Personal Data

- **Age: 69 y/o**
- **Gender:Male**
- **Marital status: 已婚**
- **Occupation: Farmer**

Chief complaint

- Body weight loss (3Kg within a month)

Present illness

This 69 years old male,with a history of Hepatitis B (carrier),was presented to TMUH via ER with a chief complaint of body weight loss (3Kg in less than a month).

According to the patient,he had a routine physical check up at 華揚 hospital and was told by his doctor that his AFP level was >40.

Therefore, abdominal ultrasound was arranged and revealed a 6x 5 cm mass on the right side of the liver. Then the patient was suggested admission for further evaluation and management.

- **Family history:**
  - Denied any systemic disease and cancer
- **Personal history:**
  - –Smoking: 1 p/day for 40 years, but quit for 8 years
  - –Alcohol consumption: denied
  - –Food or drug allergy history: denied

Past history:

DM:Denied

HTN:Denied

Heart disease:Denied

Denied other systemic disease

Physical examination:

- GA: fair appearance;Conscious: clear,E4V5M6
- Vital sigh: TPR= 36.7, 21/min, 70/min BP= 142/93
- HEENT: NP, sclera not icteric
- Neck: no LAP, no JVE
- Chest: symmetrical expansion,breathing sound clear
- Heart:RHB,no murmur
- Abdomen: Inspection:soft, no tenderness, no protruding mass

  Auscultation:hyperactive bowel

  Palpation:No palpable mass

  Liver/spleen: impalpable, liver span: 8-9 cm at RMCL

Tenderness (-);Rebound pain (-);Muscle guarding (-)

- Back and extremities: NP

Lab Data

- **WBC :6830**
- **RBC:5.10x10^6**
- **HGB:12.5**
- **MCV:70.4**
- **PLT:178**
- **Neutrophil:70.4%**
- **Lym:18.0%**
- **GOT:83**
- **GPT:119**
- **BUN:18**
- **Cr:0.9**

- Albumin:2.7
- T.Protein :5.1
- TG:67
- ALK-P:175
- g-GT:65
- Bilirubin D:0.4
- Bilirubin T:1.0
- AFP:11.67

