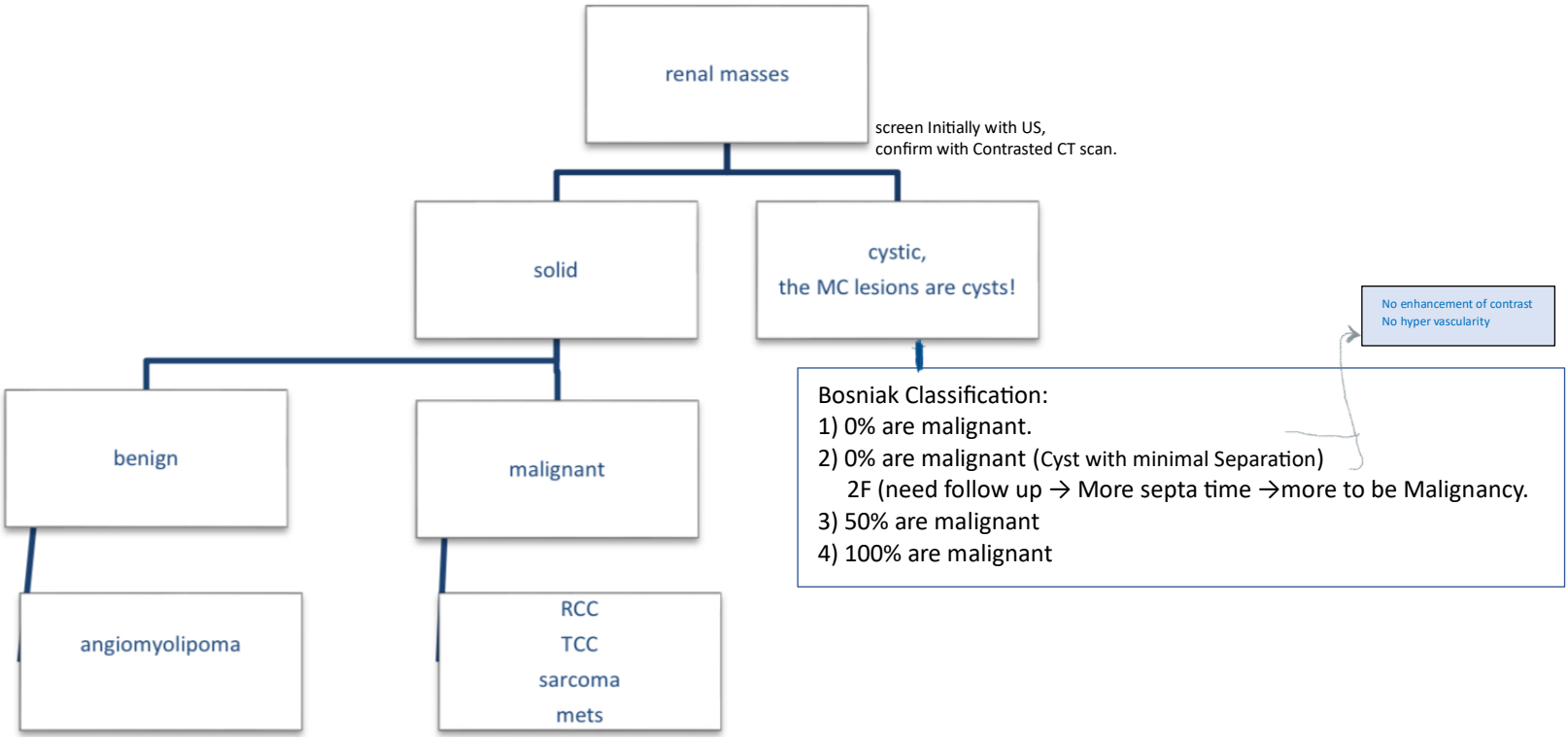

Any solid kidney mass is considered to be malignant until proven otherwise except Angiomyolipom, which is easily distinguishable on ultrasound and CT>

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1. Primary Kidney Tumors:

i. Benign

1) Adenoma: very small <3cm, Asymptomatic, well differentiated **glandular** tumor of the renal cortex …from **PCT**

2) Angiomyolipoma: hamartomas , in child bearing female, associated with **Tuberous Sclerosis** (small & bilateral)

Medical Rela
Hamartoma
Epilepsy

- Found incidentally on U/S or CT, but in 10% may Present with Massive retroperitoneal bleeding leading to patient collapse.
- Only beign mass can be distinguished On CT scan (**Fat Containing Tissue**).
- It's Very vascular so **embolization** of feeding Artery Can be the treatment.
- If tumor < 4 cm & Asymptomatic.→Observe, yearly CT or US. …….. But If > 4 cm with symptoms →excise
- pt with TS / Bilateral &multiple → conservative

3) Oncocytoma: Originates from **collecting ducts**, (uncommon), M>F, Incidental.

