Adrenocortical Carcinoma
Controversies and Consensus

Jill Hudson - PGY 3
Supervisor – Dr Lawen
March 22th 2011
Outline

Work Up
- Hormonal
- Imaging

Determining Malignancy

Treatment
- Open vs Lap
- Mitotane and Cytotoxic Tx
Etiology

- Rare cancer
  - 0.7-2/1 000 000 patients in North America/year (SEER database)
- Poor prognosis
  - Median survival <12 months at presentation
    - 58.2% mortality at one year
    - 88.4% mortality at five years
  - 67% present with locally advanced or metastatic disease
- Females=males in prevalence
- 4-5th decade of life (avg 51 years) and children younger than 5
Anatomy

Glomerulosa - mineralocorticoid (aldosterone)
Fasciculata – glucocorticoid (cortisol)
Reticularis – androgens (DHEA)
Case History

- 39 year old female
- PMHx significant for HTN and endometriosis, migraines
- Incidental 1.6cm adrenal mass found on work-up for HTN in April 2008
Presentation of ACC

- >15% ACC diagnosed incidentally (Fassnatch et al)
- 60% of ACC are secreting (Fassnacht M et al)
- **Abdominal mass, weight loss** or gain, fatigue, osteoporosis, htn, glucose intolerance and diabetes
## Familial Syndromes

**Table 1** Genetic syndromes associated with adrenocortical carcinoma

<table>
<thead>
<tr>
<th>Syndrome</th>
<th>Chromosomal localization</th>
<th>Genes</th>
<th>Signaling pathway</th>
<th>Cause of sporadic adrenocortical carcinoma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beckwith–Wiedemann syndrome</td>
<td>11p15</td>
<td>CDKN1C</td>
<td>IGF</td>
<td>11p15 paternal isodisomy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IGF-2</td>
<td></td>
<td>IGF-2 overexpression</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Familial adenomatous polyposis coli</td>
<td>5q12-22</td>
<td>APC</td>
<td>Wnt</td>
<td>APC mutation (rare)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>β-catenin (CTNNB1) somatic mutation</td>
</tr>
<tr>
<td>Li–Fraumeni syndrome</td>
<td>17p13</td>
<td>TP53</td>
<td>p53</td>
<td>TP53 germline mutations in children</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TP53 somatic mutations in adults</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17p13 loss of heterozygosity</td>
</tr>
</tbody>
</table>

*Nat. Rev. Endocrinol.* doi:10.1038/nrendo.2010.235
## Hormonal work up

<table>
<thead>
<tr>
<th>Glucocorticoid excess (minimum 3 out of 4 tests)</th>
<th>Dexamethasone suppression test (1 mg, 23:00 h)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Excretion of free urinary cortisol (24h urine)</td>
</tr>
<tr>
<td></td>
<td>Basal cortisol (serum)</td>
</tr>
<tr>
<td></td>
<td>Basal ACTH (plasma)</td>
</tr>
<tr>
<td>Sexual steroids and steroid precursors</td>
<td>DHEA-S (serum)</td>
</tr>
<tr>
<td></td>
<td>17-OH-progesterone (serum)</td>
</tr>
<tr>
<td></td>
<td>Androstenedione (serum)</td>
</tr>
<tr>
<td></td>
<td>Testosterone (serum)</td>
</tr>
<tr>
<td></td>
<td>17-beta-estradiol (serum, only in men and postmenopausal women)</td>
</tr>
<tr>
<td>Mineralocorticoid excess</td>
<td>Potassium (serum)</td>
</tr>
<tr>
<td></td>
<td>Aldosterone/renin ratio (only in patients with arterial hypertension and/or hypokalemia)</td>
</tr>
<tr>
<td>Exclusion of a phaeochromocytoma</td>
<td>Catecholamine or metanephrine excretion (24h urine)</td>
</tr>
<tr>
<td></td>
<td>Meta- and normetanephrines (plasma)</td>
</tr>
</tbody>
</table>
Cushing's Syndrome

- 30-40% of ACC secrete cortisol but most ACC are 'co-secretors' and this is suggestive of malignancy (Calvan et al)
- little or no weight gain, profound muscle atrophy, severe hypertension and diabetes mellitus (Fassnacht et al 2011)
Sub Clinical Cushing’s

