HOW TO HANDLE HEPATIC INCIDENTALOMAS

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DEFINITIONS

- UDOs = SMALL HYPOATTENUATING HEPATIC LESIONS
- TSTC = TOO SMALL TO CHARACTERIZE
- THADS = TRANSIENT HEPATIC ATTENUATION DIFFERENCES
- THIDS = TRANSIENT HEPATIC INTENSITY DIFFERENCES
- FLASH FILLERS = ROBUSTLY ENHANCING HEPATIC LESIONS (UBOs)
HEPATIC CYSTS
BILE DUCT HAMARTOMAS

- FOCAL DISORDERLY COLLECTION OF BILE DUCTS
- WITH EXTREME DILATION THE CYSTS ARE VISIBLE ON IMAGING
- 5% INCIDENCE AT AUTOPSY
BILE DUCT HAMARTOMAS

CLINICALLY RELEVANT BECAUSE MUST BE DIFFERENTIATED FROM:

DIFFUSE METASTASES
MICROABSCESSES
PRIMARY SCLEROSING CHOLANGITIS
PERIBILIARY CYSTS IN CIRRHOSIS
CAROLI’S DISEASE
APCLD
EXTRINSIC COMPRESSION: RIB, DIAPHRAGM, HEMANGIOMA OR OTHER MASS: THADS, THIDS

THIRD INFLOW: PARABILIARY VEINS, EPIGASTRIC-PARAUMBILICAL VEINS, ABHERRANT VEINS
FOCAL FAT

- SUBCAPSULAR LOCATION
- POLYGONAL, WEDGE SHAPED, GEOGRAPHIC ZIG-ZAG APPEARANCE
- NORMAL VESSELS TRAVERSE “MASS”
- NO CAPSULE, NO MASS EFFECT
UBOs IN CIRRHOTIC PATIENTS

- 38% PTS WITH CIRRHOSIS OR CHRONIC HEPATITIS HAD UBOs
- 72% ↓ IN SIZE OR NO Δ
- GEOGRAPHIC, WEDGE SHAPE, TRIANGULAR SHAPE MOST LIKELY BENIGN
- OCCLUSION OF SMALL HEPATIC AND PORTAL VEINS IN CLD
- WEDGE SHAPED OR TRIANGULAR PSEUDO-LESIONS DUE TO FOCAL ARTERIAL- PORTAL VENOUS SHUNTS WHICH ALSO OCCURS IN CIRRHOSIS

NYU Radiology 235: 938-944, 2005
UBOs SEEN ON ARTERIAL PHASE IN CIRRHOSIS

- 169 lesions in 28 patients
- All wedge shaped, subcapsular lesions were benign
- Nodular or irregular lesions: subcapsular 59 = benign; 11 = HCC
- Nodular or irregular lesions: central 39 = benign; 17 = HCC

EXTRAHEPATIC MALIGNANCIES AND THE CIRRHOTIC LIVER

- METS DO NOT GO TO A CIRRHOTIC LIVER - TOO INHOSPITABLE
- MR: LESIONS THAT FOLLOW SPLEEN IN CANCER PATIENTS ARE METS
- MR: LESIONS THAT FOLLOW SPLEEN IN CIRRHOTIC PATIENTS ARE HCC
METS vs INCIDENTALOMA

• AT POST MORTEM LIVER MOST COMMON SITE OF METS ≤ 36%
• AT POST MORTEM, ≤ 52% OF NON-CANCER PATIENTS HAVE BENIGN HEPATIC LESIONS
HEPATIC INCIDENTALOMAS:
UDO\text{s WHICH ARE \text{TSTC}}

- CONVENTIONAL CT LESIONS < 1.5-2 cm
- UDO\text{s} <15mm IN 17% OP, 82% HAD CA
  51% LESIONS DEEMED BENIGN

Jones AJR 158: 535-539, 1992
HEPATIC INCIDENTALOMAS

- TSTC LESIONS, <1cm FOUND IN 12.7% ONCOLOGY PATIENTS
- 11.6% WERE MALIGNANT

Schwartz Radiology 210: 71-74, 1999
HEPATIC INCIDENTALOMAS

- 25% OF PTS WITH GASTRIC AND COLORECTAL LESIONS HAD UDOs
- METS PRESENTING ONLY AS UDOs SEEN IN ONLY 2.2%

Jang JCAT 26: 718-724, 2002
UDOs IN BREAST CANCER PATIENTS

- IN PATIENTS WITH BREAST CANCER WHO HAVE UDOs BUT NO DEFINITE METS AT THE TIME OF Dx DO NOT HAVE AN INCREASED RISK OF DEVELOPING METS LATER ON

