In the name of
who life is from
who (God)

Benign renal tumors

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Why benign renal tumour is important?

Remzi et al. (83) reported that only 17% of all benign renal masses were correctly diagnosed at preoperative CT, yet 43% of these patients underwent overtreatment, such as radical nephrectomy.

Benign renal tumors are classified into renal cell tumors, metanephric tumors, mesenchymal tumors, and mixed epithelial and mesenchymal tumors.

. Select benign tumors show characteristic anatomic distribution and imaging features. However, because of overlapping of findings between benign and malignant renal tumors, histologic evaluation may be required to establish a definitive diagnosis

Although renal cell carcinoma (RCC) is by far the most lethal urologic malignancy, benign tumors constitute a significant proportion of masses in patients who undergo surgery

In a recent study of 143 patients with presumed solitary RCC, the authors found 16.1% of patients who underwent partial nephrectomy had benign masses

Oncocytoma is a benign renal cell neoplasm that accounts for approximately 5% of all adult primary renal epithelial neoplasms in surgical series .

Oncocytoma is hypothesized to originate from or differentiate toward type A intercalated cells of the cortical collecting duct

The peak age of incidence is in the seventh decade; men are more likely to be affected than women. Most tumors occur sporadically in asymptomatic patients

Oncocytomas typically appear as solitary, well-demarcated, unencapsulated, fairly homogeneous renal cortical tumors. Bilateral, multicentric oncocytomas are seen in hereditary syndromes of renal oncocytosis and BirtHogg-Dubé syndrome (in association with the chromophobe subtype and other RCC

Laparoscopic partial nephrectomies and percutaneous ablations are being increasingly performed to treat small renal tumors and to establish a definitive diagnosis

Oncocytomas do not show diffuse cytoplasmic Hale colloidal iron staining, in contradistinction to chromophobe RCCs.

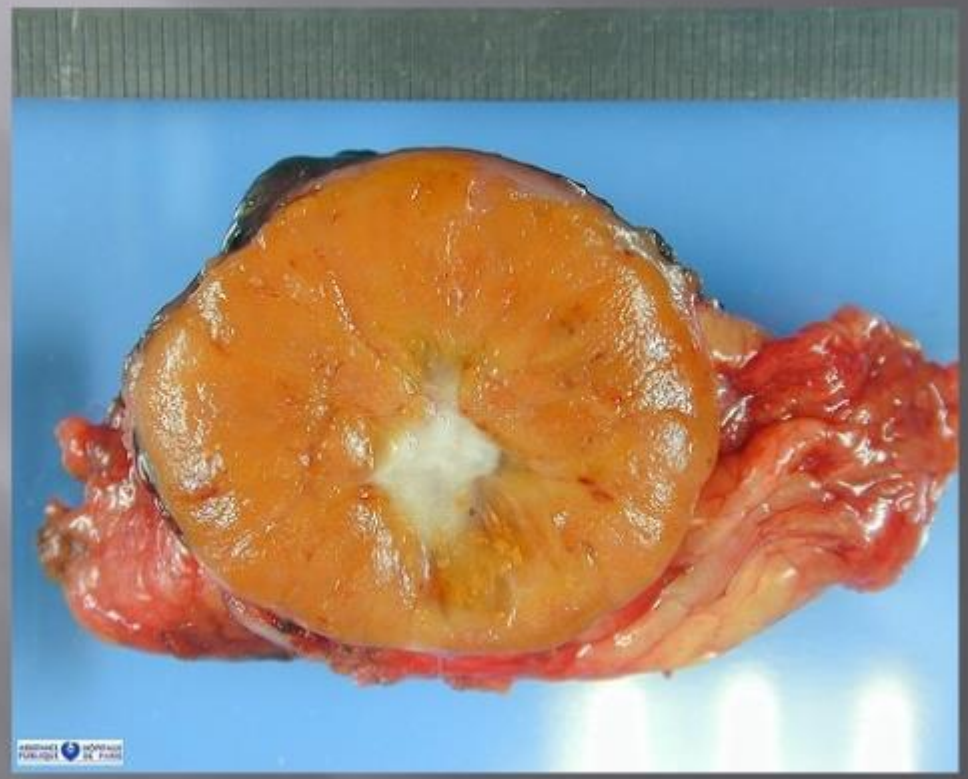
A characteristic central stellate fibrotic scar (more often seen with large tumors) is seen in up to 33% of tumors Hemorrhage may be found in up to 20% of cases. A spoke-wheel pattern of feeding arteries associated with a homogeneous nephrogram

A spoke-wheel pattern of feeding arteries associated with a homogeneous nephrogram is a characteristic finding on catheter angiography

However, oncocytomas are indistinguishable from renal cell carcinomas on the basis of imaging findings alone. In addition, oncocytomas may be associated with RCCs either as hybrid tumors (pathologic features of both oncocytomas and chromophobe or other RCC subtypes) or as collision tumors

Thus, despite advances in histopathologic techniques (including immunocytochemistry and cytogenetics), a partial nephrectomy may be required for accurate characterization

