Adrenal Incidentalomas

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Objectives

- Epidemiology
- Some evidence
- Etiology
- Clinical, Labs, Imaging
- Key Questions to ask
- Management
- Follow-up
- Case

Definition

- "incidental" finding on imaging not related to complaint
- common
- approach still controversial
- lack of EBM

Epidemiology

- Autopsy 2-4mm
  - 8.7-12.4%
- Imaging > 1cm
  - 0.4-4%
  - can pick up 5mm lesions

Main causes

Adenoma
Mets

Etiology

- **Adenoma**
- Primary Adrenal CA
  - > 60% fxnal
  - > 6cm esp
  - multi-hormones
- **Mets**
  - **Lung**
  - GI, Renal, Breast, Melanoma, Lymphoma
  - usually < 4cm
- Cyst
- Granulomatous
- Abcess
- Myelolipoma (fat)
- Hematoma (bilateral)
- Infection (TB/Fungi)
- CAH
- Hypertrophy
  - Stress/ill
  - ACTH/Renin

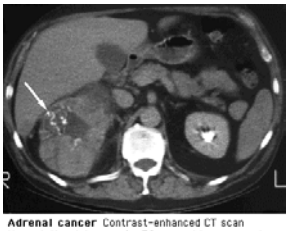
Key Questions

- Is it Cancer?
- Is it functional?

Imaging features suggestive of Adrenal CA

> 6cm
Growth
Multihormones
Heterogenous
High HU

Adrenal Cancer



Adrenal cancer Contrast-enhanced CT scan through the abdomen of a 56 year-old man reveals a complex solid and cystic, calcified mass (arrow) in the right suprarenal fossa extending into the adjacent liver. The tumor proved at surgery to be a carcinoma of the adrenal cortex. Courtesy of Jonathan Kruskal, MD.

Helpful Clues for Etiology

- Size > 4-5cm (esp > 6cm)
  - Cancer
- Growth
  - > 0.5-1cm in 3-6mos
- Clinical & Laboratory Hyperfunction
- History of Primary Cancer
- Morphology on imaging
  - Benign vs CA

Imaging CT/MRI

- **Benign** vs Malignant
  - homogenous
  - < 10 HU on unenhanced scan (low intensity)
    - 98% SN, 71% SP
  - smooth & round border
  - isointense on MRI T2 images
  - vascularity on MRI ? Pheo
  - pseudoadrenal

"Sensitivity>> Specificity"

Radiology

Always review with Radiologist !!

Hormonal Assessment

- 11% hyperfunction
- Pheochromocytoma & Syndromes 3-10%
- Cushing's 6-12%
- Primary Hyperaldosteronism <1%
  - usually Sx, HTN, low K
- Virilizing/Feminizing Tumor
- CAH
- Adrenal CA 2-12%

Subclinical Cushing's

- Common
- need to r/o
  - OR since suppression of other Adrenal
  - end-organ damage
  - young
  - metabolic Syndrome
- ? NP-59

Functional Lesions?

Pheo
Cushing's
Primary Hyperaldo
Androgen/Estrogens

Other Investigations

- Lytes (K)
  - Aldo & Renin Activity and **ratio**
- 24hr urine Metanephrines/Catachols/Creat
  - serum Metanephrines
- 1mg DST/ACTH +/- 24hr UFC
  - 3mg DST, CRH stim
- DHEA-S, Testo, Estradiol, 17-OH-P (Follic)
- BMD

Scintigraphy

- NP-59
- Uptake
  - + benign
  - - CA/Mets
- ? Availability
- $$
- usually not necessary

FNAB

- Mets versus Adrenal tissue (any)
  - 80% accurate
- only if suspicion of Primary CA/Staging
  - Clinical, Imaging, **CXR**
- if Primary occult CA -> 95% benign
- if known Primary CA
  - 2/3 benign
  - mets no cure usually by OR
- not if suspicion **Pheo**!!

Management

- Surgery ? Laparascopy
  - > 4-5cm
  - Growth> 0.5-1cm
  - Hyperfunctional
  - ? Subclinical Cushing's
  - Young
  - Mets ? If primary NSC Lung CA isolated mets
  - **always r/o Pheo/Cushing's 1st**

Follow-up

- Imaging at 3mos & 1yr
  - no change -> low risk CA
- Clinical
- +/- Hormones (urine & serum)

Bottom Line

- Common
- Key Questions
  - Functional & Cancer
- Adenoma and Mets most common
- Hormonal work-up +/- FNAB
- Review Radiology
- Surgery
  - size, growth, function, ? Lung mets

Case

40yo woman **left 3.5cm adrenal** mass detected to r/o appy.

PMH Smoker, HTN
Meds HCTZ

FH No tumors/endocrine disease

HPI HTN x 5yrs good control
No Sx Pheo/Cushing's/Androgens
No Flank pain
No fever, cough, weight loss
No prior imaging Abdomen

Exam Obese BP 140/80 78R
Not cushingoid/androgenic
No masses/bruits/rash
Thyroid and rest normal

Ix CT Abdo 3.5cm left adrenal mass
HU 7, smooth, homo
round
No Ca and minimal fat

K 4.0, CBC n, 24hr Pheo n
1mg DST am Cortisol 48nM, ACTH 3.5pM
DHEA-S, Testo, 17-OH-P n