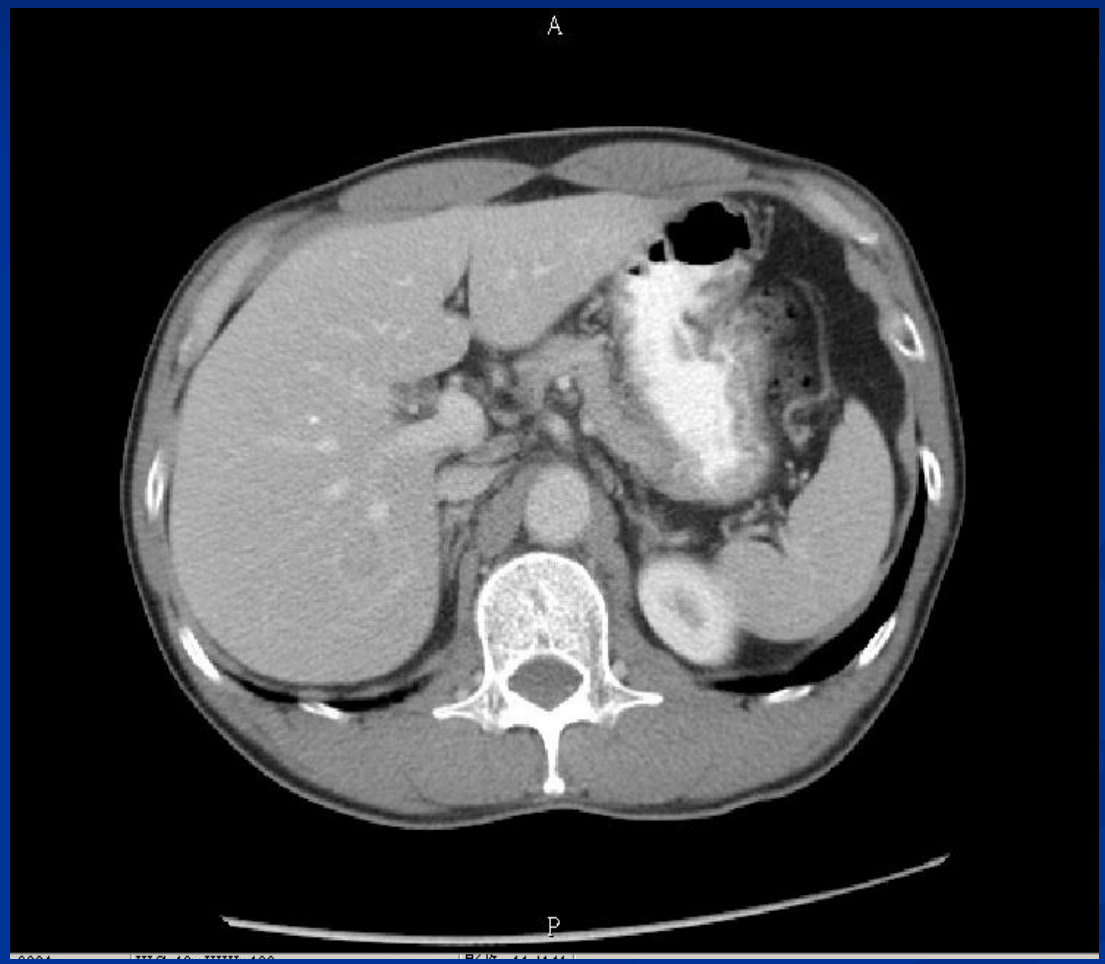
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