



Surgical Pathological Conference

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日期: 2014-04-26

Case Data

- Name: 000
 - Chart number: 000
 - Age: 70 year-old
 - Gender: female
 - Date of admission: 2013/05/16
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Chief Complaint

- Frequent defecation for 3 months



Present Illness

- She had developed frequent defecation about 7-8 times per day since February, 2013.
 - The stool was formed and soft.
 - She had **abdominal pain** and which was relieved by defecation.
 - She had no body weight loss in these 3 months.
 - She denied fever, cough, chest pain, dyspnea, headache, tarry or bloody stool.
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Present Illness

- She visited a local clinic, where abdominal sonography revealed **liver mass**.
 - She came to our GI OPD, and abdominal sonography showed a heterogeneous tumor, **5~6 cm in lateral segment**; mild to moderate fatty liver.
 - She was then admitted to GI ward for further evaluation and management.
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Past History

- Hypertension under regular medical control

Physical Examination

- General appearance:
 - Chronic ill-looking
 - Alert consciousness
 - HEENT:
 - Sclera: not icteric
 - Conjunctiva: not anemic
 - Heart:
 - Regular heart beats
 - No audible murmur
 - Chest:
 - Smooth breath pattern
 - Clear breath sounds
 - Abdomen:
 - Soft and flat, no tenderness
 - No palpable mass
 - Normal active bowel sound
 - Skin:
 - No ecchymosis, no rash
-

Lab Data

項目名稱	判斷	結果值	單位	參考值範圍
CBC				
WBC		5.2	10 ³ /uL	4.0 - 10.0
RBC		4.33	10 ⁶ /uL	3.70 - 5.50
HGB		13.2	g/dL	11.3 - 15.3
HCT		39.2	%	33.0 - 47.0
MCV		90.5	fL	80.0 - 100.0
MCH		30.5	pg	25.0 - 34.0
MCHC		33.7	g/dL	30.0 - 36.0
PLT		199	10 ³ /uL	130 - 400
DIFF				
NEUT%		61.8	%	40.0 - 75.0
LYMPH%		32.7	%	20.0 - 45.0
MONO%		4.0	%	2.0 - 10.0
EO%		1.3	%	1.0 - 6.0
BASO%		0.2	%	0 - 1
Prothrombine time				
Prothrombine time		10.0	sec	8.0 - 12.0
MNPT		10.4	sec	
PT INR		0.96		0.85 - 1.15
APTT				
APTT		27.3	sec	23.9 - 35.5
APTT control		28.0	sec	

Lab Data

項目名稱	判斷	結果值	單位	參考值範圍
Glucose AC		104	mg/dL	70.0 - 110.0
BUN		13.9	mg/dL	8.0 - 20.0
Creatinine		0.58	mg/dL	0.44 - 1.27
eGFR		103		> 60
Total protein		6.6	g/dL	6.1 - 7.9
Albumin		3.7	g/dL	3.5 - 4.8
A/G Ratio		1.3		1.2 - 2.0
Globulin		2.9	g/dL	2.5 - 3.6
Total Bilirubin		0.57	mg/dL	0.40 - 2.00
Direct Bilirubin		0.13	mg/dL	0.10 - 0.50
AST		18	IU/L	5 - 50
ALT		15	IU/L	5 - 50
LDH		130	IU/L	98 - 192
γ-GT		28	IU/L	7.0 - 50.0
Alkaliphosphatase		58	IU/L	38 - 126
Na		142	mmol/L	136 - 144
K		4.3	mmol/L	3.6 - 5.1
Cl		109	mmol/L	101 - 111