ONCOCYTOMA GROSS



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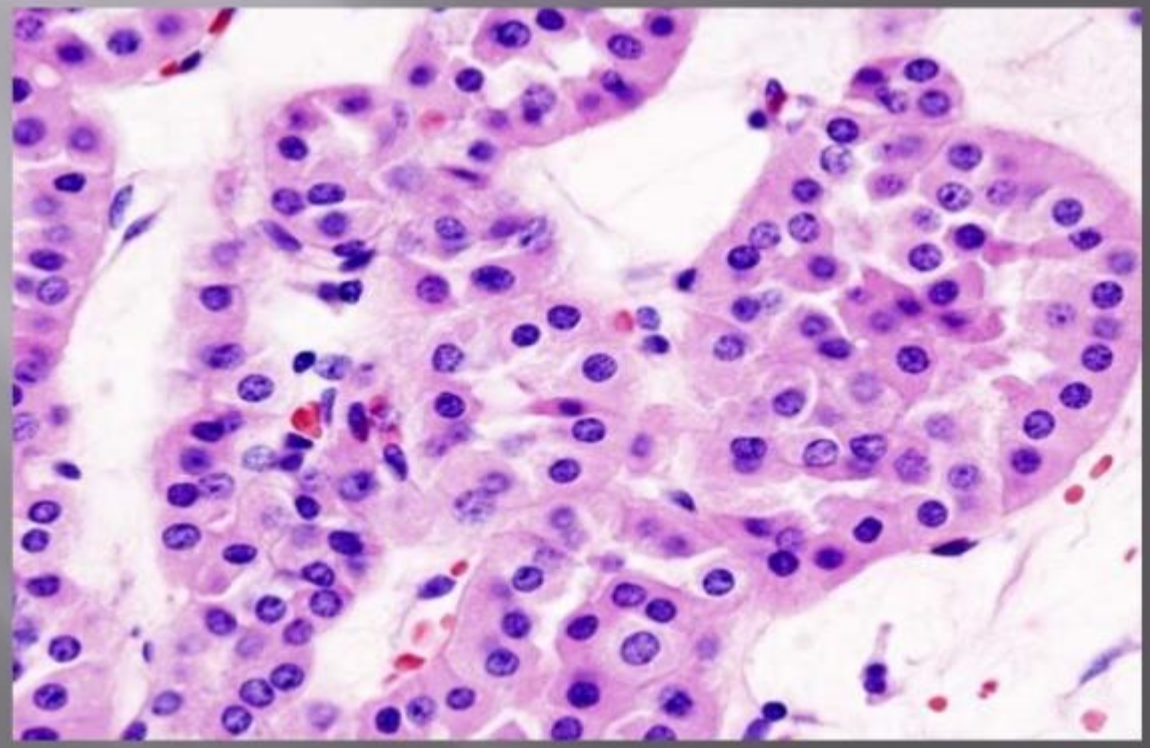

