
Basic Data

- Name: 李X福
 - Sex: male
 - Age: 66 y/o
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History

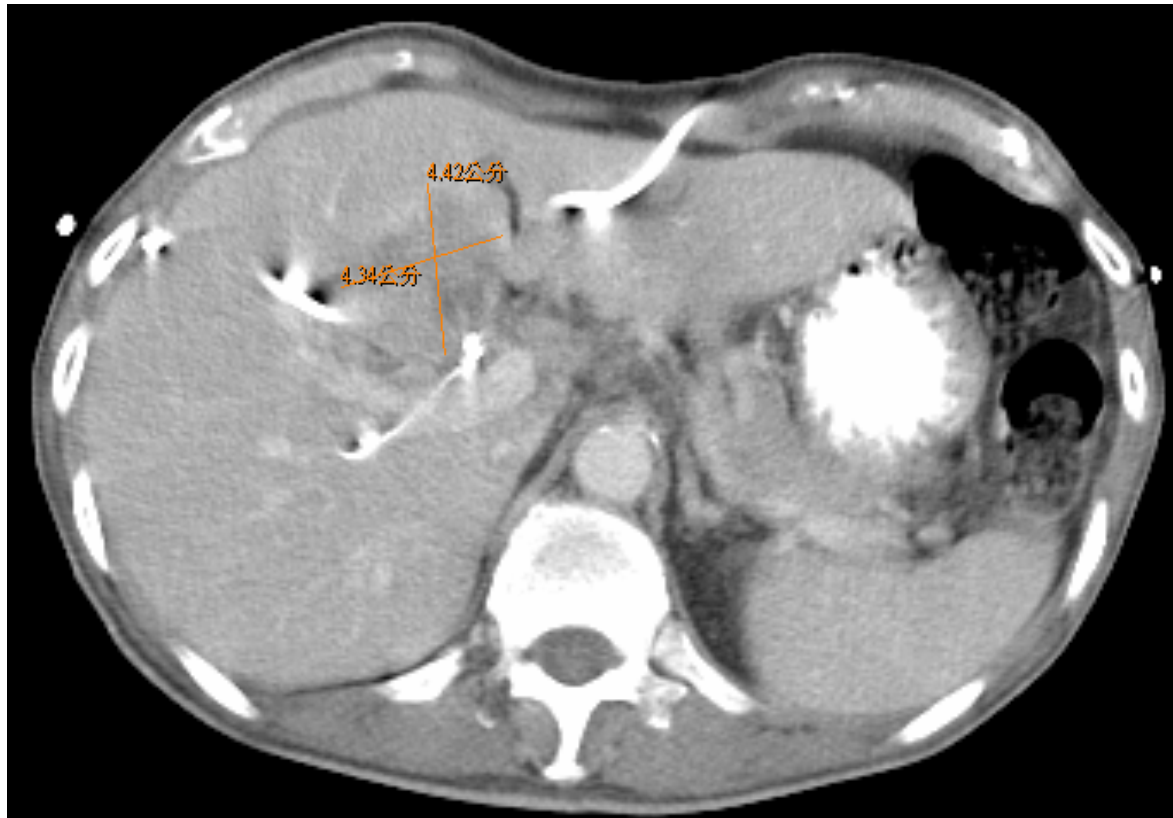
- C.C.: Poor appetite and general weakness for several days
 - Type 2 DM with regular medical control
 - HCV carrier for 3 years
 - Weight loss 5 kg in 10 days
 - Obstructive jaundice s/p PTCD
 - MRCP in NTUH showed well defined mass at hilum with bile duct invasion
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Physical Examination

- Conscious: clear
 - Sclera: icteric
 - Skin: no yellowish discoloration
 - Abdomen: distended, soft, no tender, no shifting dullness
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Lab Data

- Hb: 10.1g/dl, Hct: 29.2%
 - PT: 12.3sec, INR: 1.12, APTT: 31.8sec
 - GOT: 29iu/l, GPT: 32iu/l, Ammonia: 41ug/dl, Bil/D: 6mg/dl, Bil/T: 10.6mg/dl, Albumin: 2.6g/dl
 - AFP: 260.2ng/ml
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About 4.3x4.4cm mass, heterogenous, ill-defined near hilum; Patent portal vein