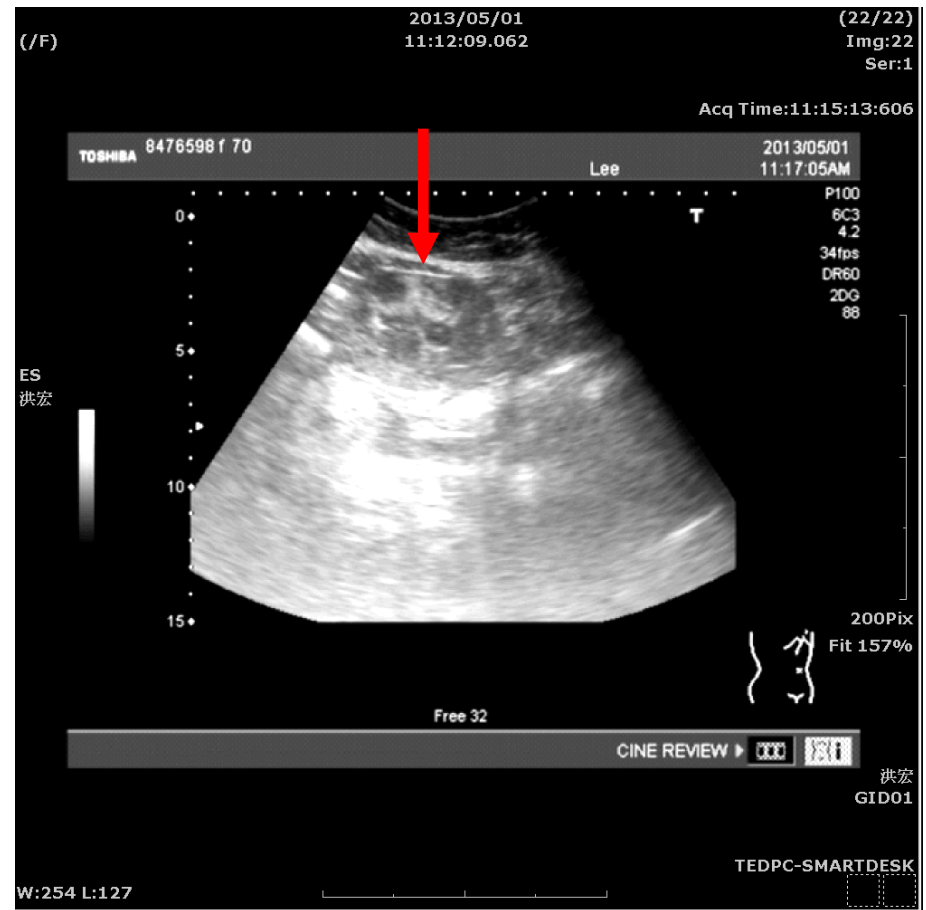
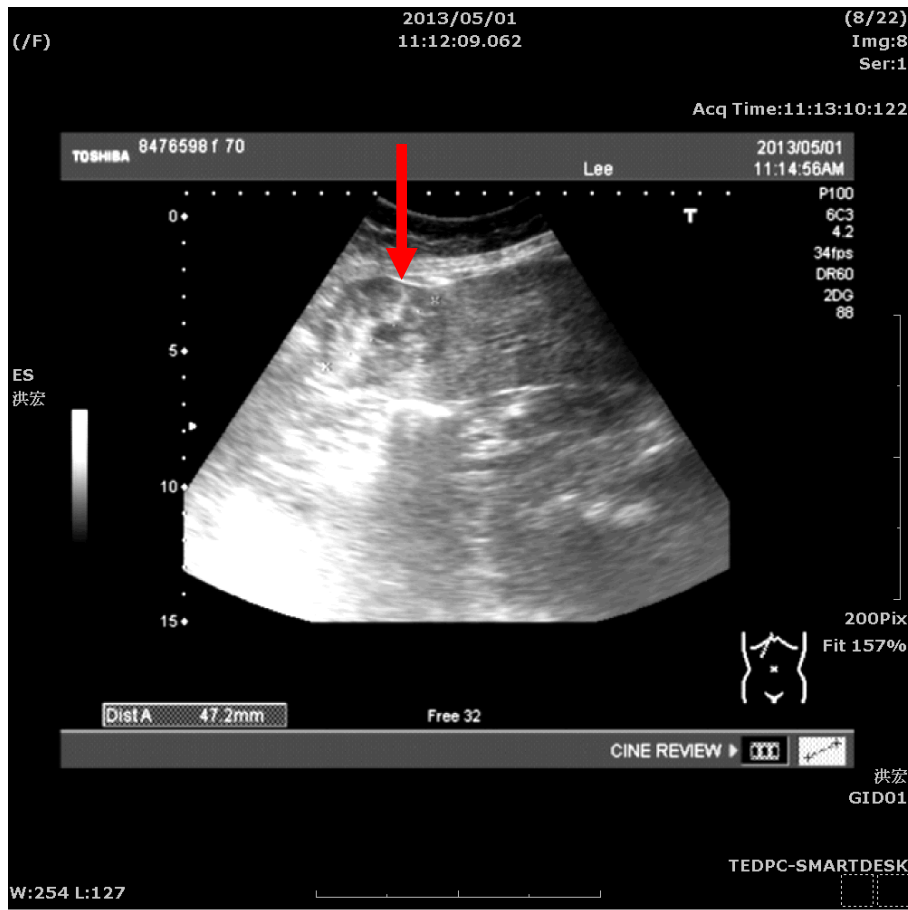
Tumor marker

項目名稱	判斷	結果值	單位	參考值範圍
AFP		4.3	ng/mL	≦ 20
CA199		11.7	U/mL	≦ 27
CEA		1.5	ng/mL	MRR

Hepatitis virus

HBsAg		0.000	IU/mL	non-reactive < 0.0
備註：(Non-Reactive)				
Anti-HCV		0.06	S/CO	Non-reactive < 1.0
備註：(Non-Reactive)				

Abdominal Sonography



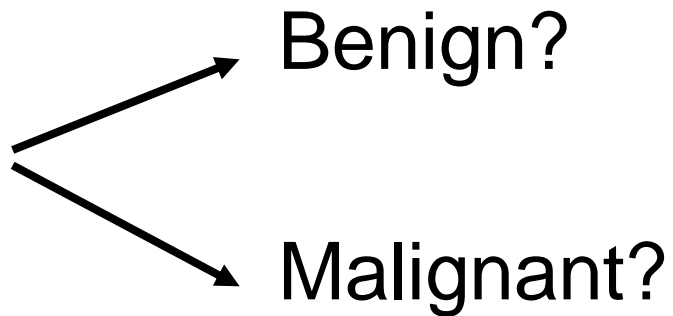
A heterogeneous tumor, about 5-6 cm in lateral segment

Differential Diagnosis For Liver Mass:

- **Solid mass**
 - Cystic mass
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Solid mass