2001-11-16 Abdomen CT routine

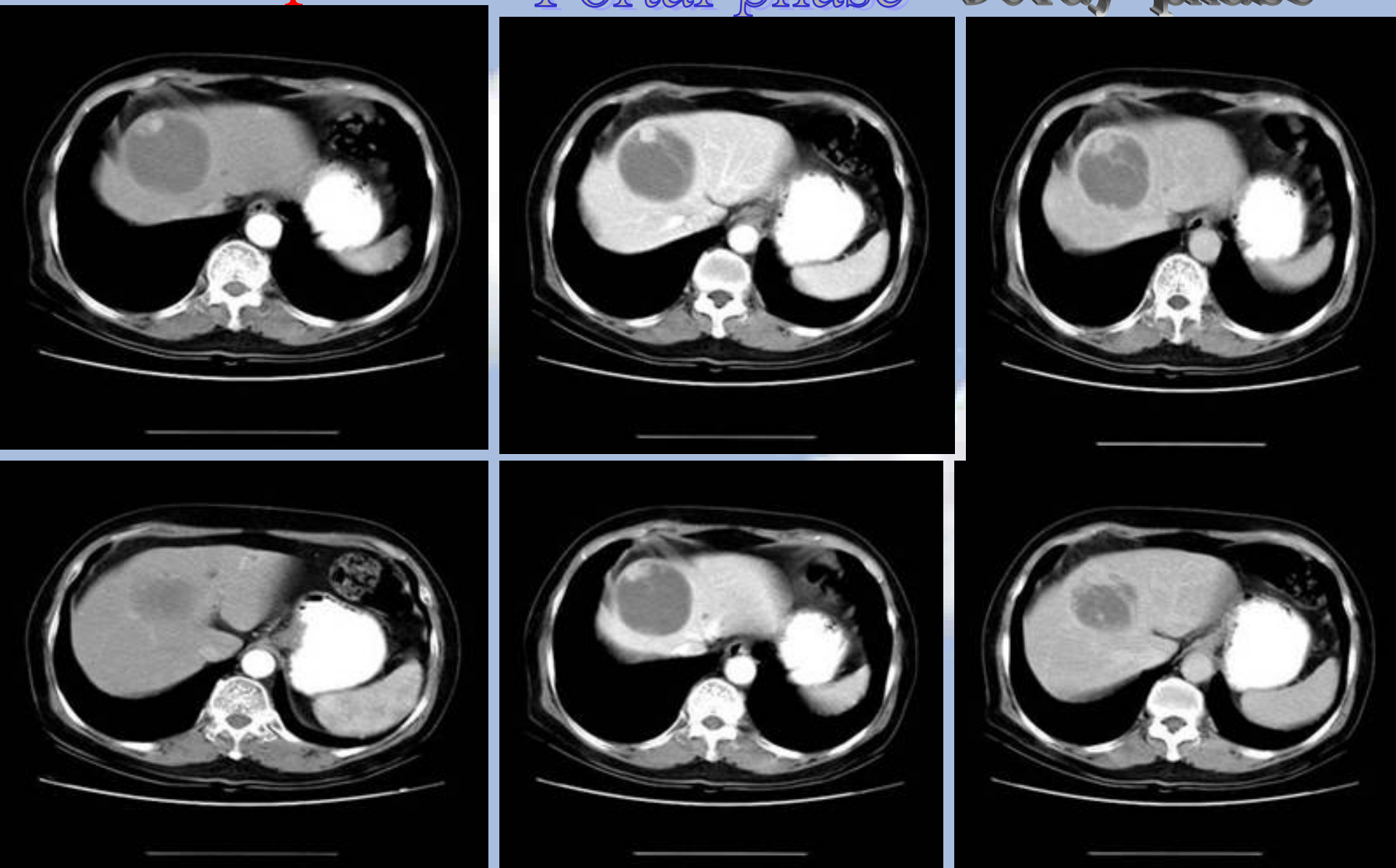
Pre-contrast

2001-11-16 Abdomen CT

Arterial phase

Portal phase

Delay phase



2001-11-16 Abdomen CT

- Pre-and post-contrast abdomen and pelvis CT study is performed.
- 1. a well-defined, encapsulated, ring-enhancing
- mass (about 3.0 x 5.9 x 6.5 cm in size) is
- situated in the segment IV of liver.
- 2. The mass contains large non-enhancing cystic
- components, small enhancing mural co
- mponents and some thin, enhancing septations.
- A biliary cystadenocarcinoma or a hydatid cyst (echinocosis) is more favored.