Differential Diagnosis

- Cholangiocarcinoma (klatskin)
 - Hepatocellular carcinoma => high density in arterial phase, low density in venous phase
 - Metastatic tumor: lung cancer, colon cancer, breast cancer => prefer multiple lesion
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Pathology

- Hepatocellular carcinoma
 - Arranged in trabeculae
 - Eosinophilic to clear cytoplasm and round to oval nuclei
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Treatment

- PTCD revision for several times
 - Radiotherapy: IGRT, total dose 5440cGy from 95-9-27 to 95-10-30; boost on 95-11-15 from 5440cGy to 6400cGy
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After radiotherapy



Shrinkage to about 3.3x3.4cm

Discussion

Hepatocellular carcinoma

Epidemiology

- Incidence (Taiwan): man 1st, woman 4th
 - Mortality (Taiwan): man 1st, woman 2nd
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Clinical feature

- Average age: 55y/o
 - Male/Female: 2-8:1
 - Lack symptoms in early stage
 - HBV and HCV carrier
 - AFP tumor marker increase (>90%)
 - If resectable, biopsy is not necessary
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Symptoms and Signs

- Abdominal pain: 59-95%
 - Hepatomegaly: 54-98%
 - Weight loss: 34-71%
 - Ascites: 35-61%
 - Weakness: 22-53%
 - Splenomegaly: 27-42%
 - Wasting: 25-41%
 - Jaundice: 5-26%
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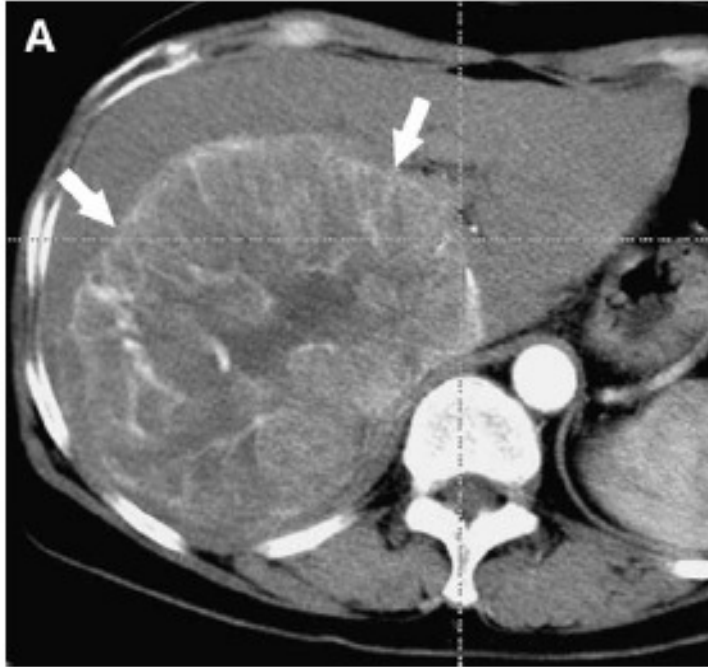
Risk factors - major

- Chronic hepatitis B virus infection
 - Chronic hepatitis C virus infection
 - Cirrhosis
 - Dietary exposure to aflatoxin B1
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Risk factors - minor

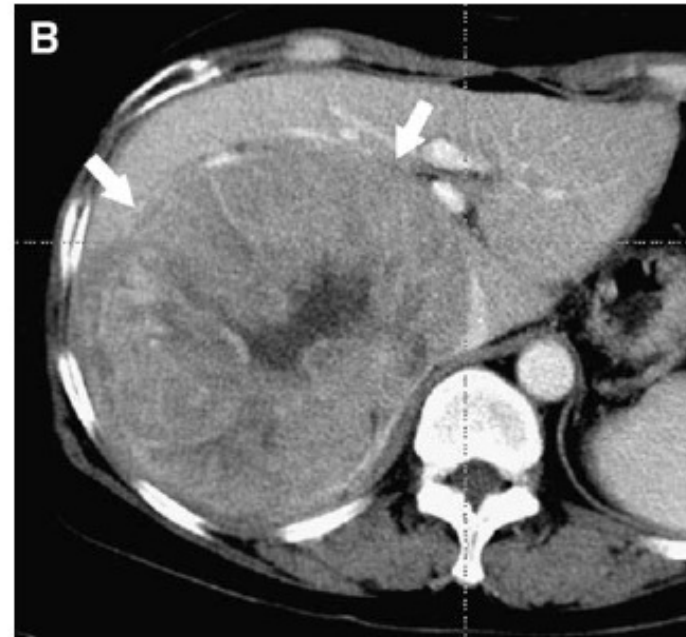
- Oral contraceptive steroids
 - Cigarette smoking
 - Hereditary hemochromatosis
 - Wilson disease
 - α 1-Antitrypsin deficiency
 - Else...
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Typical image