- Heterogeneous structure



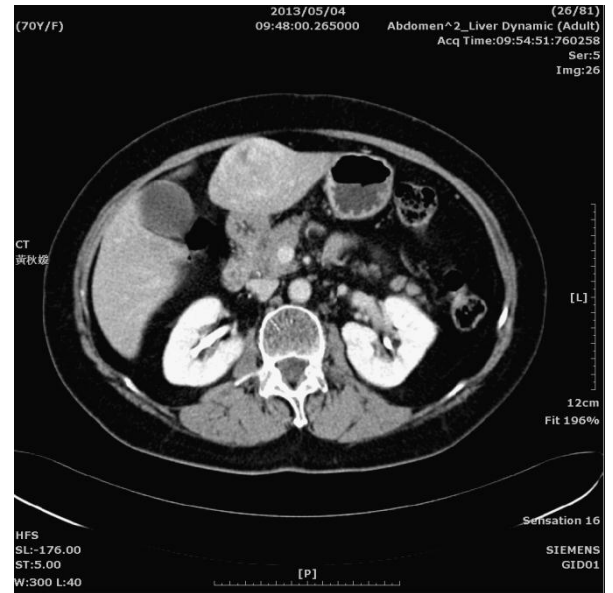
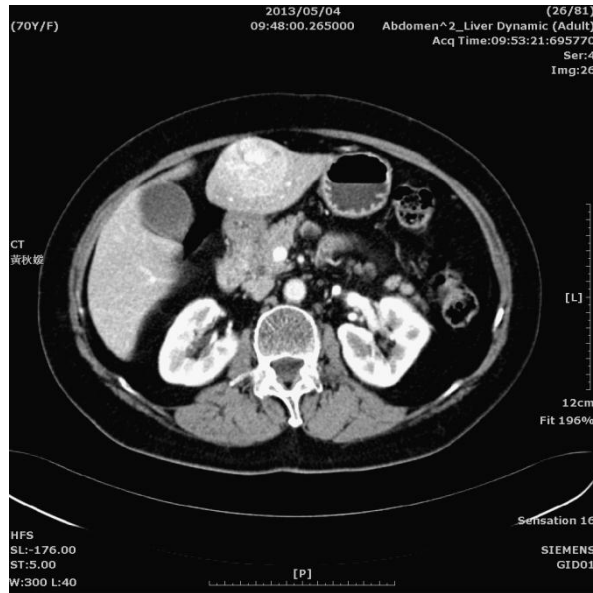
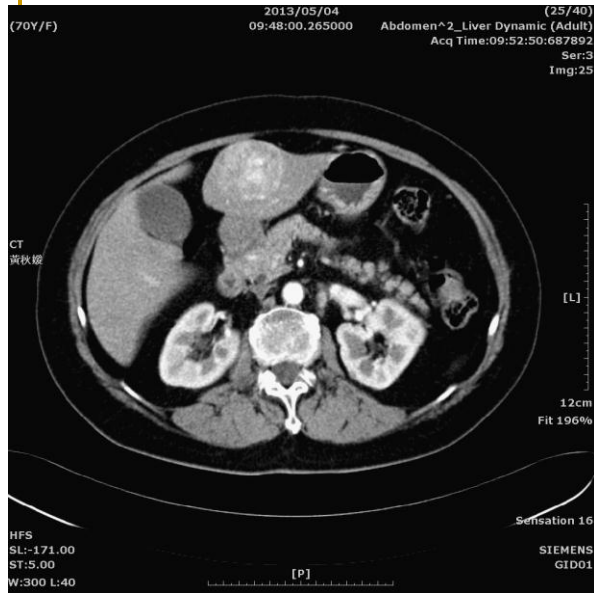
Benign Solid Masses

- Hemangioma
 - Focal nodular hyperplasia
 - Adenoma
 - Focal fatty change
 - Nodular regenerative hyperplasia
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Malignant Solid Masses

- Metastases
 - Hepatocellular carcinoma (*hepatoma*)
 - Cholangiocarcinoma
 - Mixed tumors
 - Tumors of mesenchymal tissue
 - Sarcoma
 - Hepatoblastoma
-

Abdomen CT



A mass 4.5x4 cm at lateral segment of liver with heterogeneous enhancement and wash out appearance, compatible with hepatoma.

Angiography



An abnormal contrast stain (5x4 cm) is seen at the lateral segment of liver on selective left hepatic arterioangiography. The lesion is supplied from left hepatic artery and shows abnormal dilated tumor vessels on arterial phase images.

Suggestive of hepatoma (5x4 cm at lateral segment of liver)

Malignant

■ Metastases

- Most cases are from other tumors, frequently of the **GI tract** (like colon cancer, carcinoid tumors mainly of the appendix, *etc.*),
- Also from breast cancer, ovarian cancer, lung cancer, renal cancer, prostate cancer, *etc.*

■ Hepatocellular carcinoma

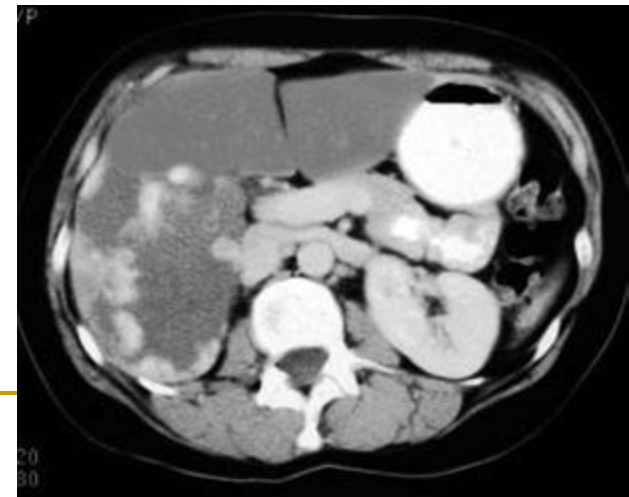
- The most frequent, malignant, primary liver cancer

■ More rare primary forms of liver cancer include

- Cholangiocarcinoma
- Mixed tumors
- Tumors of mesenchymal tissue
- Sarcoma
- Hepatoblastoma
 - A rare malignant tumor in **children**.

Hemangiomas

- These are the most common type of benign liver tumor, found in up to 7% of autopsy specimens.
- They start in blood vessels.
- Most of these tumors do not cause symptoms and **do not need treatment**.
- Some may bleed and need to be removed if it is mild to severe.
- A rare tumor is Infantile hemangioendothelioma.