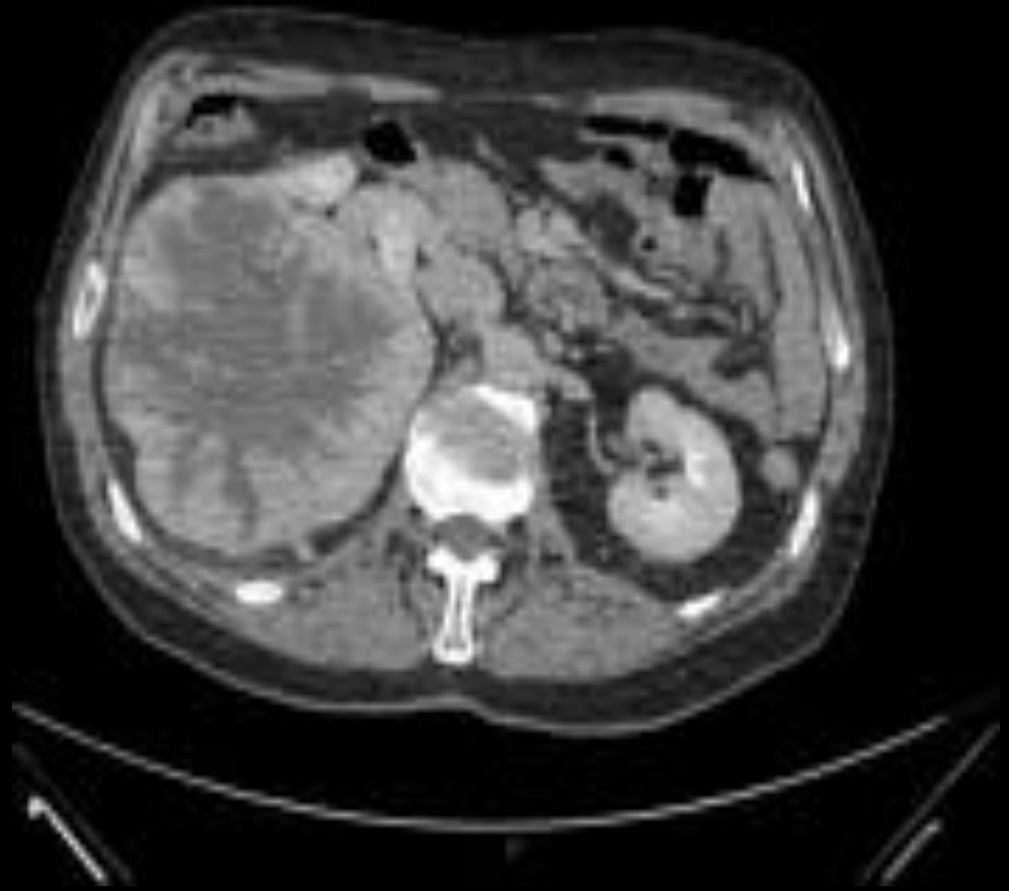

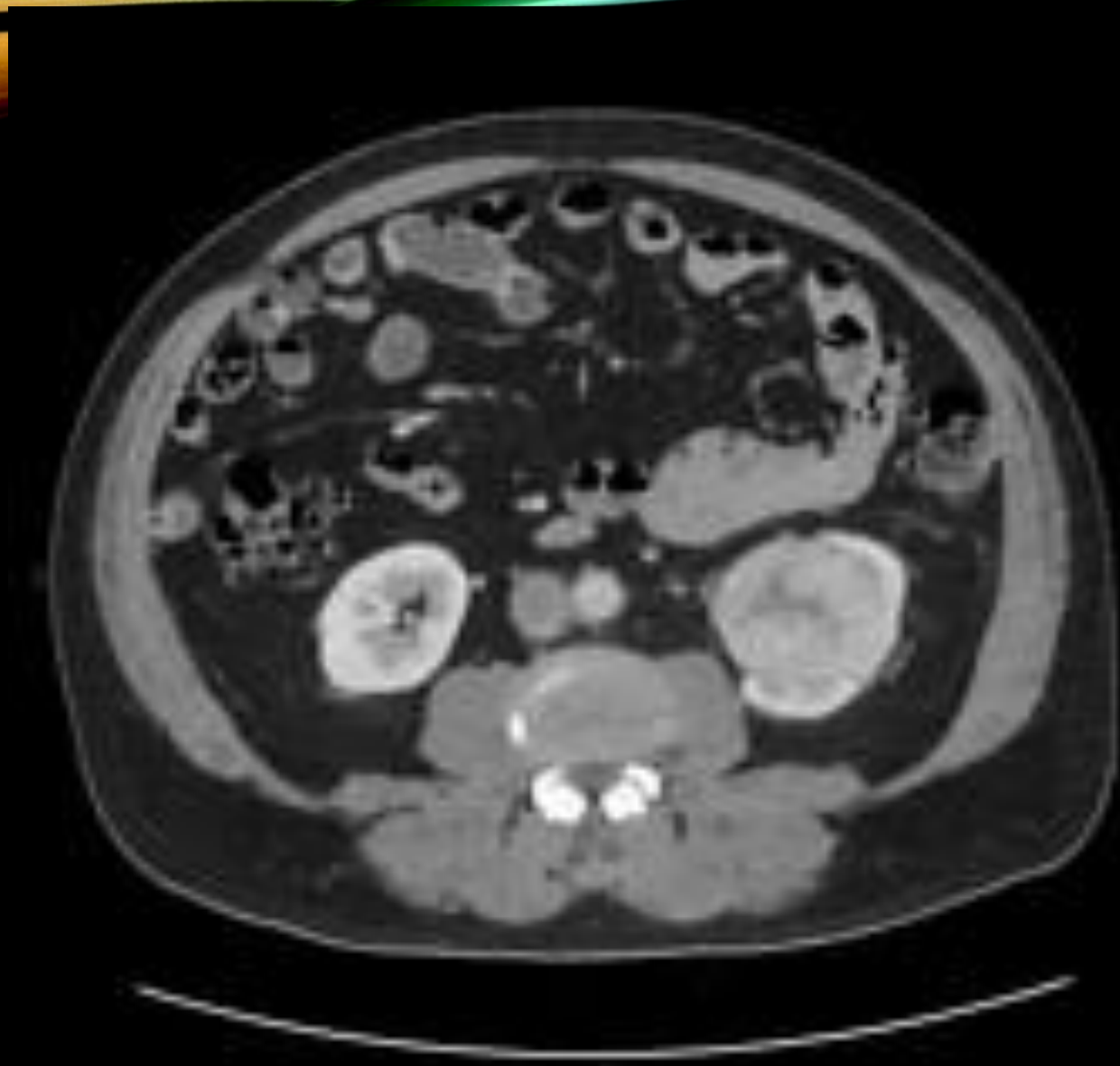

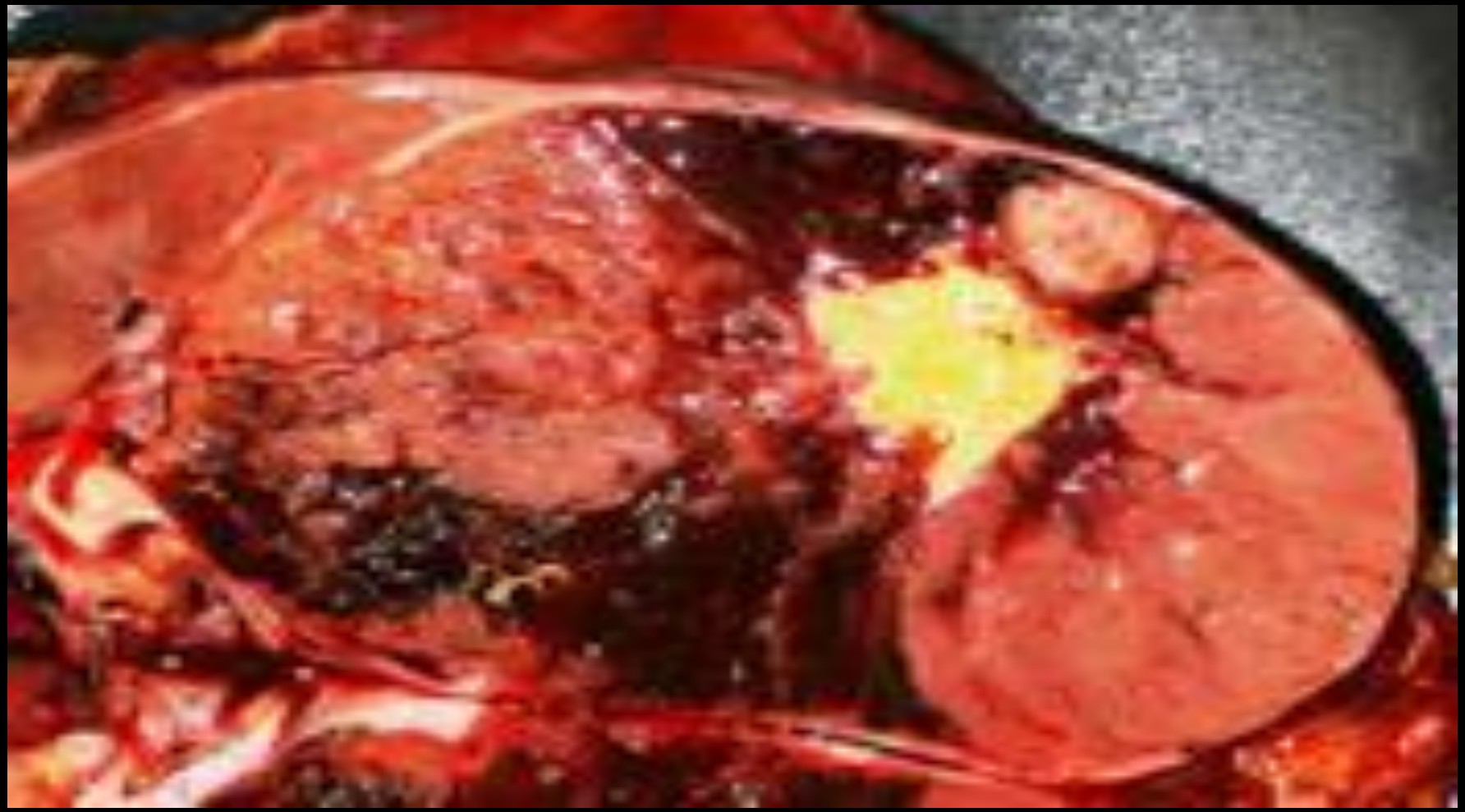

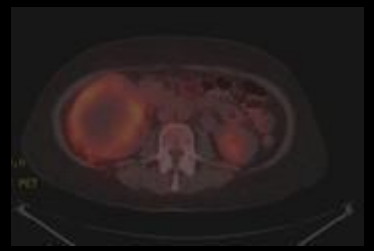

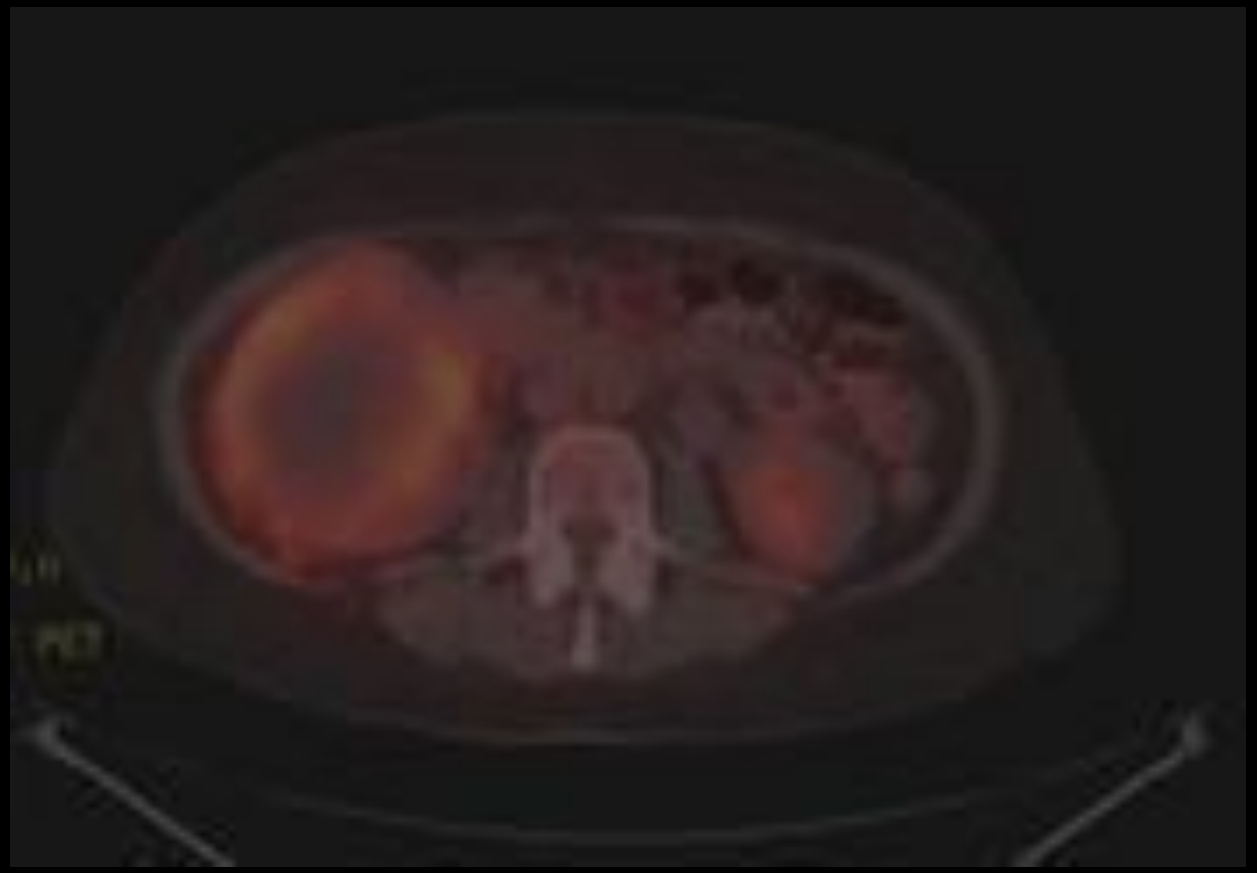

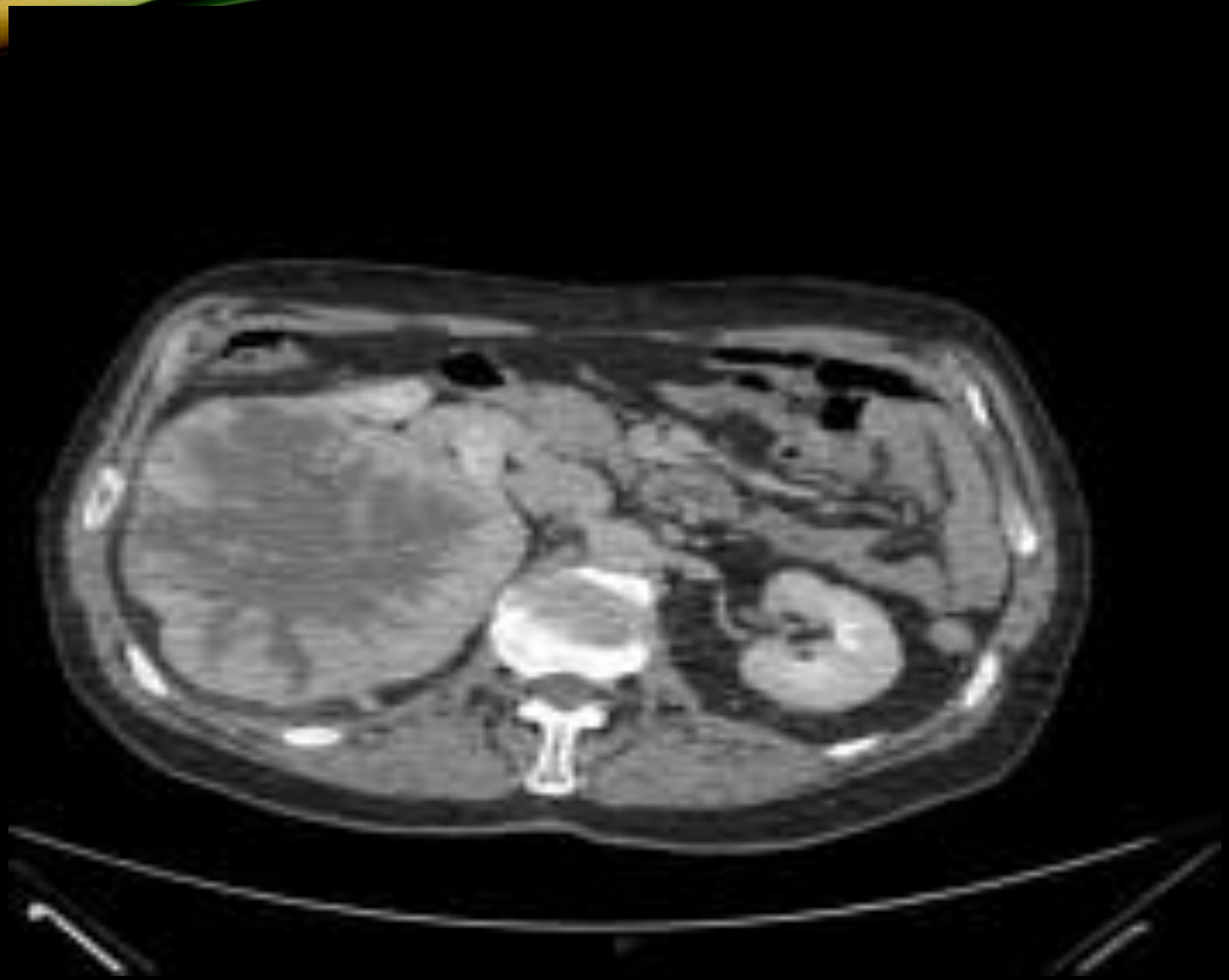

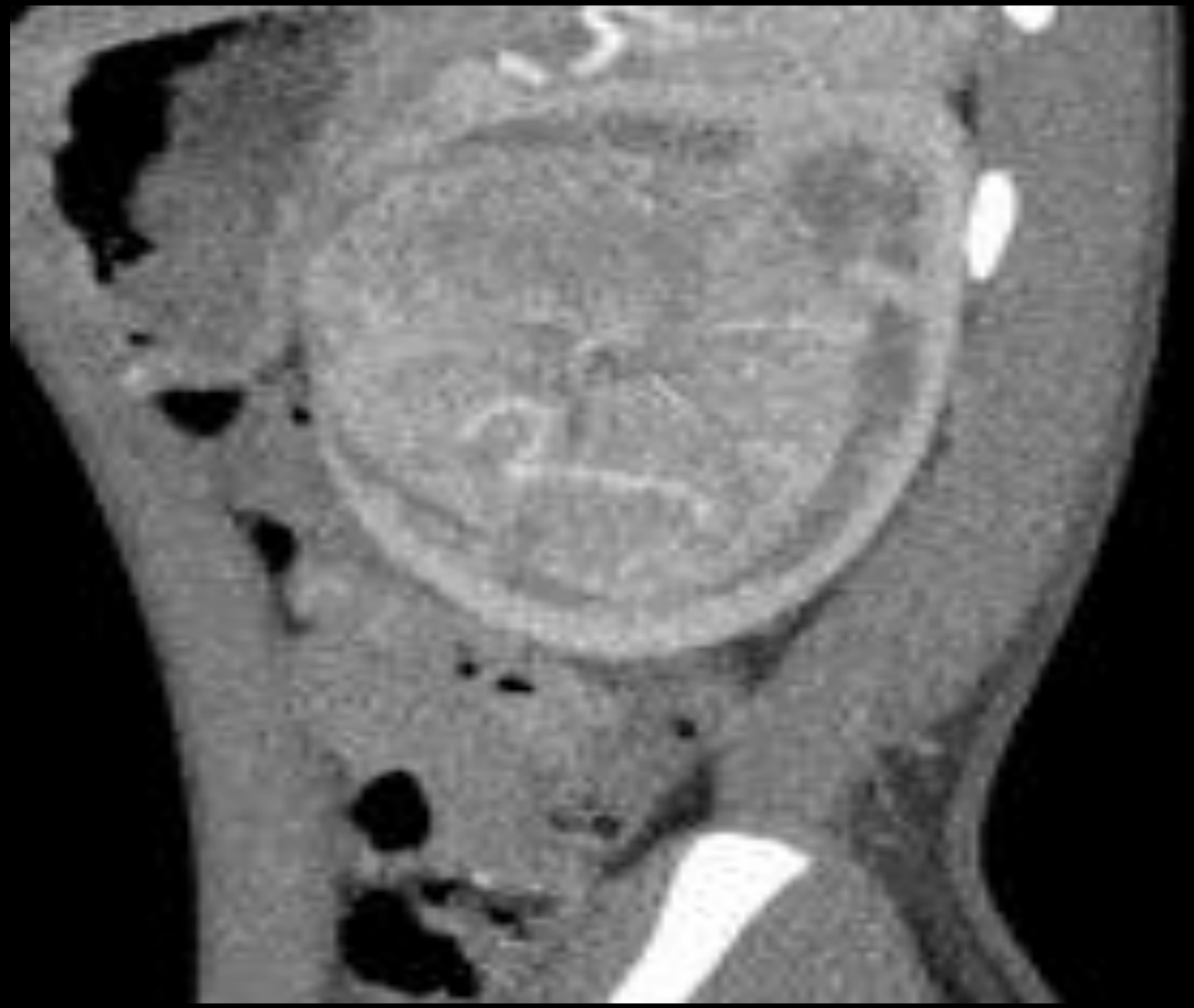

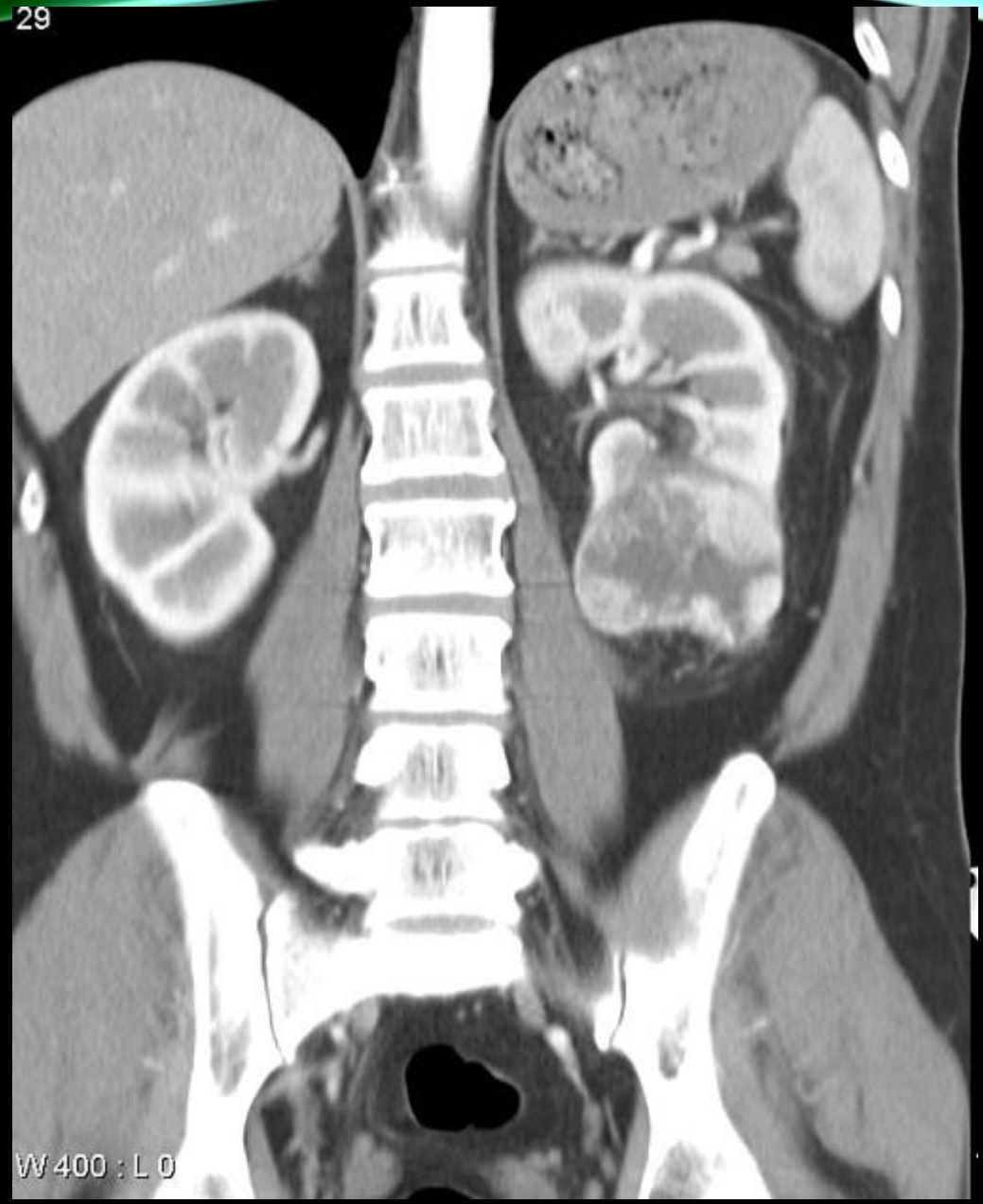
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Renal oncocytosis, also known as **renal oncocytomatosis**, is the presence of many concurrent renal oncocytomas with or without renal cell carcinomas. Typically a

Papillary Adenomas are the most common renal epithelial neoplasms. According to autopsy series, approximately 40% of patients older than 70 years harbor renal adenomas [1]. Papillary adenomas are