Krakora Radiology 233: 667-673, 2004
HEPATIC LESIONS DEEMED TO SMALL TO CHARACTERIZE AT CT: PREVALENCE AND IMPORTANCE IN WOMEN WITH BREAST CANCER

- 277/941 (29.4%) ≥ 1 UDO
- 1 YEAR FOLLOW UP: NO Δ 92.7%, DISAPPEAR 4.2%, LARGER IN 3.1%
- IF YOU SEE AN UDO IN A PT WITH BREAST CA BUT NOT DEFINITE METS, THIS IS A BENIGN FINDING

H I Khalil 235: 872-878, 2005 Radiology
UDOs: LEAVE ME ALONE!

- UNDEREMPHASIZE THE REPORTING OF UDOs <5mm IN SIZE
- UDOs 5-10mm TSTC (<1% SIGNIFICANT lesion if no Hx of cancer)
- UDOs 5-15 mm in oncology pt report as statistically most likely benign but recommend f/u
FLASH FILLERS: UBOs

- HEMANGIOMA
- FNH
- ADENOMA
- HYPERVASCULAR METASTASES
- HEPATOMA
- AVMS
- NOD REGEN HYPERPLASIA
- THADS, THIDS
FLASH FILLERS: UBOs

- AVM, HCC, HYPERVASC METS, NRH, THADS, THIDS WASH OUT RAPIDLY
- ADENOMAS WASH OUT MORE SLOWLY
- HEMANGIOMAS RETAIN THEIR CONTRAST
TRANSIENT HEPATIC ATTENUATION (INTENSITY) DIFFERENCES

THADS

THIDS
NORMAL

PORTAL VEIN THROMBOSIS
INCREASED PARENCHYMAL PRESSURE
PORTAL VEIN  10 mm Hg
HEPATIC ARTERY  120/70 mm Hg
MICROCIRCULATION  3-5 mm Hg
HEPATIC VEIN  1-5 mm Hg
THIDS AND THADS

- PORTAL VEIN THROMBOSIS
- ADJACENT BENIGN OR MALIGNANT HEPATIC MASS CAUSING ↑ PRESSURE
- SVC, IVC OBSTRUCTION
- HEPATIC ARTERIAL HYPERTROPHY-SUMP
- PERIPHERAL ARTEROPORTAL SHUNT
- ABERRANT VENOUS DRAINAGE
FLASH FILLER

- HEMANGIOMA
- FNH
- ADENOMA
- HYPERVASCULAR METASTASES
- HEPATOMA
- AVMS
- NOD REGEN
- HYPERPLASIA
- THADS, THIDS

- KNOWN PRIMARY HYPERVASCULAR MALIGNANCY
FLASH FILLER

- HEMANGIOMA
- FNH
- ADENOMA
- HEPATOMA
- AVMS
- NOD REGEN
  HYPERPLASIA
- THADS, THIDS

- KNOWN CIRRHOSIS
- HEMANGIOMA
- FNH
- ADENOMA
- AVMS
- NOD REGEN HYPERPLASIA
- THADS, THIDS

- BUDD CHIARI
FLASH FILLER

- HEMANGIOMA
- FNH
- ADENOMA
- AVMS
- THADS, THIDS

- FEEDING VESSELS
FLASH FILLER

- HEMANGIOMA
- FNH
- ADENOMA
- THADS, THIDS

- ORAL CONTRACEPTIVES
FLASH FILLER

- HEMANGIOMA
- FNH
- THADS, THIDS

- SO NOW WHAT?
FLASH FILLER

- HEMANGIOMA
- FNH
- THADS, THIDS

- OLD
FLASH FILLER

- HEMANGIOMA
- FNH
- THADS, THIDS

- YOUNG
INCIDENTALOMA

- Identify
- Characterize
- Gonadal Fortitude
  - Stop
  - Work up (how?)
  - Follow (when?)
  - Biopsy
  - Remove
• Early incidentaloma detection may not lead to longer survival
• Detecting and following incidentalomas provides no benefit for many conditions
• Incidental findings, false positives and overdiagnosis lead to healthy people getting extra tests
• Aggressively pursuing findings probably does more harm than good
INCIDENTALOMA

- Appreciate the insignificance of the overwhelming majority of incidentalomas
- Limit reporting to those that could herald disease in which the course of the disease may be altered
- Try to characterize the lesion, but balance risk and cost of additional studies
- Quantify the probability of importance
- Direct referring clinicians to the most cost-effective approach to managing the few incidentalomas that must be pursued