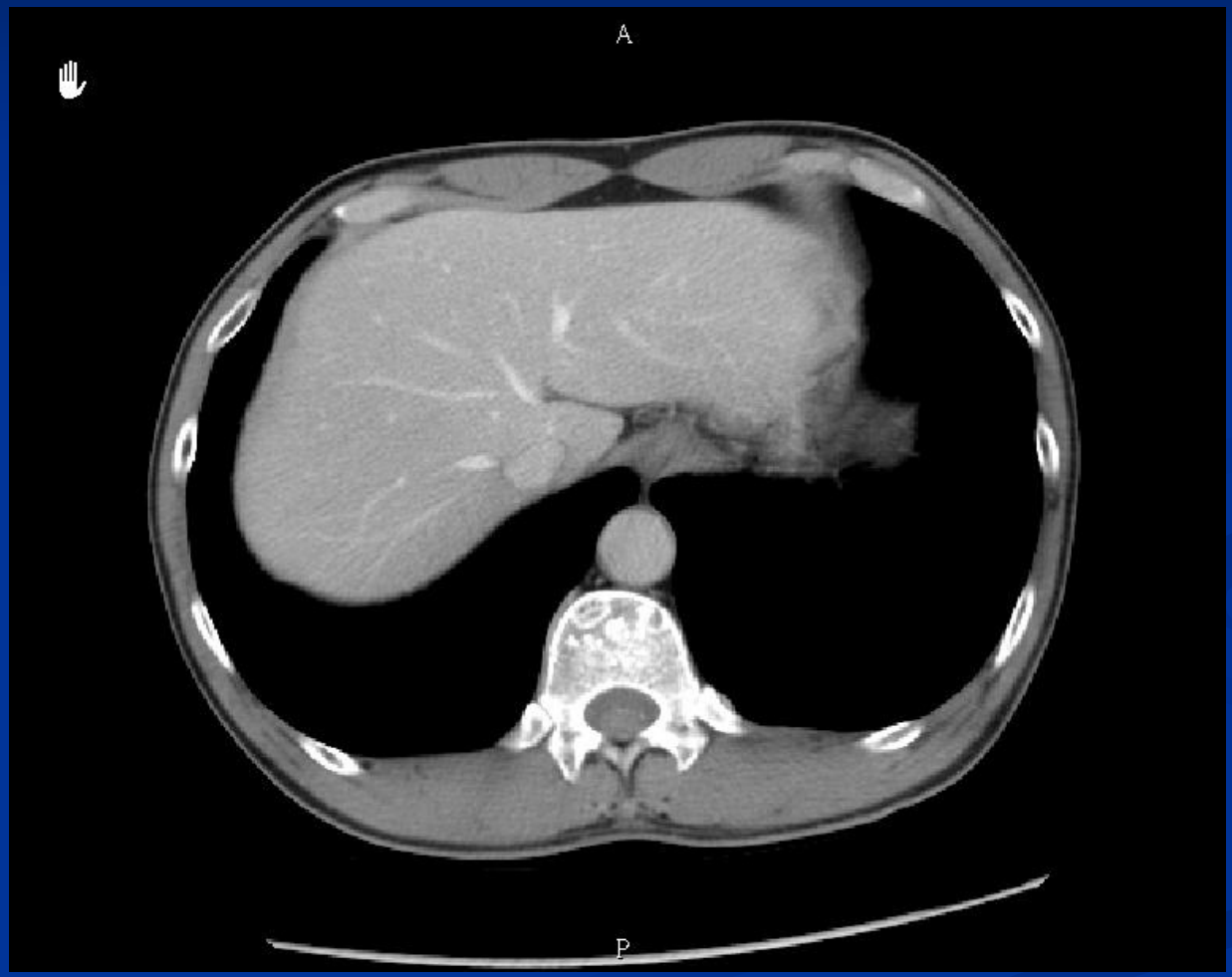
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