also commonly found in patients with acquired renal cystic disease and in patients undergoing long-term hemodialysis [16]. A papillary adenoma-to-carcinoma sequence has been described that is akin to similar transformation in colonic adenomas

Angiomyolipoma (AML) is the most common benign mesenchymal neoplasm; it is composed of variable proportions of blood vessels, smooth muscle, and adipose tissue

AMLs are now included under the umbrella term "neoplasms of the perivascular epithelioid cells," which are also referred to as PEComas

Renal AMLs consist of two distinct histologic subtypes, classic triphasic and monotypic epithelioid. Epithelioid AMLs typically do not show macroscopic fat and appear as soft-tissue masses and are thus indistinguishable from other solid renal masses. This

Classic AML may occur either sporadically or in association with tuberous sclerosis complex (TSC). Sporadic renal AMLs show a 4:1 female preponderance and are more likely to be solitary and symptomatic [29]. Patients with TSC harbor small, multicentric, asymptomatic AMLs; 80% of patients with severe TSC have renal AMLs [30].

The morphology of AMLs depends on the relative proportions of various components. Profuse elastin-poor, dysmorphic blood vessels predispose to aneurysm formation and hemorrhage . Large tumor size (> 4 cm) and diameter of the intralesional

The term small renal mass (SRM) has been used to refer to these tumors, usually defined as an enhancing tumor less than 4 cm in diameter