Contrast CT arterial phase,
hyperdense

Contrast CT venous phase,
hypodense



Evaluation of liver cirrhosis

Child-Pugh Classification for Assessing the Degree of Liver Impairment

CRITERIA	1 POINT	2 POINTS	3 POINTS
Bilirubin	<2	2–3	>3
Albumin	>3.5	2.8–3.5	<2.8
Prothrombin time (seconds greater than normal)	1–3	4–6	>6
Ascites	None	Mild	Moderate
Encephalopathy	None	Mild	Moderate

By adding the points based on each patient's factors, a Child-Pugh A is 5–6 points; B, 7–9 points; C, 10–15 points.

→ This case was Child's A

Staging

Definition of TNM	
<i>Primary Tumor (T)</i>	
TX	Primary tumor cannot be assessed
T0	No evidence of primary tumor
T1	Solitary tumor without vascular invasion
T2	Solitary tumor with vascular invasion; or multiple tumors, none >5 cm
T3	Multiple tumors >5 cm, or tumor involving a major branch of the portal or hepatic vein(s)
T4	Tumor(s) with direct invasion of adjacent organs other than the gallbladder or with perforation of the visceral peritoneum
<i>Regional Lymph Nodes (N)</i>	
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Regional lymph node metastasis
<i>Distant Metastasis (M)</i>	
MX	Presence of distant metastasis cannot be assessed
M0	No distant metastasis
M1	Distant metastasis

From Greene FL: AJCC Cancer Staging Manual, 6th ed. New York, Springer-Verlag, 2002.



STAGE	TUMOR	NODES	METASTASIS
I	T1	N0	M0
II	T2	N0	M0
IIIA	T3	N0	M0
IIIB	T4	N0	M0
IIIC	Any T	N1	M0
IV	Any T	Any N	M1



Treatment

Surgical resection

- Curative potential
 - 10% to 20% of patients
 - Mortality rates from 1% to 20%
 - post-resection survival rates : 58% to 100%
at 1 year, 28% to 88% at 3 years, 11% to
75% at 5 years, and 19% to 26% at 10 years
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Liver transplantation

- Curative potential
 - Advantage: addresses liver dysfunction and the HCC
 - Disadvantage: 1. chronic immunosuppression
2. lack of organ donors
 - Long-term survival rates ranged from 25% to 75%
 - Candidate: Child's B, Child's C, early-stage HCC
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Percutaneous ethanol injection (PEI)

- Cause cellular dehydration, coagulative necrosis, and vascular thrombosis
 - Long-term survival after PEI for tumors less than 5 cm has been reported to range from 24% to 40%
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Cryoablation

- Advantage: monitored by ultrasound
 - Disadvantage: “heat-sink” effect; a relatively high complication rate of 8% to 41%
 - 2-year survival rates for cryoablation of HCC range from 30% to 60%
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Radiofrequency ablation

- Temperatures greater than 60°C
 - Available for tumor as large as 7cm
 - Could not be utilized near large blood vessel
 - low complication rates
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Chemotherapy

- response rates less than 20%
- Transarterial therapy: high complication rate: such as ischemic necrosis



External beam radiation therapy

- Damage to normal liver parenchyma and to surrounding organs
- Newer technique: conformal radiotherapy and breath-gated techniques



Conclusion

This case:

- Surgical resection not feasible due to no adequate safe margin
 - TAE not feasible due to possible collateral blood supply in hilar HCC
 - Local treatment not feasible due to lesion near large vessel
- ➔ Therefore the first choice is radiotherapy
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References

- Townsend: Sabiston Textbook of Surgery, 17th ed. HCC
 - Feldman: Sleisenger & Fordtran's Gastrointestinal and Liver Disease, 8th ed. HCC
 - Abelloff: Clinical Oncology, 3rd ed. HCC
 - Tae Kyoung Kim, MD*, Hyun-Jung Jang, MD, Stephanie R. Wilson, MD. Imaging Diagnosis of Hepatocellular Carcinoma with Differentiation from Other Pathology
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