

Evaluation & Management of Liver Masses



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Liver Cancer

Primary Liver Cancer

Hepatocellular Carcinoma (HCC)

Cholangiocarcinoma

Gallbladder Cancer

Metastatic Liver Cancers

Metastatic colon/rectal cancer

Neuroendocrine cancer

Other metastatic cancers

Benign Liver Lesions

Hepatic cyst

Hemangioma

Adenoma

Focal nodular hyperplasia
(FNH)

Biliary hamartoma

Abscess

Focal fat (sparing)

Algorithm for evaluation of incidental liver mass

History and Physical Exam



Abdominal pain / weight loss
Liver disease / cirrhosis / alcohol use
Hepatitis / blood transfusion / tattoos
OCP / hormone use / cancer history

Jaundice / Scleral icterus
Palpable mass / hepatomegaly
Stigmata of portal HTN

Laboratory tests



CBC, platelet count / Coagulation studies / Hepatitis screen
Electrolytes / BUN / creatinine / glucose / albumin
Liver function tests / ammonia
Tumor markers (CEA, AFP, CA 19-9)

Additional Imaging studies

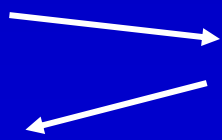


US / CT or MRI scan
Nuclear medicine / Angiogram

Liver biopsy (if needed) (Percutaneous or laparoscopic)



Diagnosis



Occult primary evaluation (if malignancy)
EGD / Colonoscopy
Mammogram / Gyn exam / PAP smear