At smaller SRM sizes, the proportion of benign SRM is higher. For instance, in a report by Frank et al. (6), it was found that 30% of

As there are a lack of symptoms and clinical characteristics to indicate RCC in SRMs, differential diagnosis is highly dependent on imaging characteristics.

Angiomyolipoma is one of the most common benign solid renal neoplasms (1). AML is composed of blood vessels, smooth muscle, and adipose tissue (9). It occurs most often in the 4-6th decades, with preponderance in women (10). Radiologically, AML

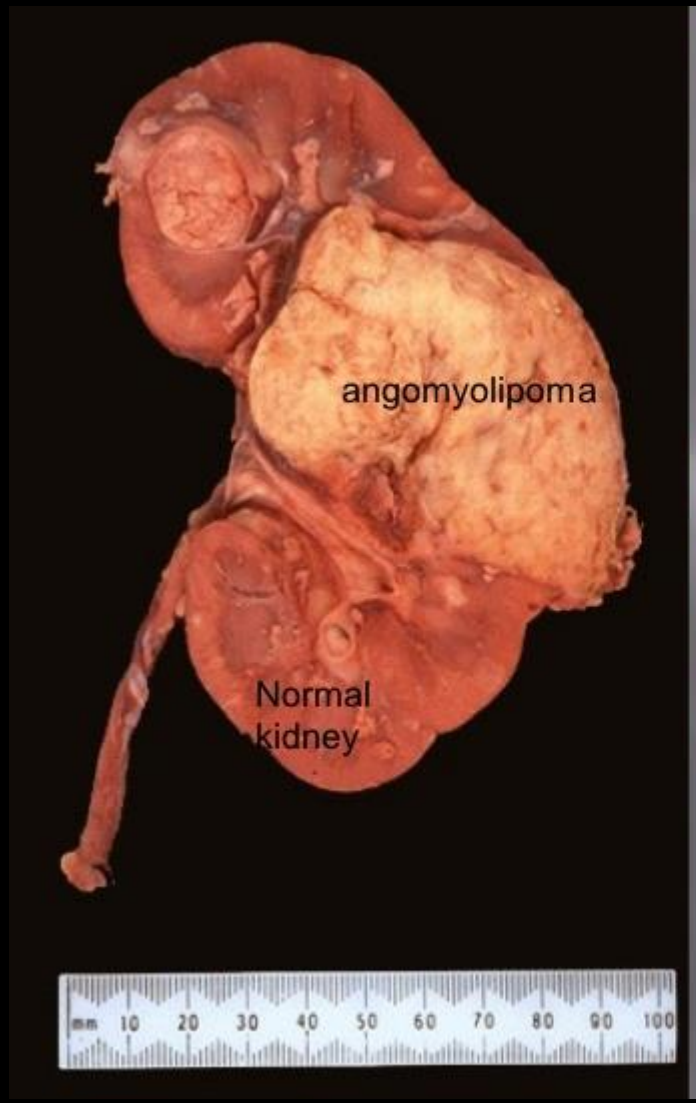
Owing to this abundant fat component, AMLs show marked hyperechogenicity (usually as echogenic as the renal sinus fat) on ultrasound (US) with reference to the renal