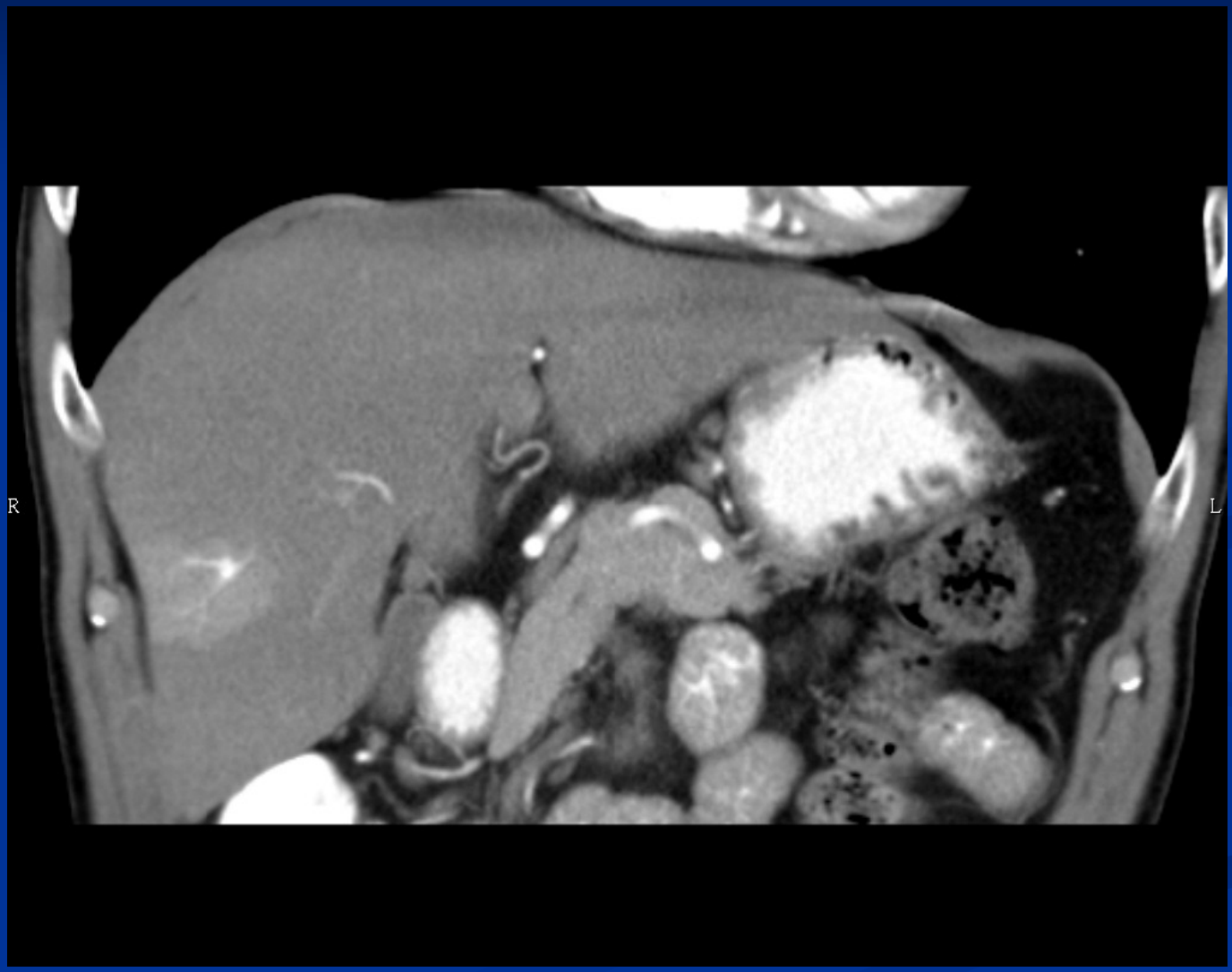
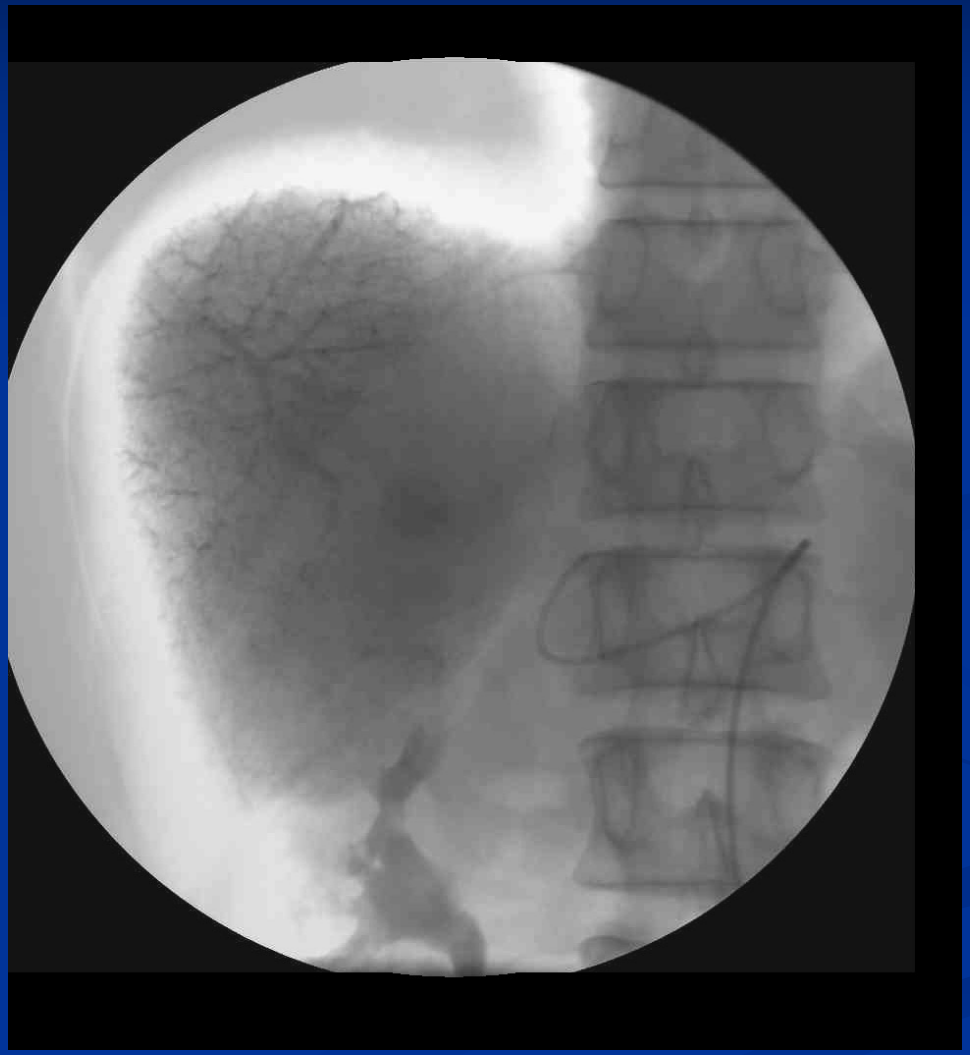