- Autonomous cortisol secretion in patients **without typical signs or symptoms of cortisol excess**
- Cortisol secretion only slightly increased
- Two or more abnormal tests in hormonal work-up
- Increased risk of obesity, diabetes, hypertension, OP (Mantero et al)
- ? Increased morbidity (Mannelli et al)
Further Work Up

- **Primary Aldosteronism**
  - 12% of hypertensive patients with adrenal mass
  - Very rare

- **Sex Steroid Secreting**
  - DHEA and DHEAS
  - Converted peripherally to testosterone
    - virulization in females
  - If estrogen hypersecretion is present in female with adrenal mass then invariably an ACC
    - Males present with feminization (Calvan et al)
  - Children present primarily with virulization and pure androgen secreting tumors
    - Fassnacht M et al
R/O Pheochromocytoma

- 24hr urine-free metanephrines
- Plasma free metanephrines/deconjugated differential metanephrines
  - More sensitive compared to catecholamines or vanilmandelic acid because of PFM longer t/2 (Grossman et al)
Case

- CT April 2008
- MRI Oct 2008
  - 1.6cm mass
- No hypokalemia
- 24hr urine for metanephrines negative
- Serum cortisol negative
- Aldosterone-renin ratio normal
Imaging

- CT scan
  - Inhomogeneous
  - Low fat content (high density)
  - Necrosis, hemorrhage, calcifications.
  - <10 Hounsfield units unenhanced
    74% sensitive and 96% specific for benign adenoma (Korobkin et al 1997)
    - 30% of adenomas are lipid poor
  - <50% washout and >35HU at 15 minutes suggests ACC (Boland et al)
# Imaging Characteristics

## Table 3. Characteristics of Adrenal Incidentalomas on Imaging (Imaging Phenotype).*^

<table>
<thead>
<tr>
<th>Variable</th>
<th>Adrenocortical Adenoma</th>
<th>Adrenocortical Carcinoma</th>
<th>Pheochromocytoma</th>
<th>Metastasis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Small, usually ≤3 cm in diameter</td>
<td>Large, usually &gt;4 cm in diameter</td>
<td>Large, usually &gt;3 cm in diameter</td>
<td>Variable, frequently &lt;3 cm in diameter</td>
</tr>
<tr>
<td>Shape</td>
<td>Round or oval, with smooth margins</td>
<td>Irregular, with unclear margins</td>
<td>Round or oval, with clear margins</td>
<td>Oval or irregular, with unclear margins</td>
</tr>
<tr>
<td>Texture</td>
<td>Homogeneous</td>
<td>Heterogeneous, with mixed densities</td>
<td>Heterogeneous, with cystic areas</td>
<td>Heterogeneous, with mixed densities</td>
</tr>
<tr>
<td>Laterality</td>
<td>Usually solitary, unilateral</td>
<td>Usually solitary, unilateral</td>
<td>Usually solitary, unilateral</td>
<td>Often bilateral</td>
</tr>
<tr>
<td>Attenuation (density) on unenhanced CT</td>
<td>≤10 Hounsfield units</td>
<td>&gt;10 Hounsfield units (usually &gt;25)</td>
<td>&gt;10 Hounsfield units (usually &gt;25)</td>
<td>&gt;10 Hounsfield units (usually &gt;25)</td>
</tr>
<tr>
<td>Vascularity on contrast-enhanced CT</td>
<td>Not highly vascular</td>
<td>Usually vascular</td>
<td>Usually vascular</td>
<td>Usually vascular</td>
</tr>
<tr>
<td>Rapidity of washout of contrast medium</td>
<td>≥50% at 10 minutes</td>
<td>&lt;50% at 10 minutes</td>
<td>&lt;50% at 10 minutes</td>
<td>&lt;50% at 10 minutes</td>
</tr>
<tr>
<td>Appearance on MRI†</td>
<td>Isointense in relation to liver on T₁-weighted image</td>
<td>Hyperintense in relation to liver on T₁-weighted image</td>
<td>Markedly hyperintense in relation to liver on T₂-weighted image</td>
<td>Hyperintense in relation to liver on T₂-weighted image</td>
</tr>
<tr>
<td>Necrosis, hemorrhage, or calcifications</td>
<td>Rare</td>
<td>Common</td>
<td>Hemorrhage and cystic areas common</td>
<td>Occasional hemorrhage and cystic areas</td>
</tr>
<tr>
<td>Growth rate</td>
<td>Usually stable over time or very slow (&lt;1 cm per year)</td>
<td>Usually rapid (&gt;2 cm per year)</td>
<td>Usually slow (0.5 cm to 1.0 cm per year)</td>
<td>Variable, slow to rapid</td>
</tr>
</tbody>
</table>