Hemangioma

Hepatic adenomas

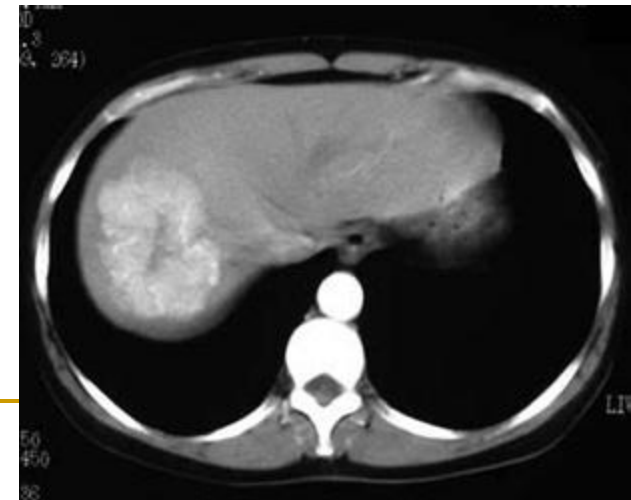
- These benign epithelial liver tumors develop in the liver and are also an uncommon occurrence
- Women **using estrogens as contraceptives**, or in cases of **steroid abuse**.
- They are, in most cases, located in the right hepatic lobe and are frequently seen as solitary.
- The size of adenomas range from 1 to 30 cm.
- Symptoms associated with hepatic adenomas are all associate with **large lesions** which can cause intense abdominal pain.
- The prognosis for these tumors has still not been mastered.
 - Some correlations have been made such as **malignant transformation**, **spontaneous hemorrhage**, and **rupture**.



Hepatic Adenoma

Focal nodular hyperplasia (FNH)

- The second most common tumor of the liver.
- This tumor is the result of a **congenital arteriovenous malformation hepatocyte response**.
 - 內含不正常的肝細胞、膽管和Kupffer cells
- Hypervascular, **central fibrous scar**
- Other types include nodular regenerative hyperplasia and hamartoma.



Focal Nodular Hyperplasia

Consult GS

After well explanation and discussion, the patient and her family decided to resection of the liver tumor

ICG test

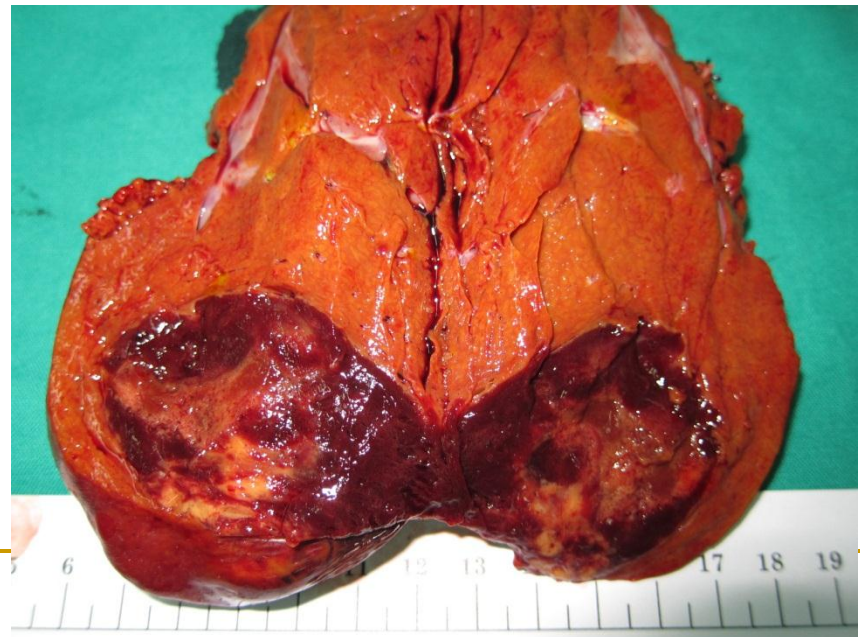
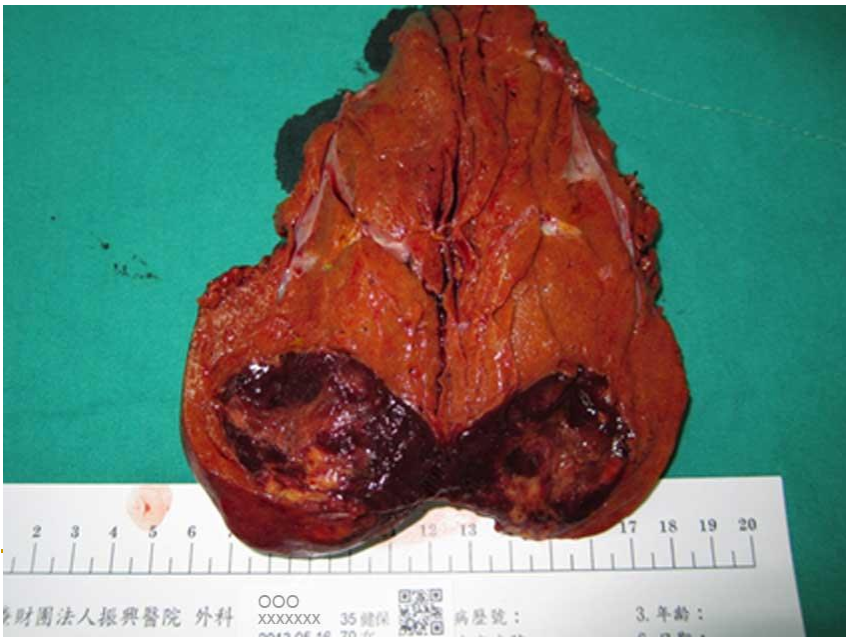
項目名稱	判斷	結果值	單位	參考值範圍
ICG				
ICG 5 min		0.324		
ICG 10 min		0.114		
ICG 15 min		0.050		
rotation ratio(15分)		5.0	%	< 10.0