R
L

Angiography 94/09/13



Differential Diagnosis

- *Hepatocellular carcinoma*
  - Echo : hyperechoic finding in small HCC
  - CT : iso-hyper-isoattenuation on pre-, arterial, and venous phases
  - MRI :
    - T1W - high or low signal intensity in the hyperintense HCC
    - T2W - mild high signal intensity in the hyperintense HCC

- Cholangiocarcinoma
  - **Echo : vascular encasement or thrombosis**
  - **CT : Intrahepatic cholangiocarcinomas cannot easily be depicted with cross-sectional imaging.**

    The mass is predominantly hypoattenuating, with irregular margins, and the tumors may be 5-20 cm in size at the time of presentation.
  - **MRI :**
    - **hypointense lesion relative to normal liver on T1-weighted images.**
    - **T2-weighted images show predominant isointensity or slight hyperintensity relative to the liver parenchyma**

- Hepatocellular Adenoma
  - **Echo : It demonstrate variable echogenicity. They may be hypoechoic, isoechoic, or hyperechoic to liver parenchyma**
  - **CT : Most lesions (90% according to Ichikawa et al) show homogeneous enhancement in the hepatic arterial phase**
  - **MRI :**
    - **T1W - hyperintense or isointense to liver tissue**
    - **T2W - slightly hyperintense to liver tissue**

- Focal Nodular Hyperplasia
  - **Echo : homogeneous mass that may be isoechoic, hypoechoic, or hyperechoic**
  - **CT : isoattenuating or slightly hypoattenuating mass. Nonenhanced images are important because FNH may be missed without a precontrast study**
  - **MRI :**
    - **T1W - isointense to hypointense**
    - **T2W - slightly hyperintense to isointense**

Discussion

HCC

Introduction

- Hepatocellular carcinoma (HCC) is the most common primary hepatic tumor and one of the most common cancers worldwide.

