Adrenal incidentaloma

An approach to workup

Dr. B. Ndlebe

Outline

- Case presentation
- Approach
  - Definitions
  - Epidemiology
  - Causes
  - Evaluation
  - Management

Case presentation

- 62 year old Mr. B
  - Referred via ACS after presenting with a mild Acute pancreatitis
    - Typical Acute abdo pain with lipase of 3000.
    - Etiology not clear
      - No ETOH history.
      - No U/s for exclusion of gall stones.
      - Early CT abdo? Why?perhaps unclear etiology despite no sonar done
      - Lipid profile
      - IgG4

Case presentation

- CT Abdomen
  - Only portovenous phase
  - Interstitial pancreatitis-No collections
  - Periduodenal fat stranding
  - Left adrenal incidentaloma of 13x14mm.
- Urine biochem
  - Metanephrines 210 (273-1323)
  - Normetanephrines 560 (753-2845)

Case presentation

- PMHx
  - HPT ,dx at age 60 on 1 agent(HTCZ)
- PSHx
  - Recent Mild AP
  - Nil other
- Fam Hx
  - Nil significant
- Social:
  - Smoker with 40 pack year history

Case presentation

- Physical examination
  - BP(Done sitting)
    - Right arm :180/111
    - Left Arm 184/112
  - Heart rate 82
  - Systemic exam completely normal, truncal obesity.

  (NB:No symtoms/signs to suggest a functional adrenal mass)

Definition

Adrenal incidentaloma

An incidentally found adrenal nodule of atleast 1cm in diameter in a patient that has no apparent clinical signs of adrenal disease.

Epidemiology

- Prevalence varies
  - Abdominal imaging- 0,4-7,3%
  - Autopsies:2%
  - Elderly : 10%
  - Higher prevalence in patients with obesity, hypertension and diabetes
- Majority are benign
  - 80-90% Benign
  - 5-10% Malignant(primary and metastatic)
- Functional
  - 4-25%

Adrenal mass-?What could it be

- Unilateral vs Bilateral
- Malignant vs benign
- Malignant
  - Primary adrenal
  - Metastases
- Functional
  - Cortisol secreting adenoma
  - Aldosteronoma
  - Pheochromocytoma

Evaluation

- Anatomical imaging
- Tissue diagnosis
- Functional biochemistry

Evaluation

- Anatomical imaging
  - Helps to characterize benign vs malignant lesions
  - CT scan
    - Adrenal protocol
    - Uncontrasted abdomino-pelvic CT scan
      - HU
        - Less than 10-Likely benign
        - More than 10-Likely Malignant
        - 30% adenomas are lipid poor(i.e don’t contain large amounts of fat and may be indistinguishable from non-adenomas on uncontasted CT)
      - Size-more than 6cm (25 % chance of malignancy)
    - Delayed phase
      - Contrast given then washout calculated 10 min after contrast administration.
      - Absolute contrast Washout of more than 60 percent(some sources say 50_ suggest adenoma) .Almost 100% sensitivity and specificity)
      - Contrast washout has limited value in excluding malignancy and pheochromocytomas in inderteminate lipid poor nodules.

Evaluation

- Anatomical imaging
  - MRI
    - Not routinely used- cost ,not always available
    - CT superior for surgical planning
  - PET scan
    - FDG PET has high sensitivity and specificity to diff between benign and malignant lesions but cannot differentiate a primary from a met.

Evaluation

- CT scan
  - Benign Adenoma
    - Unilateral
    - Round ,homogenous, smooth contour, sharp well defined margins
    - Diameter less than 4cm
    - HU less than 10
  - Pheochromocytoma
    - HU more than 20
    - Increased vascularity
    - Cystic and haemmorhagic changes
    - Variable size,maybe bilateral
  - Adrenocortical carcinoma
    - Irregular shape
    - Inhomogenous density with areas of low attenuation due to tumour necrosis
    - Calcifications
    - Unilateral,more than 4cm,HU more than 20 units
    - Local invasion or metastases
  - Adrenal metastases
    - Irregular shape,Inhomogenous
    - usually Bilateral
    - HU more than 20 with enhancement with administration of IV contrast.

Evaluation

- Cytology
  - FNAB doesn’t distinguish between a benign cortical adrenal mass and an adrenal carcinoma
  - It can distinguish an adrenal primary from a met
  - If patient has a non- adrenal primary and a new adrenal lesion,pheo must be excluded first biochemically before a FNAB to avoid a potentially fatal hypertensive crisis.

Evaluation

- Functional biochemistry
  - GSH practice
    - Urine
      - 24 hour urine Metanephrines & Normetanephrines- 3-4 times higher than normal values
      - 24hour urine Cortisol
      - 1mg dexamethasone suppression test
    - Serum
      - Aldosterone: Renin ratio of more than 35 (In HPT and hypokalaemic pts)
    - Adrenal venous sampling
      - Lateralisation in case of bilateral adenomas

Management

- Discharge
  - Small lesions than 3cm-4cm that are non functional with no other CT features of malignancy
- Followup
  - Equivocal results
  - F/U in 6 months
- Intervention
  - Clear indications

Management

- Indications for surgical intervention
  - Functional tumours
  - Suspicion of malignancy
    - Size more than 6cm(some say 4cm)
    - Other CT charactaristics- High HU, irregular or ill-defined borders, necrosis, internal calcifications or hemorrhage, and high vascularity or infiltration of adjacent structures.Can do a PET Scan still not clear of whether lesion is malignant or not.
  - Patient factors
    - Age
    - Preference
    - Social factors-Difficult to follow-up/access to health care for 6-12monthly cross sectional imaging.

Case presentation

- Potassium 4
- Urine cortisol –brought his 24 hour bottle today
- Aldosterone-renin ratio still pending
- CT adrenal protocol-Booked for October 2023.
  - If functional tests come back posititve,to request an earlier date.

Management

- Perioperative management
- Adrenalectomy

- THANK YOU