*NEJM 2007;356:601-10*
Case

- Continued HTN
  - Repeat CT May 2010
    - 4.3x5.2 cm adrenal mass

- Urgent MRI
  - Heterogenous increased T2 signal
  - No signal drop out
MRI

- iso-intense with liver (T1)
- intermediate/high intensity (T2)
- Gadolinium enhancement improves differentiation

**Chemical-shift imaging (CSI)**
- Adenomas vs non-adenomas with 90% accuracy
- Dependant on lipid content (Korobkin et al 1996)

- Superior for assessing vascular invasion (right sided tumors) and liver tumors
- 31% of lesions indeterminate
Functional Imaging

- FDG-PET – FDG is trapped by malignant lesions
  - Controversial – increased metabolic activity
  - Helps to discriminate between benign and malignant
  - Small lesions have high false-negative and false-positives (pheo)
  - May identify local recurrence sooner
  - Possible role in following patients treated with chemotherapy and detecting mets

- Metomidate
  - Radiotracer picked up by adrenal tissue
  - Potential to differential between pheo and metastasis and ACC (Hahner et al)
Role of FNB (biopsy)

- Does NOT distinguish benign adrenal adenoma from a ACC
- Theoretical risk of seeding
- Role for biopsy when there is a primary tumor and lesion is believed to be a met or when there is widespread mets and tissue is required
- Excisional biopsy preferred
- Complication rate >3% (Young et al)
Malignancy ?

“the only definitive criterion to indicate malignancy is the presence of metastatic disease” (Fishman et al)
To Operate?

- Variables to consider include size, imaging characteristics, and growth rate
  - < 4 cm: > 60% benign adenomas, <2% ACC
  - > 6 cm: < 15% benign adenomas, >25% ACC
- Masses ≥4.0 cm should be removed (Level 3 Evidence; Grade C Recommendation, CUA)
Indications for Surgery

Adrenal Mass

Hypersecretory
- Resect (lap or open)
  - medical

Non hypersecretory
- < 4 cm
  - Follow
    - Hormonal evaluation yearly for 4 years
    - CT at 6-12 months

- >4 cm
  - Resect (open/lap)

No role for surgery in non-functioning stage IV
August 2010
- Right laparoscopic adrenalectomy

Path
- 142g right adrenal mass
- 9.5cm in diameter
- No invasion through renal capsule
- Weiss score 4/9
Weiss Criteria

- Developed in 1984
- 9 histopathologic criteria – 3/9 suggests malignancy
  - Nuclear grade III/IV
  - **Mitotic rate >5/50hpf**
  - Atypical mitosis
  - Tumors with 25% or less clear cells
  - Diffuse architecture
  - Microscopic necrosis
  - Venous invasion
  - **Sinusoidal invasion**
  - Capsular invasion

  Related to invasion
Weiss Criteria in prognosis

- > 20 mitosis/hpf
  - 14 month median survival versus 58 months (Weiss et al 1989)
- Atypical mitosis
- Capsular invasion
- Tumor weight >250g (50gm)
- Size greater than 10cm (6.5cm)
Tumor (T)
- T1: Tumor 5 cm or less in size; invasion absent
- **T2: Tumor greater than 5 cm in size; invasion absent**
- T3: Tumor outside adrenal into fat
- T4: Tumor invading adjacent organs

Lymph nodes (N)
- N0: No positive lymph nodes
- N1: Positive lymph nodes

Metastases (M)
- M0: No distant metastases
- M1: Distant metastases
Stage        5 year survival