ICG<10: lobectomy or trisegmentectomy
10<ICG<19: segmentectomy
20<ICG<29: subsegmentectomy
ICG>30: unresectable

Segment 2 & 3 resection (Lateral segmentectomy) on 2013-05-24

■ OP finding:

- ❑ A **5x4x3cm soft dark brownish tumor** noticed over **segment 3**
 - ❑ No cirrhosis of liver, no ascites, no splenomegaly
 - ❑ No intraabdominal tumor seeding
 - ❑ Grossly, no tumor noticed in the right lobe and medial segment of liver
 - ❑ Intraoperative cholangiogram showed patent biliary trees without filling defects in the intra- and extra-hepatic duct
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Pathology

- Liver, segment 2 and 3, frozen section biopsy
--- Angiomyolipoma
 - MICRO:
 - Sections show a picture of angiomyolipoma which is composed of **fat** and aggregates or trabecular arrangement of **epithelioid smooth muscle cells** with marked extramedullary **hematopoiesis**.
 - There is no evidence of malignancy in the specimen examined.
-

Final Diagnosis

- Angiomyolipoma, segment 3 s/p segment 2 & 3 (lateral segment) resection
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Angiomyolipomas

- Angiomyolipomas are the **most common benign tumor** of the **kidney** and are composed of **blood vessels, smooth muscle cells** and **fat cells**.
 - Angiomyolipomas are strongly associated with the **genetic disease tuberous sclerosis**, in which most individuals will have several angiomyolipomas affecting both kidneys.
 - They are also commonly found in women with the rare lung disease lymphangiomyomatosis.
 - Angiomyolipomas are **less commonly** found in the **liver** and rarely in **other organs**.
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Angiomyolipomas

- Whether associated with these diseases or sporadic, angiomyolipomas are caused by mutations in either the **TSC1** or **TSC2 genes**, which govern cell growth and proliferation.
 - Although regarded as benign, angiomyolipomas may grow such that **kidney function is impaired** or the **blood vessels may dilate and burst** leading to **haemorrhage**.
 - Large angiomyolipoma can be treated with **embolisation**.
-

Angiomyolipomas

- Small angiomyolipomas and those without dilated blood vessels (aneurysms) cause few problems, but angiomyolipomas have been known to grow as rapidly as **4 cm in one year**.
 - An angiomyolipoma **larger than 5 cm** and those containing an **aneurysm** pose a significant **risk of rupture**, which is a medical emergency as it is potentially life threatening.
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Hepatic angiomyolipoma

- Most cases of angiomyolipoma are detected **incidentally**.
 - **Acute abdominal pain** related to **intratumoral haemorrhage** and **intraperitoneal hemorrhage** has been reported.
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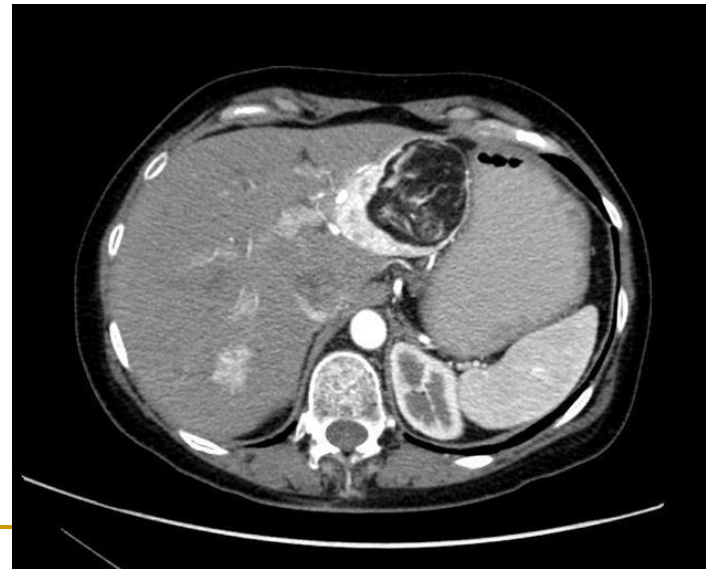
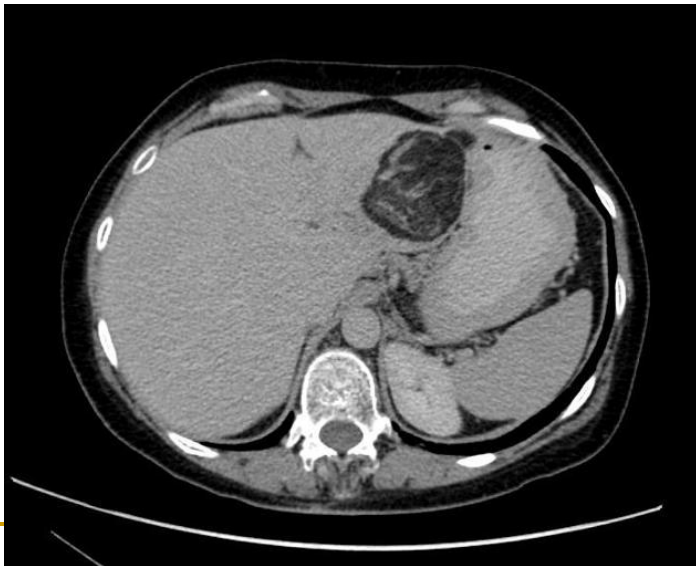
Radiographic features

■ CT:

- ❑ On **non-enhanced CT**, angiomyolipoma presents as well defined **solid heterogenous mass** containing markedly hypodense area.
 - ❑ Due to presence of the vascular component, **marked enhancement in arterial phase** is evident. Drainage is via the **hepatic veins**, and this is the **main differentiating point from fat containing HCC** that drains mainly in portal vein.
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CT

- **NECT:** Well-defined mass with heterogeneous attenuation values due to presence of fat & soft tissue densities. May be predominantly low density mass.
- **Arterial Phase :** Significant enhancement in arterial phase.
- **Portal Phase :** The lesion becomes hypoattenuated.