- HCC is a malignant tumor of hepatocellular origin that develops in patients with risk factors that include alcohol abuse, viral hepatitis, and metabolic liver disease.

- HCC is more common in Asia and Africa than in the United States.
- Internationally, the highest incidence of HCC is in Japan (4-5%).
- Other high-incidence regions include sub-Saharan Africa.
- The common causes of HCC are hepatitis B, hepatitis C, and aflatoxin exposure.

HCC

- Laboratory tests :
  - Expect total bilirubin, aspartate aminotransferase (AST), alkaline phosphatase, albumin, and prothrombin time to show results consistent with cirrhosis.
  - Alpha-fetoprotein (AFP) is elevated in 75% of cases.

HCC

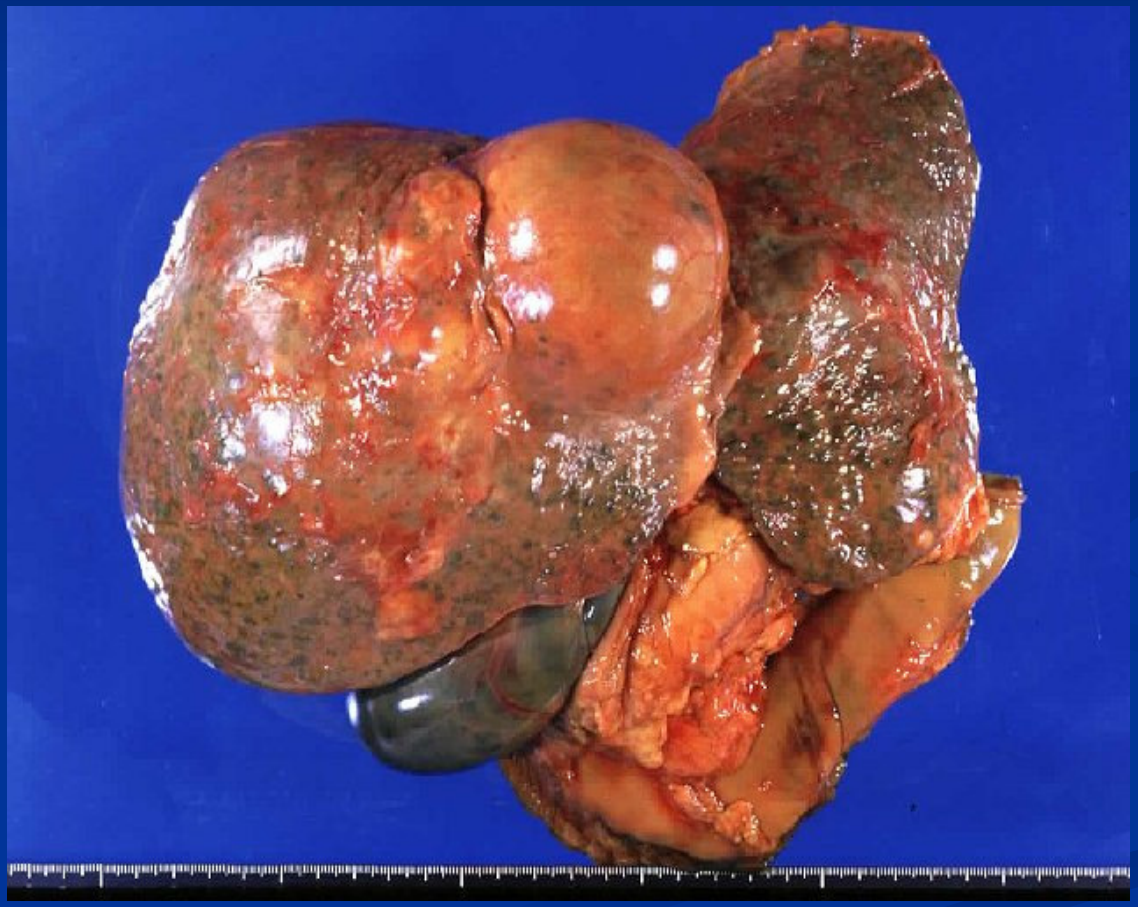
- Imaging :
  - Echo :
    - Small HCCs can be homogeneously hyperechoic
    - Small HCCs also can appear hypoechoic with larger HCCs frequently mixed in echogenicity