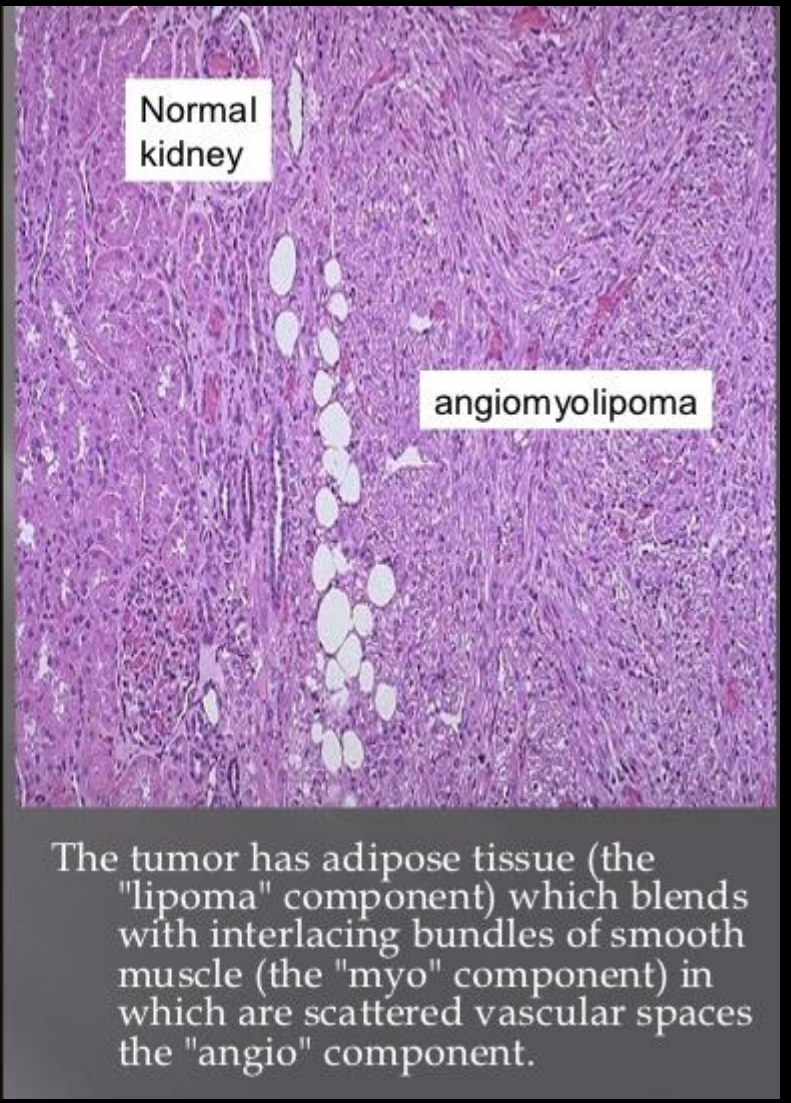
Yet, as the AML itself and the fat content is small, acquisition of thin sections (i.e., 1.5-3 mm) and measuring the attenuation with small regions of interest or even pixel values might

Small AMLs with minimal fat are usually less rounded in shape compared with small RCC .

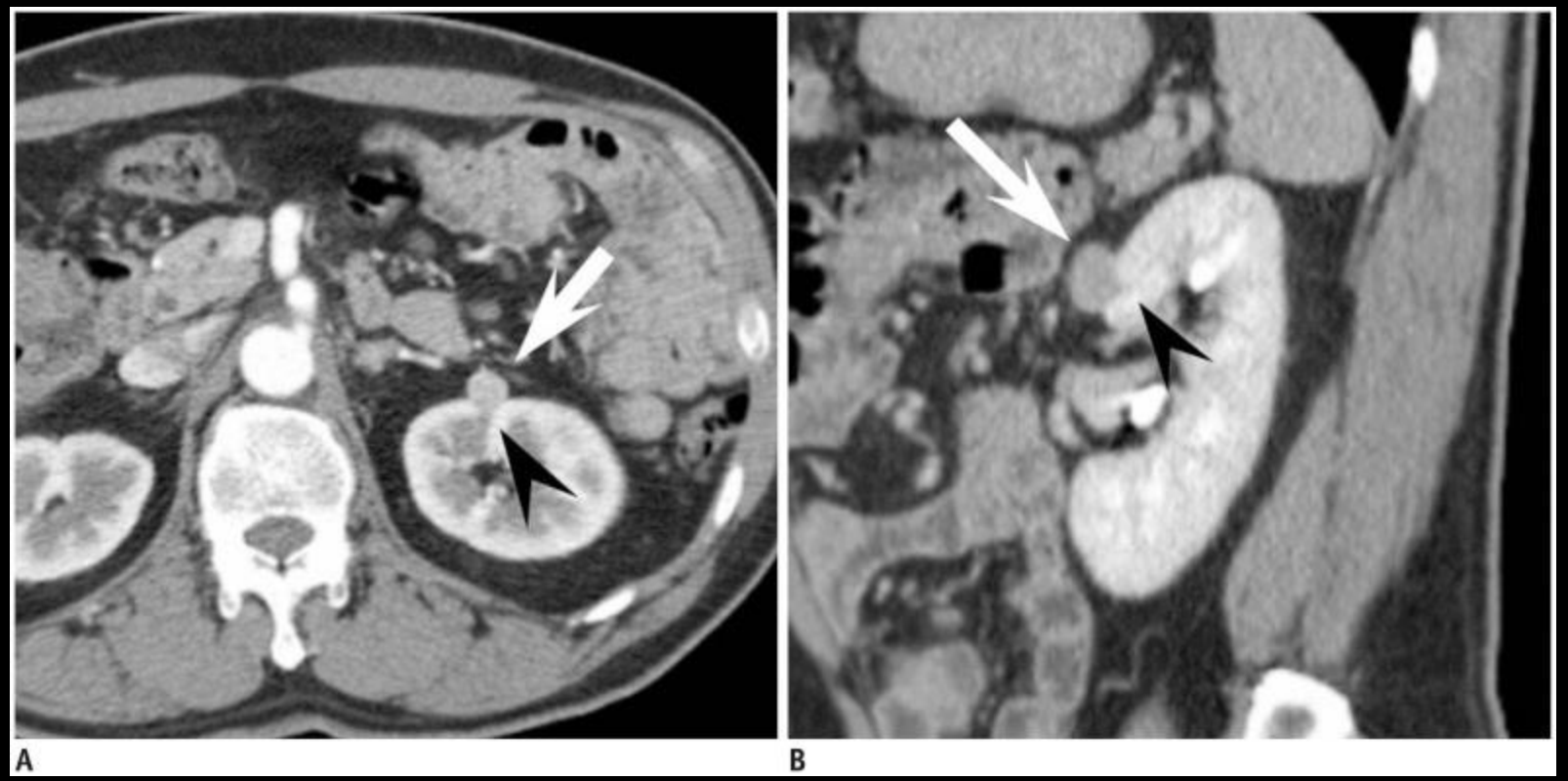
Sonoelastography was able to differentiate small AML with minimal fat from RCC, with high interobserver concordance and accuracy.