- Stage I
  - T1, N0, M0
  - T2, N0, M0

- Stage II
  - T2, N0, M0

- Stage III
  - T1, N1, M0
  - T2, N1, M0
  - T3, N0, M0

- Stage IV
  - T1-4
  - N0-1
  - M1

66%  58%  24%  0%
Biochemical Markers

- **Ki67** – marker of cellular proliferation
  - Associated with decreased disease free survival and overall survival (Terzolo M et al 2001)

- **SF1** – steroid-secreting tumors
  - Prognostic information independent of stage
Open versus Laparoscopic

- Retrospective lap and matched open along with multivariate analysis (1996-2009)
- 12 cases converted to open
- Localized ACC <10cm (stage I/II)
- Follow up 39.3 months

<table>
<thead>
<tr>
<th></th>
<th>LAP (35)</th>
<th>OPEN (152)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease-specific survival</td>
<td>37%</td>
<td>41%</td>
</tr>
<tr>
<td>Recurrence</td>
<td>77%</td>
<td>69%</td>
</tr>
<tr>
<td>Tumor capsule violation</td>
<td>No difference</td>
<td>No difference</td>
</tr>
<tr>
<td>Post-op peritoneal carcinomatosis</td>
<td>No difference</td>
<td>No difference</td>
</tr>
</tbody>
</table>

Laparoscopic Versus Open Adrenalectomy for Adrenocortical Carcinoma: Surgical and Oncologic Outcome in 152 Patients. Brix et al. June 22, 2010. EAOU
Survival analyses using multivariate Cox regression analysis: (A) disease-specific survival; (B) recurrence-free survival. Laparoscopic adrenalectomy (35 patients) and open adrenalectomy (117 patients). Adjusted for age, tumour stage, tumour size, adjuvant therapy, and presence of glucocorticoid excess. Brix et al
Support

- Porpiglia et al.
  - 18 lap and 25 OA
  - Equal results with stage I/II for recurrence-free survival
  - Did not include lap converted to open
The other side

- Retrospective study of 88 patients 2003-2008
- Tumor side 4-14cm avg 7.0cm in lap
- Follow-up 36.5 months

<table>
<thead>
<tr>
<th></th>
<th>LAP (17)</th>
<th>OPEN (71)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recurrence</td>
<td>63%</td>
<td>65%</td>
</tr>
<tr>
<td>Development distant mets</td>
<td>No difference</td>
<td>No difference</td>
</tr>
<tr>
<td>Mean time to recurrence</td>
<td>9.6 months</td>
<td>19.5 months (p&lt;0.005)</td>
</tr>
<tr>
<td>Positive margins/tumor spill</td>
<td>50%</td>
<td>18% (p=0.01)</td>
</tr>
</tbody>
</table>

Laparoscopic Resection is Inappropriate in Patients with Known or Suspected Adrenocorical Carcinoma. Miller et al. World J Surg (April 2010).
Lap

- Adrenal volume dependant
- Laparoscopic expertise
  - Requires 30-40 cases
- Danger of spillage – intraoperative rate as high as 50%
  - Peritoneal disease
- Positive margins
Good Prognosis – Cause specific mortality

- Low tumor grade
- Lower stage of ACC
- **Surgical resection – R0**
  - (NIH guidelines)
Post Operative Considerations

- Adrenal Insufficiency Post-Op
  - Involution of ipsilateral adrenal in hypersecretory tumor
- Malignant hormone production
  - Steriodogenesis inhibitors
    - Mitotane, ketoconazole, metyrapone and etomidate
Case - Surgery

- Repeat CT Nov 2010
  - Fluid collection vs hematoma in adrenal fossa
  - 2 soft tissue nodules
- CXR normal and CT chest normal
- PET – Dec 2010
  - 2 nodules demonstrated up-take
  - no distant metastatic disease
Follow Up Recommendations

Nature review suggests every 3 months for first two years
- CT and/or MRI abdomen
- CT chest
- Follow steroids in functional tumors
- At least 10 years of follow up
  (Fassnacht et al 2011)
Treatment of Recurrence