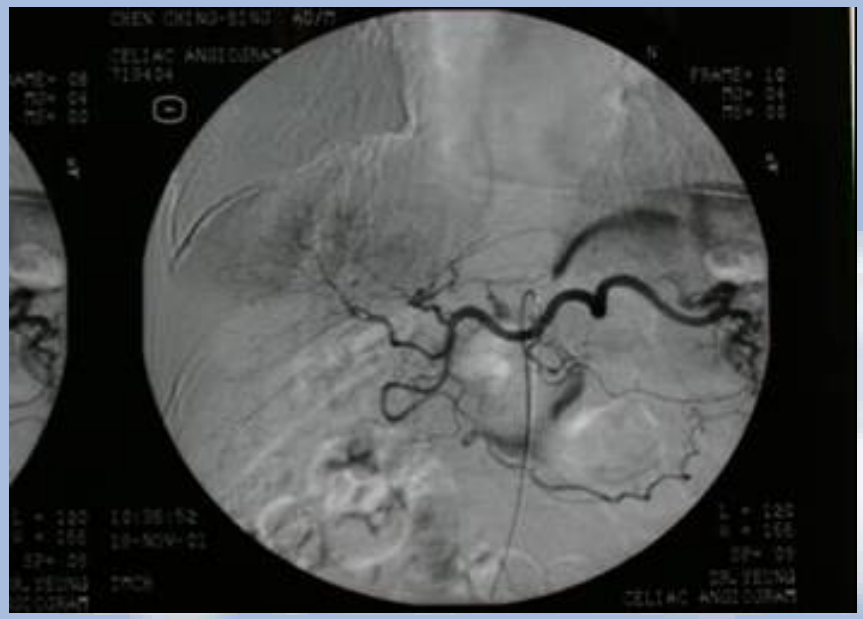
2001-1-16 Abdomen CT

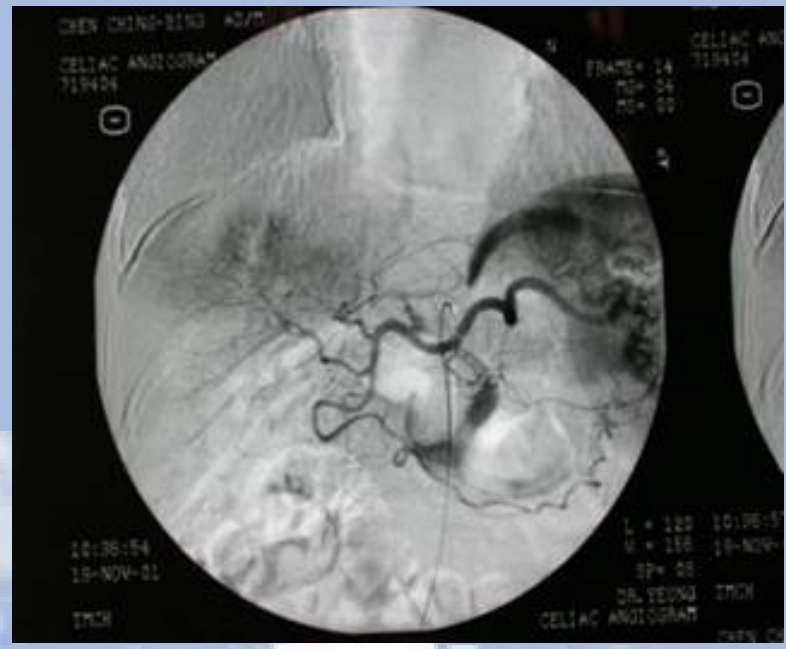
- The possibility of cystic metastais or hepatocellular carcinoma or cholangiocarcinoma can not be R/O.
- the possibility of liver abscess is less likely due to the absence of pleural effusion.
- 2. three small non-enhancing cystic lesion are also noted in the segment II and II of liver.
- 3. no definite abnormal enhancing, space-occupying lesions within the spleen, pancreas and both kidneys.
- 4. no definite abnormal para-aortic lymph nodes.

2001-11-16 Abdomen CT

- IMP: an encapsulated, ring-enhancing mass in the segment IV of liver.
- The mass contains large non-enhancing cystic components, small enhancing mural components and some thin, enhancing septations.
- A biliary cystadenocarcinoma or a hydatid cyst (echinocosis) is more favored.
- The possibility of cystic metastais or hepatocellular carcinoma or cholangiocarcinoma

2001-11-19 Angiogram





2001-11-19 Angiogram of celiac trunk, SMA and common hepatic artery shows:

- Patency of main portal vein.
- After superselective cannulation into left hepatic artery, 5 c.c. lipiodol is infused.
- There is evidence of a hypervascular tumor at segment 4 of left lobe liver, supplied from left hepatic artery with prolonged tumor stains and surrounded by few hypervascular nodules. R/O cystadenocarcinoma, angiosarcoma. Hepatoma is less likely. But hemangioma can't be R/O.
- IMP: A hypervascular tumor at segment 4 of left lobe liver. R/O cystadenocarcinoma, angiosarcoma. Hepatoma is less likely. But hemangioma can't be R/O.