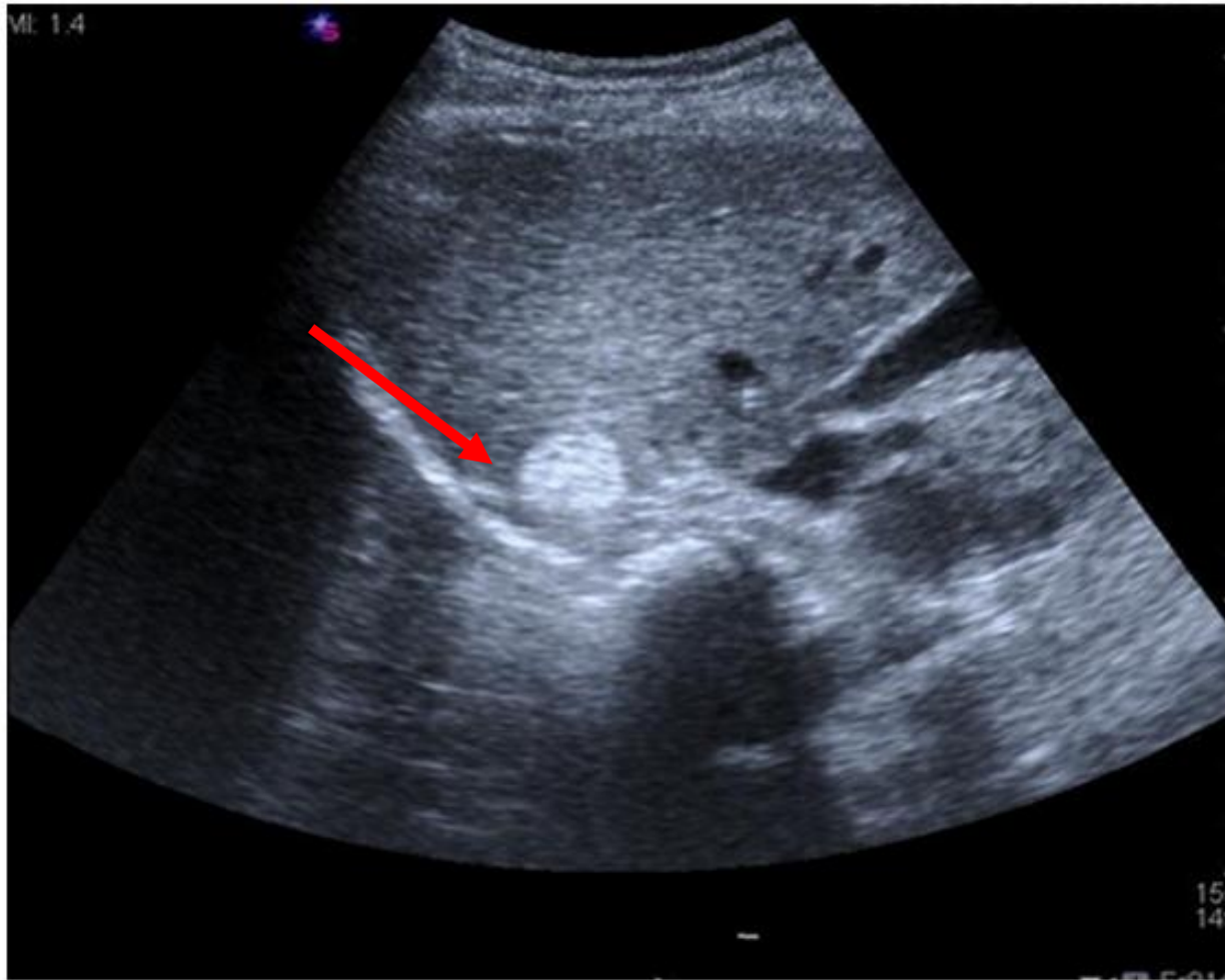


A Case of Hepatic Angiomyolipoma
Which Was Misdiagnosed as
Hepatocellular Carcinoma in a Hepatitis
B Carrier

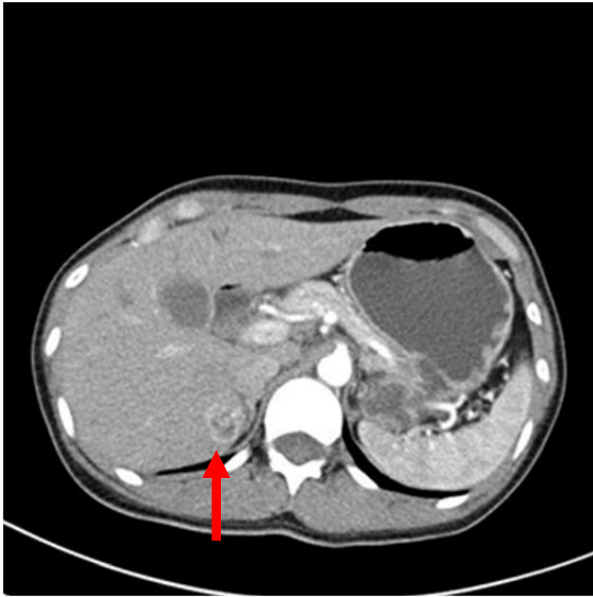
Dong-A University College of Medicine, Busan,
Republic of Korea