Diffusion-weighted MR imaging (DWI) to diagnose AML with minimal fat





The tumor has adipose tissue (the "lipoma" component) which blends with interlacing bundles of smooth muscle (the "myo" component) in which are scattered vascular spaces the "angio" component.



Ice cream cone

A recent study of pathologically proven oncocytomas demonstrated that the mean growth rate of oncocytomas was 2.9 mm/year over 36 months, which is equivalent to the rate

Therefore, surveillance may not be able to discriminate a small oncocytoma from a small RCC, and rather the radiologist, if possible, should

Threshold of 32 HU for absolute nephrographic enhancement.

Benign renal tumors other than the common AML and oncocytoma include metanephric adenoma, leiomyoma, reninoma, solitary fibrous tumor, schwannoma, and inflammatory pseudotumors which may mimic RCC, usually the non-clear cell type.

the smaller the size of a solid renal mass, the higher the probability of it being a benign lesion

Among these unnecessarily resected benign renal masses, the most common include AML with minimal fat and oncocytoma, while the more rare entities would be metanephric adenoma, papillary adenoma, and leiomyoma.

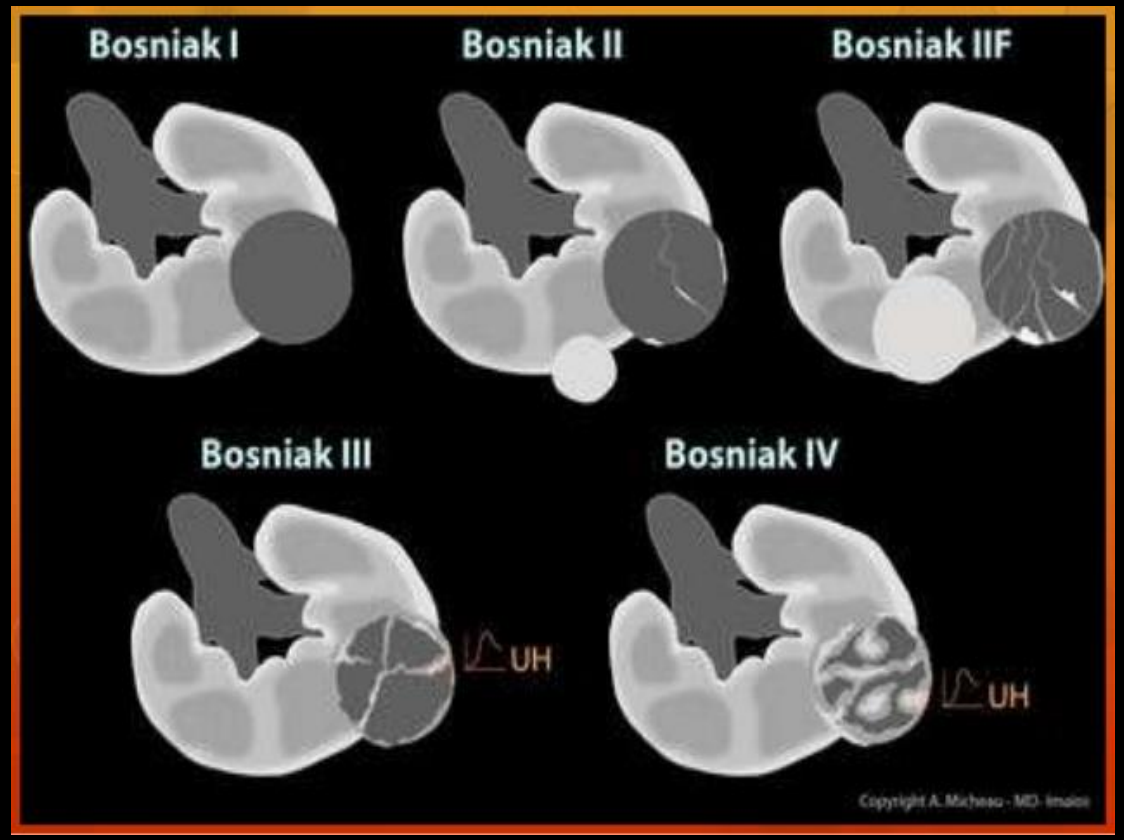
In general, the sensitivity and specificity of biopsy (regardless of needle size or whether cytological, histological analysis or both were performed) in renal masses is reported to be 80-92% and 83-100%, respectively (86)

One important concern regarding percutaneous biopsy of SRMs is needle track seeding in case the SRM is malignant. However, the paucity of such events in the literature suggests that it is a truly rare phenomenon with an estimated incidence of less than 0.01% of cases

The only deterrent to biopsy would be when the SRM is suspected to be transitional cell carcinoma, as some consider these tumors to have a greater risk of seeding than RCCs

Although radiological imaging has been the primary tool to evaluate SRMs, imaging alone may not be able to obviate surgery for all benign SRMs. We believe that percutaneous biopsy will play a crucial role in determining the optimal management of patients with SRM. Still, consensus on when and how percutaneous biopsy should be performed for SRMs will need to be validated in the future.

Thank you for your valuables time and mention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