Benign Liver Lesions

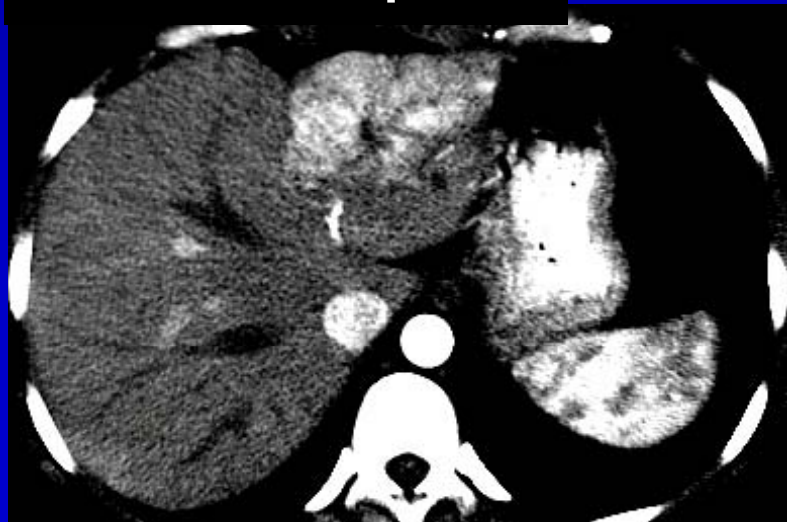
Hemangioma



Adenoma



FNH – arterial phase



FNH – venous phase

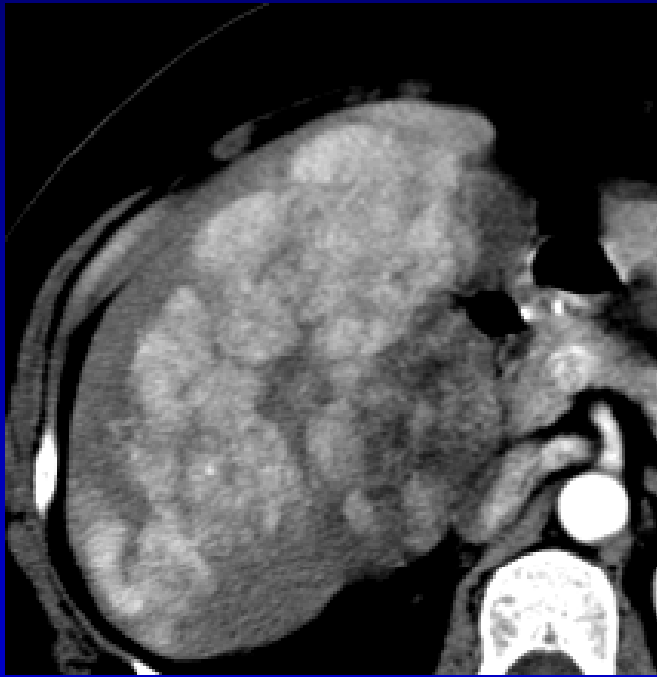


Management: Benign Liver Lesions

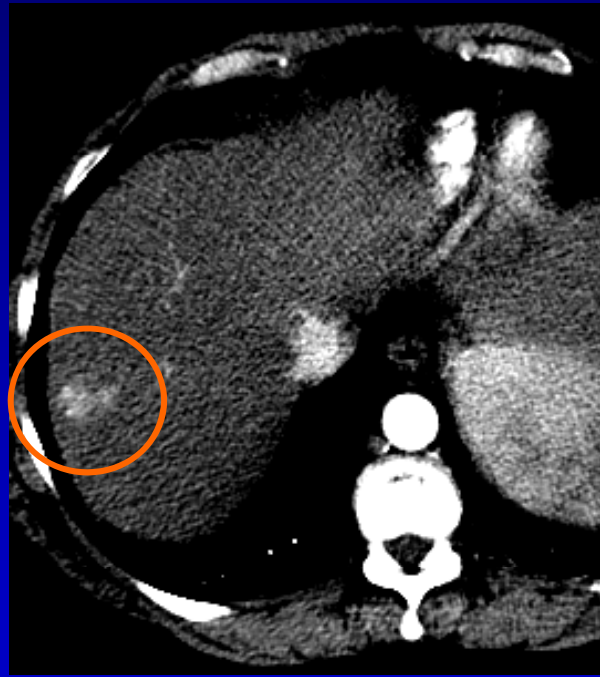
- OCPs cause adenoma and FNH
- Adenoma's spontaneously rupture or become HCC
- All adenomas should be resected
- Asymptomatic FNH or hemangiomas can be observed