Case Reports in Hepatology
Volume 2012 (2012)

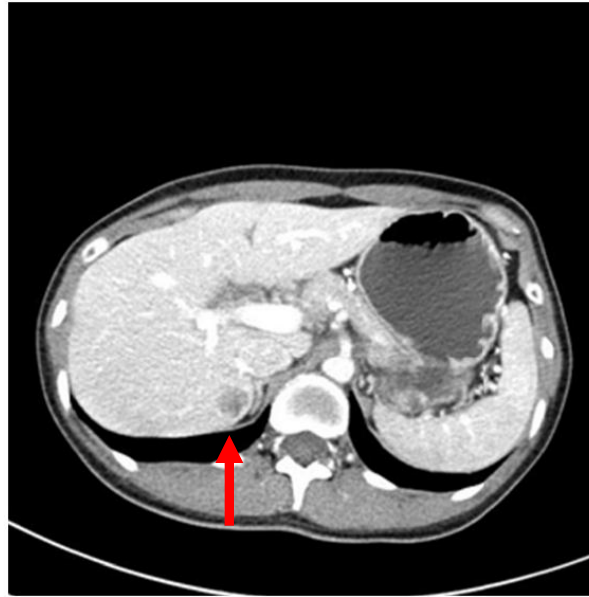
Ultrasonographic findings of the liver mass



CT findings of the liver mass

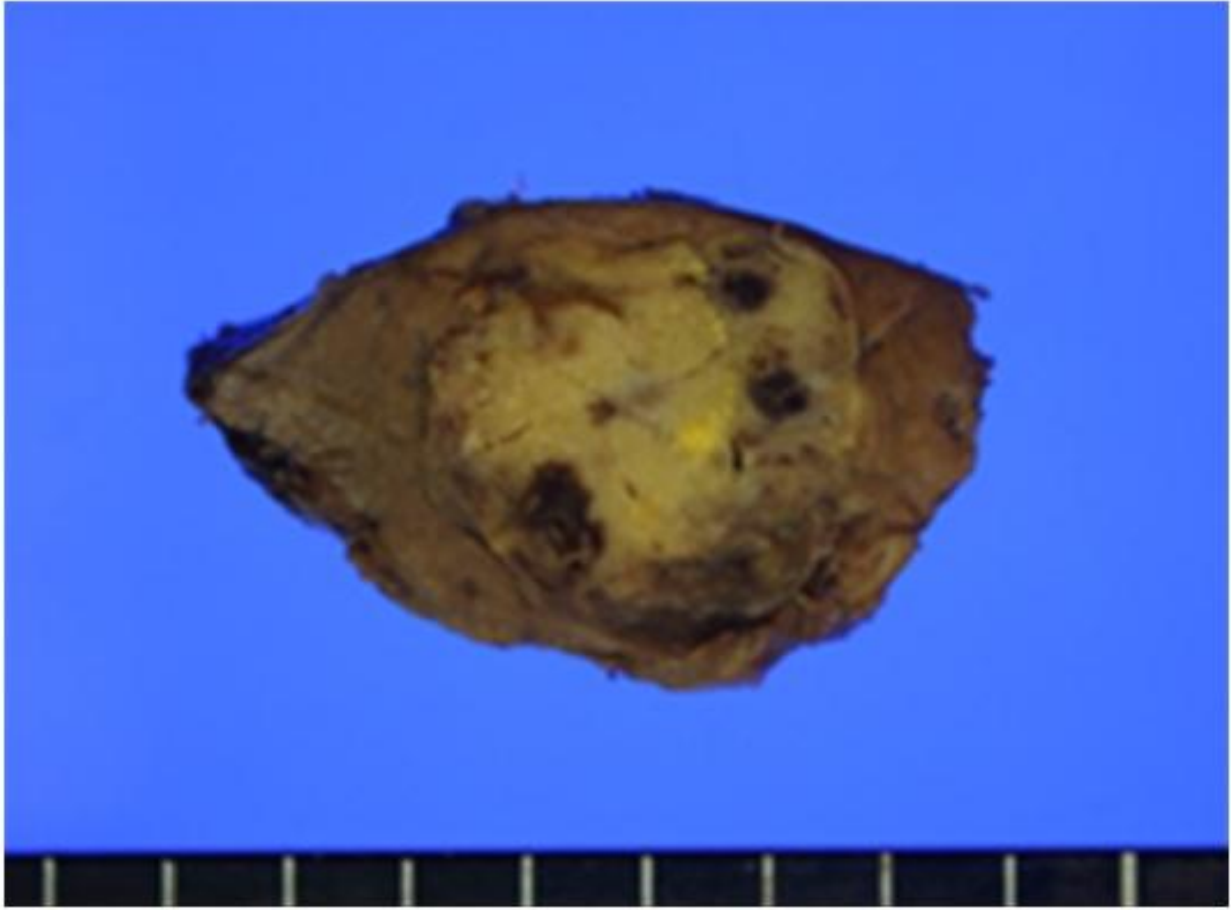


Heterogeneous hypervascular mass in the arterial phase



Washing-out of the medium in the portal and delayed phases





Conclusion

- Preoperative diagnosis of hepatic AML by image is sometimes **quite difficult**
 - In endemic areas of hepatocellular carcinoma
 - The patients who have risk factors of hepatocellular carcinoma with suggested malignancy by image
 - Showing normal laboratory findings
 - Repeated studies with different diagnostic modalities, such as **biopsy** or **angiography**, and careful interpretation are recommended.
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Diagnosis and treatment of hepatic angiomyolipoma

