MRI of Renal Masses: What is the added value?

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Renal Mass Eval.

- CT still considered first line
- CT=MRI in most cases
Renal Mass Eval.

- Enhancement
- Calcified masses
- AML
Pseudo-enhancement

• Benign cysts - “enhance” > 10 HU

• Why?
  Not volume averaging
  Overcorrection for beam hardening

Be Suspicious

- “Look like cysts”
- Small
- Intrarenal
- Homogeneous “dense” nephrogram
Contrast Resolution

- MRI can problem solve issues related to enhancement at CT.
- Important – Radiologist must identify the issues at CT and suggest MRI.
Calcification

- Means very little in characterizing renal masses.
- Limit our ability to assess a mass at CT
- MRI has added benefit in evaluating calcified renal masses (in most cases)

Israel GM et al. AJR 2003.
1. Old films
2. Follow up
SURGICAL PATHOLOGY

CLINICAL INFORMATION:
51-year-old female with a left renal mass.

DIAGNOSIS:

1. Kidney, superior tumor crater, biopsy:
   - Benign renal tissue.

2. Kidney, deepest margin of tumor crater, biopsy:
   - Benign renal tissue.

3. Renal mass, left, excision:
   - Necrotic, amorphous material filling a space lined by fibrous tissue and rare foreign body giant cells, most consistent with prior hemorrhage into a simple cyst.
   - No evidence of neoplasia.
Renal masses

• 12-13% of solid renal masses surgically removed are benign.
• Almost all are oncocytoma and AML
Angiomyolipomas

- Variable in appearance
- Majority are easily diagnosed.
- Some (4-5%) contain no visible fat on CT or MRI (AML with minimal fat)
- AML with minimal fat have a characteristic appearance and can be diagnosed using percutaneous biopsy

23 year old female

Papillary RCC
Conclusions

• MRI helps clarify issues related to enhancement at CT

  Radiologist must recognize that there is a problem

• MRI is useful in calcified masses

• MRI helps dx AML with minimal fat