Differential diagnosis

- **Biliary Cystadenoma/Cystadenocarcinoma**
- **HCC**
- **Hemangioma**
- **Liver cyst**
- **Hepatocellular Adenoma**

Biliary Cystadenoma/Cystadenocarcinoma in CT

- Cystadenomas appear as multiloculated hypodense masses of as large as 30 cm.
- The mass wall is well defined and enhances the administration of contrast material.
- The cystic mass demonstrates fluid attenuation (mucin, blood, bile).
- Cystadenomas occasionally have fine septal calcifications, which may be seen during CT examinations.
- Calcifications in cystadenocarcinomas tend to be thick and coarse.
- Cystadenocarcinomas may demonstrate papillary projections into the lumen or mural nodules.
- Biliary dilatation is uncommon except in the rare extrahepatic type.

Biliary Cystadenocarcinoma in CT from reference book

Biliary Cystadenoma/Cystadenocarcinoma in Angiography

- **Findings:** Angiography plays a limited role in the diagnosis of biliary cystadenoma and cystadenocarcinoma. The diagnosis is best made by using conventional imaging modalities.
- Angiographic evaluation may reveal an avascular mass, as opposed to hepatocellular carcinoma or cystic metastasis. As with other cystic lesions in the liver, displacement of vessels may be demonstrated.

HCC in CT

- The most common attenuation pattern is iso-hyper-isoattenuation on pre-, arterial, and venous phases, respectively.
- Unenhanced CT typically reveals an iso-hypodense mass.
- In the hepatic-arterial phase, lesions typically are hyperdense (relative to hepatic parenchyma) as a result of hepatic-arterial supply. Larger tumors may have necrotic central regions that typically are hypodense during this imaging phase.
- In the portal-venous phase, small lesions may be isodense or hypodense and difficult to see, Larger lesions with necrotic regions remain hypodense.
- In the delayed-postcontrast phase, small lesions may be inconspicuous on late phases. Delayed phase scans may show a tumor capsule, one of the more specific signs indicating HCC.

HCC in Angiography

- **Findings:** Angiography for diagnosis of HCC has been replaced largely by cross-sectional imaging. Normal vasculature typically is displaced by a large mass. HCC is characteristically hypervascular with bizarre neovascularity and arteriovenous shunting. An enlarged hepatic artery may be present. Look for vascular invasion (portal veins, hepatic veins).

Hemangioma

- Percutaneous needle biopsy may be dangerous
- Ultrasound– well-defined tumor with sharp margin
- CT–
  - Before enhancement: round, low density lesion.
  - With enhancement: from the periphery to the center, density increases to become similar with that of the surrounding liver (blood pooling)
- MRI: uniform very high intensity on T2-weighted images
- Angiography: persistance of contrast

Liver cyst

- Ultrasound: sharp margin, no echoes with the lesion, posterior acoustic enhancement
- CT: very well defined margin, have attenuation values similar to that of fluid in gallbladder)
- MRI: signal intensity of water(low signal on a T1-weighted image and high signal on a T2 weighted image)

Hepatocellular Adenoma

- 90% of patient are women who take oral contraceptives (4 per 100,000 of women who take oral contraceptives)
- CT– well defined mass(capsule); density varied from homogeneously hypodence(fat and glycogen within hepatocyte) to isodence
  - Enhanced CT– an increasing density area within it due to recent hemorrhage
- Non-specific, both hyperintense on T1 and T2 WI (77% and 74%), most are heterogeneous (92%)
- When with central necrosis– cyst like

Impression of Image study

- Is more preferable **Cystadenocarcinoma**

Reference book

- Peter Armstrong, Diagnostic Imaging 3rd edition
- Gary K. Stimac, Introduction to Diagnostic Imaging
- David Sutton ,Textbook of Radiology and Imaging sixth edition