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College Hospital, Chinese Academy of Medical
Sciences & Peking Union Medical College, Beijing
100730, China

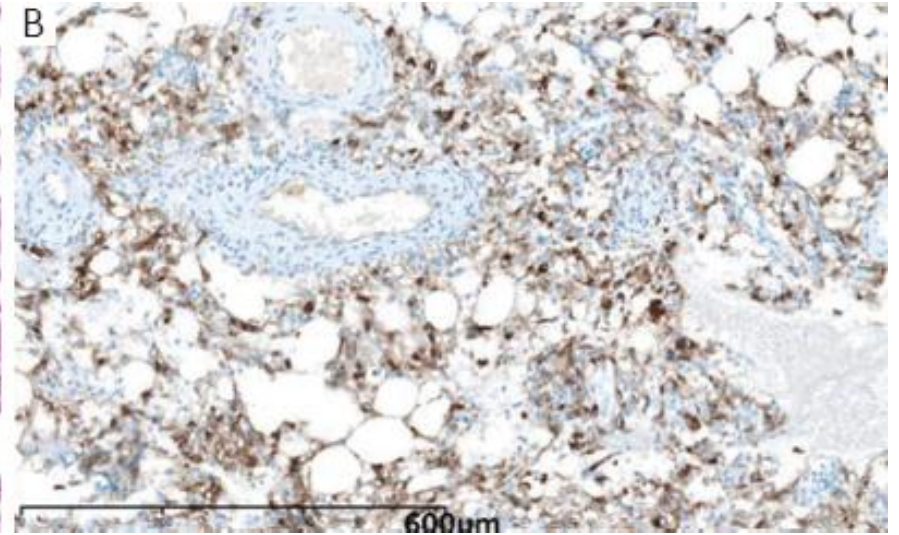
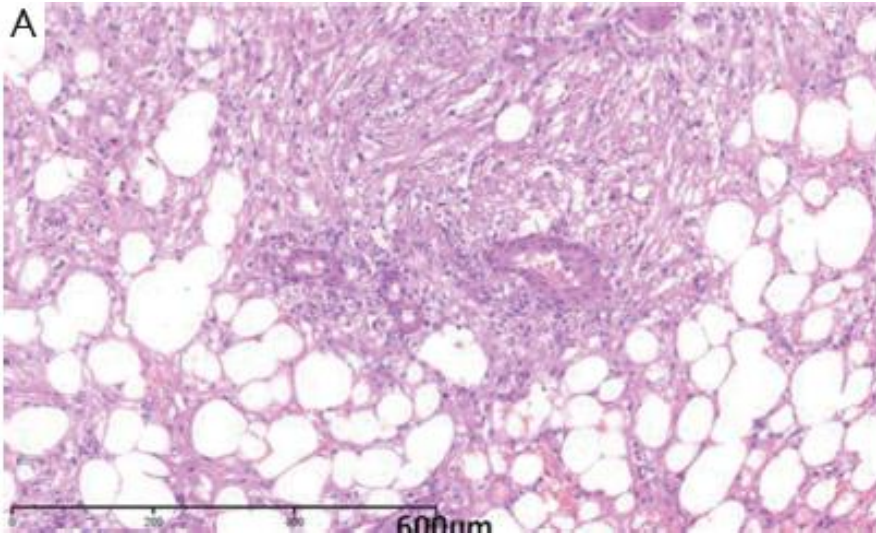
Hepatobiliary Surgery and Nutrition, December 2012

Table 1 Clinical features of HAML patients

Case	Sex/Age	Combined diseases	HBsAg	Cirrhosis	AFP (ng/mL)	CA19-9 (U/L)
1	F/29	-	-	-	0.729	4.69
2	F/30	-	-	-	5.12	24.22
3	F/34	-	-	-	0.725	8.75
4	M/38	-	-	-	4.91	-
5	F/32	-	-	-	1.02	16.26
6	F/46	Pulmonary multiple nodules, right adrenal nodule	-	-	2.7	0.6
7	M/27	HBV	+	-	2.7	9.6
8	F/47	Uterine adenomyosis	-	-	1.4	4.7
9	F/29	Renal AML	-	-	4.2	0.6
10	F/35	HBV	+	-	2.1	17.5
11	F/33	Hepatic hemangioma and cyst Uterine myoloma Microscopic hematuria	-	-	1.1	1.1
12	M/38	-	-	-	3.2	4.6
13	F/31	Multiple renal AML Ovarian cyst	-	-	2.14	1.01
14	F/34	-	-	-	2.3	5.7
15	F/60	Hepatic cyst Chronic superficial gastritis	-	-	6.8	5.9
16	F/54	Hypertension	-	-	2.7	17.8
17	M/27	-	-	-	0.9	2.3

Results

- US, CT and/or MRI were taken and corresponding data was comprehensively analyzed with other clinical signs and symptoms.
 - Correct preoperative diagnosis was able to be achieved in 9 patients.
 - Pathological analysis and immunohistochemistry of HMB-45 was used as final diagnosis.
 - All patients were followed up and survived without recurrence.
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HMB-45 positive (17/17)

Conclusions

- The malignant potential and fast growth of tumor with the possibility of rupture suggested **surgical removal of tumor** while it was diagnosed.
 - (1) significant changes in size in short period
 - (2) a change of tumor composition
 - (3) metastases to the other organs
 - (4) recurrence after curative surgical resection
 - (5) invasive growth into the vessels

Thanks for your attention!