- Gross hematuria and flank pain, No features on CT, US or MRI
- On Angiography —> "**spoke wheel**" appearance of tumor arterioles, "**lucent rim sign**" of the capsule —> same as RCC
- Treatment: **Partial Nephrectomy** (Indications): Bilateral tumor (VHD), Single kidney, Renal Impairment (DM), Lesion <4 cm

ii. Malignant

1) Transitional Cell Carcinoma (TCC)

- RFs same as RCC but doesn't have a genetic ones , Mc is solid & unilateral, Linked to **smoking**
- It spreads by direct extension into renal vein & IVC , lymphatic into para-aortic, paracaval , pelvic nodes, and hematogenously to liver, lung and bone.
- Presentation: **Painless hematuria** , **Flank pain** caused by clots passing down the ureter (**clot colic**)
- Investigations: Urine cytology, IVP or CTU, Abdominal CT, CXR, bone scan for staging
- Treatment: **Nephroureterectomy** with bladder cuff +\- Chx or Rx
-

2) RCC / Adenocarcinoma: 90%

- M.C renal Tumor, M>F , age 60-80.
- known as hypernephroma
- Originate from **PCT epithelium** in the cortex.
- Grossly: they are **yellow-orange/ lipids**, RCCs have a **pseudocapsule** of compressed renal parenchyma, fibrous tissue & inflammatory cells.
- Histologically , Can be Clear Cell RCC, Papillary RCC"chromophilic", Chromophobe RCC, Collecting Duct RCC, unclassified

- Grading —> Fuhrman Nuclear Grade

→grade1: well differentiate
→grade 2: moderate.
→grade 3: Poor differentiation.

④
JUXTAGLOMERULAR CELL TUMOR
benign tumors, young adults, females in 20s- 30s and are rarely malignant.
from afferent arterioles in the juxtaglomerular apparatus —> renin secretory granules.
¡ encapsulated and in the cortical area.
—> HTN, hypokalemia, hyperaldosteronism, and high renin.
Dx: selected renal vein sampling for renin… Tx: partial nephrectomy

- Staging /T staging

Stage 1 (confined to kidney <7 cm)
Stage 2 (confined to kidney >7 cm). → Radical Nephroectomy
Stage 3 extension to: T3a: perirenal fat
T3b: renal vein or to IVC/ infra diaphragmatic
T3c: Above diaphragm/ IVC → Radical + Immune T
Stage 4 (Invading Ipsilateral adrenal gland, gerata's fascia & other organs)

→ RFs : HTN, obesity, smoking, Family Hx, Asbestos, renal dialysis, horseshoes & PCK, VHL genes (ch 3,7,17), Phenacetin Drug (Analgesia).

→ Presentation: Asymptomatic (70%), , **Classical Triad**: Painless hematuria, Mass, Flank Pain, **Paraneoplastic Syndrome** —> including erythrocytosis, hypercalcemia, hypertension, nonmetastatic hepatic dysfunction "Stauffer's Syndrome"

→ Tumor Spread

- Direct extension: adrenal gland, renal vein & IVC & Sometimes to R Atrium.
- LN; hilar & Para-aortic LN.
- Hematogenously; Lung, liver, bone, brain.

→ Investigations: U/S, **Contrasted CT (gold standard)**, Urine cytology, work up for metz
Needle Biopsy is contraindicated (fear of seeding & hemorrhage).

→ Tumor Spread

- Direct extension: adrenal gland, renal vein & IVC & Sometimes to R Atrium.
- LN; hilar & Para-aortic LN.
- Hematogenously; Lung, liver, bone, brain.

→ Treatment

- Stage 1, 2, and 3a —> radical nephrectomy (remove kidney and renal pelvis)
- Stage 3b and 4 —> radical nephrectomy + immunotherapy (IL-1, IFN-α)
- If mets —> immunotherapy (+ nephrectomy to relieve symptoms such as hematuria

///**Partial nephrectomy** ? Only the mass and some surrounding renal tissue.. for young , single K, CKD, proteinuria, < 4 cm
// **Radical nephrectomy** ? Remove kidney + adrenal gland + perinephric fat +\- LN dissection … for high oncological risk
// **Medical** ? **targeted** (Anti-VEGF antibodies (Bevacizumab)) or **immunotherapy** (Anti-PD-1, Anti-CTLA-4 , Cytokines)

• Parenchymal Mass	• Pelvi-calyceal System
~~Metanephric Blastema (embryology)~~	~~Cloacal Membrane~~
* Adenocarcinoma / RCC (M.C. Tumor)	* Transitional Cell Carcinoma
* Radical Nephrectomy (M.C. Surgery)	* Nephroureterectomy & bladder cuff