- CT :
  - Unenhanced CT typically reveals an iso-hypodense mass
  - In the hepatic-arterial phase, lesions typically are hyperdense
  - In the portal-venous phase, small lesions may be isodense or hypodense and difficult to see
  - In the delayed-postcontrast phase, small lesions may be inconspicuous on late phases

- MRI :
  - HCC on T1-weighted images may be isointense, hypointense, or hyperintense relative to the liver
  - On T2-weighted images, HCC usually is hyperintense.
- Angiography :

  HCC is characteristically hypervascular with bizarre neovascularity and arteriovenous shunting

HCC



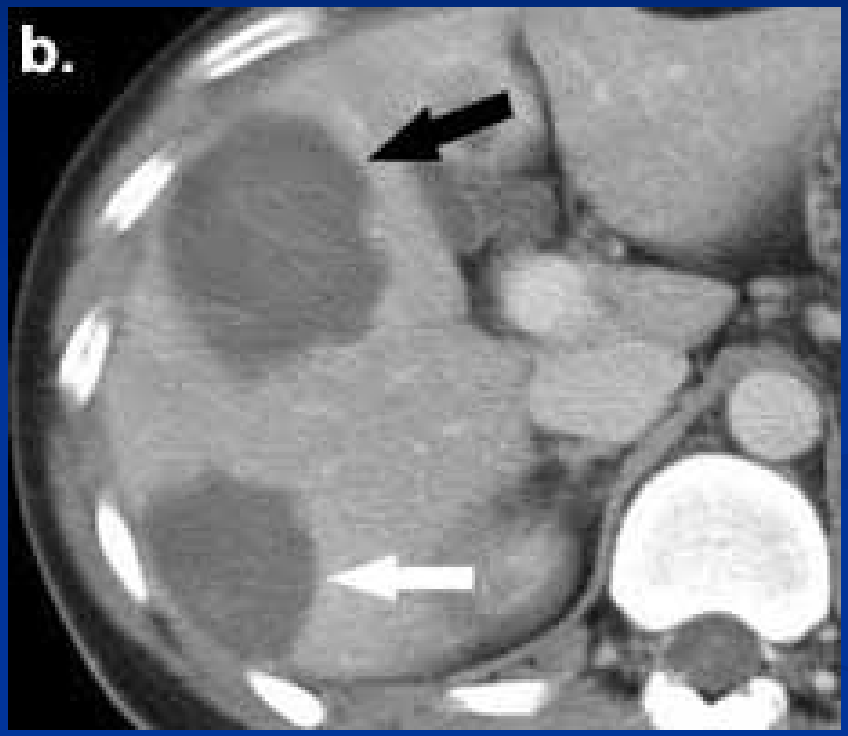
Imaging of HCC

- CT

CT examination: Unenhanced and contrast-enhanced axial scans: In the unenhanced upper images a huge, mildly, inhomogenously attenuating mass can be seen in the right lobe of the liver, which enhances inhomogenously

Imging of stomoch HCC

- CT



Contrast-enhanced transverse CT image obtained 3 weeks after ablation shows hypoattenuating, nonenhancing coagulation defect s at the treatment sites *(arrows)* with no abnormal nodular enhancement suggesting residual tumor.

Treatment of HCC

- Surgical resection and liver transplantation are the only chances of cure but have limited applicability. The main prognostic factors for resectability are tumor size and liver function
- Other local therapies are chemoembolization, ethanol ablation, radiofrequency ablation, cryoablation, and radiotherapy

- Chemoembolization
  - This approach is based on the particle embolization (cellulose, microspheres, lipoidal, Gelfoam) and intra-arterial chemotherapy (mitomycin, doxorubicin, cisplatin) into the hepatic artery providing blood supply to the tumor. The remainder of the liver may be spared because it depends primarily on the portal vein for its blood supply.
  - Morbidity is greatly dependent on the extent of cirrhosis as judged by serum bilirubin and albumin, as well as on portal vein patency.
  - Response rates as high as 60-80% have been reported in selected groups of patients; however, no clear impact in overall survival has been demonstrated.