

Ultrasound requires no ionizing radiation and is readily available. Ultrasound can differentiate between cystic and solid lesions, and with the help of Doppler, can assess whether or not vascular flow is present. Ultrasound can also help to determine the most appropriate advanced imaging study when evaluating an indeterminate renal lesion. Disadvantages of ultrasound include image quality may degrade due to bowel gas, acoustic window acquisition, obesity and or sonographer experience. Overall ultrasound is relatively quick and non-invasive modality to evaluate a renal lesion.

As advanced imaging modalities, computer tomography (CT) and magnetic resonance imaging (MRI) offer excellent 3-dimensional resolution. CT scan requires a significant dose of ionizing radiation but the speed of image acquisition reduces the potential for motion artifact. MRI yields better soft contrast resolution than CT and does not expose individuals to ionizing radiation, but due to longer image time is motion artifact-prone and may require sedation.

The American Urological Association recommends that patients with a solid or complex cystic renal mass, high quality, multiphase, cross-sectional abdominal imaging be obtained to optimally characterize any renal lesion seen on ultrasound or found incidentally on other imaging or non-contrast enhanced abdominal imaging.

Campbell SC, Clark PE, Chang SS et al: Renal Mass and Localized Renal Cancer: Evaluation, Management, and Follow-Up: AUA Guideline Part I. J Urol 2021; **206**: 199.

Campbell SC, Uzzo RG, Karam JA, et al: Renal Mass and Localized Renal Cancer: Evaluation, Management, and Follow-up: AUA Guideline: Part II. J Urol 2021; **206**: 209.