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| **ADRENAL LESION** | **FREQUENCY %** | **MORPHOLOGICAL FEATURES** | **GROWTH RATE** | **CT FEATURES** | **MRI FEATURES** | **NUCLEAR MEDICINE** | **COMMENT** |
| Adrenocortical adenoma | Most common 50 -80% | Small 1-3cm  Round/oval  Homogenous, well defined, smooth margins  Ca+, haemorrhage, necrosis – rare in small lesions | Very slow/stable | Unenhanced CT <10 HU  APW >60%  RPW>40% | Signal drop off on CSI-OP  ASII >16.5%  ASR <71 | PET- Negative | 30% of adenomas are lipid poor |
| Metastases | 27 – 50% in a patient with a known malignancy | Variable size  Hetrogenous, irregular margins  Ca+, haemorrhage, necrosis – variable | Variable, usually rapid | Unenhanced CT >10HU  APW <60%  RPW<40% | ↑T2 signal  Lack of signal drop of on CSI-OP  ASII <16.5%  ASR >71 | PET-Positive | Non-FDG avid primary tumors have PET negative metastases.  Fatty metastases: <10HU |
| Adrenocortical carcinoma | Rare <5% | >4cm  Heterogenous, irregular margins  Ca+, haemorrhage, necrosis – common  Avid enhancement | Variable, usually slow | Unenhanced CT >10HU  APW <60%  RPW <40% | Variable  High/ intermediate T2 signal intensity | PET-Positive.  Detects distant metastases | Evaluate tumour extension into IVC, renal veins. Assess for distant metastases |
| Phaeochromocytoma  (90% Benign) | 5% | Variable size, shape, homogeneity | Slow | Unenhanced CT >10 HU  APW<60%  RPW<40% | Variable  High/intermediate T2 signal intensity | MIBG- positive  PET-positive | Evaluate clinical and biochemical parameters (+ve urinary VMA , metanephrines) |
| Myelolipoma | 5-10% | Variable size, often large  Macroscopic fat & soft tissue elements  Round,well-encapsulated,smooth contours | Slow/stabe | HU < 0 usually less than -50HU | ↑T1  Suppression on fat saturation sequence  India-ink artifact  Variable drop-off on CSI | PET - Negative | Small amounts of macroscopic fat maybe present in adrenal carcinoma, metastases, phaeochromocytomas |
| Lymphoma | Primary lymphoma – rare; Metastatic lymphoma-common | Variable size & shape  Discrete homogenous mass or diffuse infiltration that maintains the adreniform shape.  Haemorrhage necrosis, enhancement variable .  Ca+ - post treatment | Variable | Unenhanced CT >10 HU  APW<60%  RPW<40% | Variable- intermediate signal. No signal drop off on CSI | PET- Positive |  |
| Haemorrhage | 1% | Variable size  Oval/round  Smooth contours  Chronic haematomas(>1yr) can calcify | Rapid | ↑ CT attenuation.  >10 HU (50-90HU) | Variable- depending on age of heamatoma  Acute- ↑ T1  Subacute-haemosiderin rim  Chronic – T1↓T2↓  GRE-“blooming” | PET- Negative | Exclude haemorrhagic tumour/ haemorrhage into a pre-existing adrenal lesion |
| Adrenal cyst | 1% | Variable size  Round, smooth margins | Stable | Depends on complexity  Simple cyst: fluid attenuation, thin walls, no enhancement | ↑T2 ↓T1 | PET- Positive | Differentiate complex cysts from cystic neoplasms |
| Infection | Common in developing countries | Variable,  soft tissue mass/cystic mass,  diffuse enlargement of the adrenal gland.  Ca+ common. | Variable. Usually slow/intermediate | CT attenuation > 10HU  Heterogenous enhancement | Intermediate signal intensity | Variable;  Active infection can be PET positive | Granulomatous infections are common. e.g. Tuberculosis, Histoplasmosis |
| KEY: APW- absolute percentage washout ; ASII- adrenal signal intensity index; ASR- adrenal-to-spleen chemical shift ratio; Ca+ - calcifications; CSI-OP - chemical shift imaging, opposed phase; GRE- gradient echo sequence; IVC- inferior venae cava; MIBG- m-iodobenzylguanidine; RPW- relative percentage washout ; VMA- vanillylmandelic acid | | | | | | | |