- >50% of patients recur after radial Sx
- Role for reoperation
  - 6-12 months since last surgery
- Complete resection=improved survival
- Rapid recurrence or widespread mets should not undergo surgery
- Role of adjuvant chemo controversial
  - NIH Guidelines
Case - Recurrence

- RPLND Jan 2011
  - Vena cava repair and segmental liver resection
  - 4/10 lymph nodes positive
Role for Mitotane
1,1 dichloro-2(o-cholophenyl)-2-(p-chloro-phenyl)etane

- 13-33% of ACC respond
- Oral
- Adrenolytic – specific
- New study of adjuvant mitotane demonstrates longer recurrence-free survival
  - In cortisol secreting tumors
- Rarely complete response
- Indefinite recommended
- Difficult to titrate
- Side effects
  - GI and neuro
- Require steroid supplementation
- Narrow therapeutic index
- Long period to maintain therapeutic dose
- Role of adjuvant controversial

Adjuvant – high likelihood of recurrence (size and Weiss score)
Palliative – tumor cannot be removed/completely removed surgically
## Mitotane Efficacy

Table 1. Mitotane studies in advanced/metastatic adrenocortical carcinoma.

<table>
<thead>
<tr>
<th>Study</th>
<th>Dosage (g/day)</th>
<th>Patients (n)</th>
<th>Response</th>
<th>Duration (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venkatesh, 1989; retrospective [26]</td>
<td>NR</td>
<td>72</td>
<td>21 PRs (29%)</td>
<td>NA</td>
</tr>
<tr>
<td>Luton, 1990; retrospective [27]</td>
<td>3 – 20</td>
<td>37</td>
<td>5 PRs (13%)</td>
<td>5 – 25</td>
</tr>
<tr>
<td>Decker, 1991; prospective [28]</td>
<td>6</td>
<td>36</td>
<td>2 CRs, 6 PRs (22%)</td>
<td>3 – 82</td>
</tr>
<tr>
<td>Pommier, 1992; retrospective [17]</td>
<td>NA</td>
<td>29</td>
<td>7 PRs (24%)</td>
<td>NA</td>
</tr>
<tr>
<td>Haak, 1994; retrospective [29]</td>
<td>4 – 8</td>
<td>55</td>
<td>8 CRs, 7 PRs (27%)</td>
<td>2 – 190</td>
</tr>
<tr>
<td>Barzon, 1997; retrospective [30]</td>
<td>4 – 8</td>
<td>11</td>
<td>2 PRs (18%)</td>
<td>40 – 64</td>
</tr>
<tr>
<td>Williamson, 1999; II line [31]</td>
<td>4 – 10</td>
<td>16</td>
<td>2 PRs (13%)</td>
<td>NA</td>
</tr>
<tr>
<td>Baudin, 2001; prospective [32]</td>
<td>6 – 12</td>
<td>13</td>
<td>1 CR, 3 PRs (33%)</td>
<td>10 – 48</td>
</tr>
</tbody>
</table>

CR: Complete response; NA: Not available; NR: Not reported; PR: Partial response.
Chemotherapy

- Streptozocin +/- Mitotane
  - Neoadjuvant, adjuvant and metastatic
- EDP +/- Mitotane
  - Etoposide, doxorubicin and cisplatin
    - response rate of 30% in locally advanced or metastatic disease with mitotane vs 18% without
- FIRM-ACT trial currently
- Targeted therapies
  - Erlotinib
  - Gefitinib
  - Bevacizumab
Role for Radiation and IR

- **Radiation**
  - Adjuvant or palliative
  - Bone, brain and symptomatic local recurrence
  - Adjunct to surgery for incomplete resections or those with high risk of recurrence?