Primary Liver Tumors

Large HCC



Small HCC

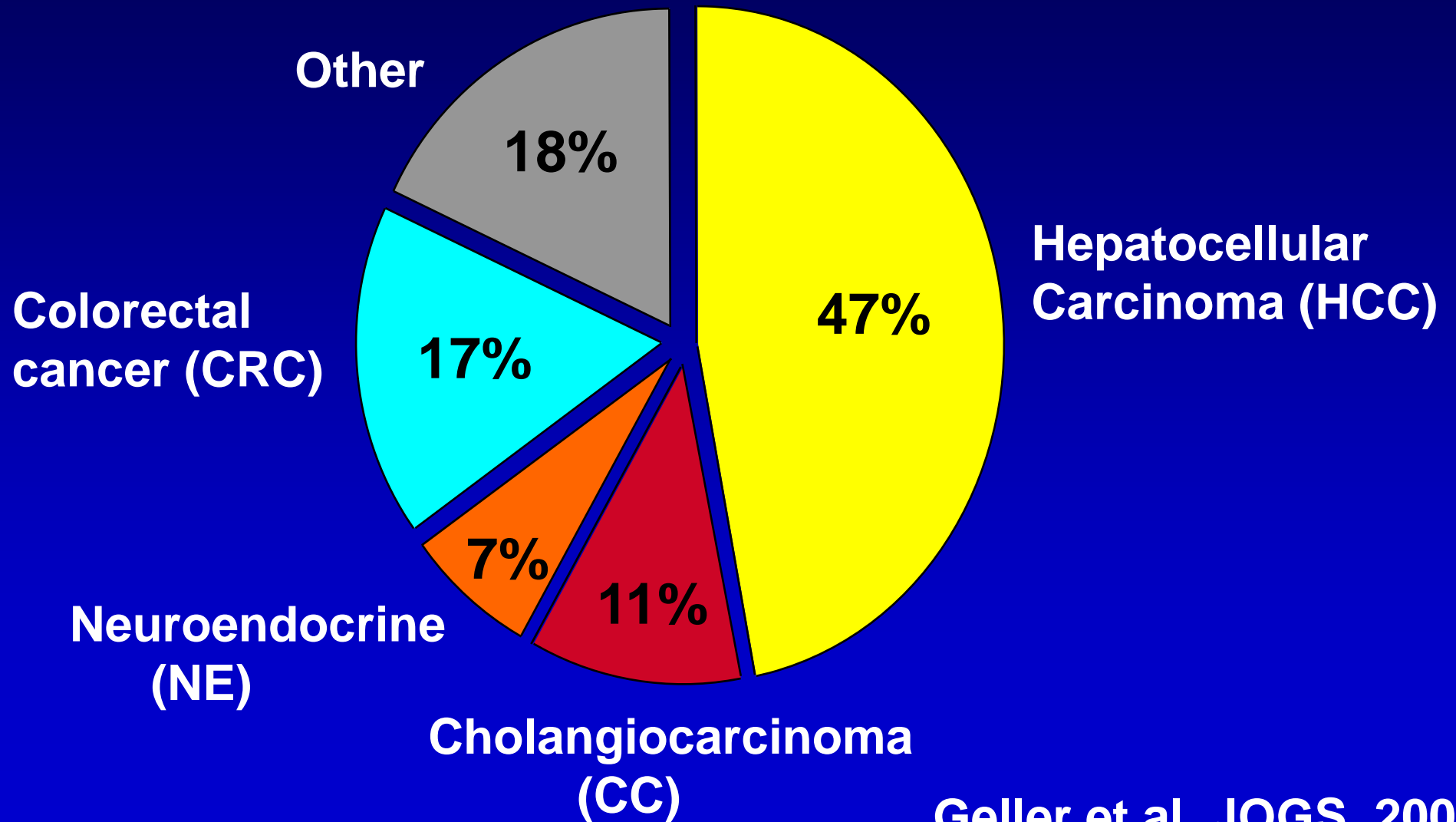


CholangioCA



UPMC Liver Cancer Center

1,000 Liver Cancer Patients: 2000-2004



Geller et al, JOGS, 2006

Decision-making in the clinical management of Liver Cancer

Primary or metastatic tumor

Size, location, number of lesions

Gross vascular invasion

Extra-hepatic metastases

Cirrhosis (Child's class, liver function)

Hepatic resection of liver cancer remains the gold standard, and provides the best chance for long-term survival.

UPMC Liver Cancer Center:

Treatment Options for Liver Tumors

Surgical resection (lap. & open)

Radiofrequency ablation (RFA)-percut, lap, open

Intrahepatic chemoembolization

Pump intra-arterial chemotherapy infusion

Yttrium⁹⁰ glass beads (theraspheres, sirspheres)

Systemic chemotherapy

Radiation Therapy, Cyberknife

Liver transplantation

Multi-modality approach

Gene Therapy (intra-hepatic)

Palliative care

Observation

Innovations in technology have paved the way for “Minimally Invasive Surgery”

(Laparoscopic liver resections)

Advantages of Laparoscopic Liver Surgery:

- **Band-aid sized incisions**
- **Less pain**
- **Shorter LOS**
- **No blood transfusions**
- **No ICU admissions**
- **No oncological disadvantages**

UPMC experience: 226 cases

Malignant vs. Benign lesions

Malignant lesions	# of cases	Benign lesions	# of cases
Hepatocellular carcinoma	29 (40.3%)	Giant hepatic cyst	57 (37%)
Colorectal cancer metastasis	24 (33.3%)	FNH	37 (24%)
Breast cancer metastasis	5 (6.9%)	Hemangioma	23 (14.9%)
Neuroendocrine cancer mets	4 (5.6%)	Biliary cyst adenoma	8 (5.2%)
Cholangiocarcinoma	3 (4.2%)	Gallbladder mass	5 (3.2%)
Esophageal cancer mets	3 (4.2%)	Adenoma	4 (2.6%)
Sarcoma metastasis	2 (2.8%)	Bile duct cyst	3 (1.9%)
Carcinoma of unknown etiology	1 (1.4%)	Other benign pathology	17 (11%)
Lung cancer metastasis	1 (1.4%)		
Total	72	Total	154

Mean size of malignant tumors 3.3 cm
(range 0.6 cm – 12 cm)

Mean size of benign tumors 8.8 cm
(range 1 cm – 25 cm)