- **RFA/Cryoablation**
  - Adjunct to surgery
  - Eradication of recurrence
  - Aim to sterilize tumor

- **Embolization**
  - Bland/chemotherapy-loaded beads
  - Use to reduce tumor size/ease subsequent surgery
Current Research

- Trial of ZD1839 (Iressa) in Patients With Nonresectable Adrenocortical Carcinoma (ACC)
  - Phase II
- Mitotane With or Without IMC-A12 in Treating Patients With Recurrent, Metastatic, or Primary Adrenocortical Cancer That Cannot Be Removed By Surgery
  - Monoclonal Antibody
  - Phase II
- Gossypol Acetic Acid in Treating Patients With Recurrent, Metastatic, or Primary Adrenocortical Cancer That Cannot Be Removed By Surgery
  - Phase II
- Trial in Locally Advanced and Metastatic Adrenocortical Carcinoma Treatment (FIRM-ACT)
  - etoposide, doxorubicin, cisplatin and mitotane (EDP/M) prolongs survival as compared to streptozotocin and mitotane (Sz/M) in patients with advanced adrenocortical carcinoma (ACC) whose disease is not amenable to complete surgical resection.
- Sunitinib in Refractory Adrenocortical Carcinoma (SIRAC)
  - Sunitinib treatment in patients advanced ACC progressing after cytotoxic chemotherapy.
No change in rates of death or diagnosis of stage III/IV ACC
- Perhaps lag time

Multidisciplinary care

Need to find accurate predictor of recurrence and optimal chemotherapy

Future is targeted therapy (ie IGF inhibitors) and molecular analysis
ACC in Children

- Most commonly presents with virulization
- Almost all functional (>90%)
- 10x lower incidence than in adults
- Localized resected disease have long-term survival rate of 90%
- High prevalence in Brazil linked to low penetrance p53 germline mutation (Pinto et al)
Familial Syndromes

- Li-Fraumeni Syndrome
  - autosomal dominant
  - soft tissue sarcomas, osteosarcomas, breast cancer, brain tumors, and leukemia
  - ACC develops in approximately 3-4% (<20 yrs)

- Beckwith-Wiedemann Syndrome
  - macrosomia, exomphalos, macroglossia, abdominal wall defects, ear anomalies, renal abnormalities, cleft palate, nephroblastoma, hepatoblastoma, rhabdomyosarcoma and nesideoblastosis
  - ACC arises in 5% of patients

- Gardner Syndrome
  - autosomal dominant
  - gastrointestinal polyps, osteomas and soft tissue tumors, epidermal cysts, gastric and duodenal polyps, desmoid tumors, periampullary cancer, and about 2% of women with this syndrome develop a criфibом type of papillary thyroid cancer
  - Incidence of ACC described but unknown

- Multiple Endocrine Neoplasia, type 1
  - pituitary tumors, parathyroid tumors and pancreatic neuroendocrine tumors, as well as adrenal tumors, multiple lipomas and angiomas
  - Adrenocortical tumors develop in 55% of people affected with this syndrome; the majority being adenomas and less commonly ACC
Differential of adrenal mass

<table>
<thead>
<tr>
<th>Common incidental adrenal masses (Mannelli et al)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-hypersecreting adenomas (benign, clinically silent)</td>
</tr>
<tr>
<td>Cortisol-secreting adenomas (benign, subclinical Cushing's syndrome)</td>
</tr>
<tr>
<td>Aldosterone-secreting adenomas (benign, hypertension)</td>
</tr>
<tr>
<td><strong>Carcinoma (malignant, nonsecreting or steroid-secreting; sometimes flank pain, weight loss)</strong></td>
</tr>
<tr>
<td>Pheochromocytoma (mostly catecholamine-secreting, mostly benign, mostly with hypertension)</td>
</tr>
<tr>
<td>Metastasis (sometimes bilateral, possible cause of adrenal insufficiency)</td>
</tr>
<tr>
<td>Myelolipoma (benign, generally clinically silent)</td>
</tr>
<tr>
<td>Cysts (benign, clinically silent)</td>
</tr>
<tr>
<td>Hematomas (benign, possible transient flank pain)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Uncommon incidental adrenal masses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lipoma, ganglioneuroma, ganglioneuroblastoma, neurofibroma, schwannoma, lymphoma, tuberculosis, histoplasmosis</td>
</tr>
<tr>
<td>Pseudoadrenal masses</td>
</tr>
<tr>
<td>Gastric diverticulum, renal cyst, renal tumor, splenic lobulation, splenic aneurisma, pancreatic mass</td>
</tr>
</tbody>
</table>