Summary and conclusion

The great majority of renal masses are found incidentally as a result of the wide use of computed tomography (CT), ultrasonography (US) and magnetic resonance (MR) imaging.

Most of these lesions are simple renal cysts that can be easily diagnosed and do not require treatment. However, solid and complex cystic renal masses are also discovered, many of which are clearly malignant and need to be surgically removed, while others may not require surgical intervention.

The challenges of renal tumoral imaging include not only reliable differentiation between benign and malignant lesions but also accurate delineation of the extent of the disease to ensure optimal treatment planning.

Multidetector computed tomography (MDCT), is the latest breakthrough in CT technology, thin sections can now be acquired as a routine basis in a single breath hold with 3D isotropic reconstruction.

Multidetector spiral CT remains the single most effective imaging modality for the diagnosis and staging of renal cell carcinoma. In the majority of patients, it is the only imaging test needed prior to surgical management.

Some histological subtypes of RCC have unique imaging findings, which may permit prediction of histology with its attendant implication for management and prognosis. Also, the tumor response to molecular therapeutics may be vastly different than the response to standard cytoreductive therapy.

In conclusion, Computed tomography scanning with contrast administration is important radiographic test for delineating the nature of a renal mass. CT is recommended to take full advantage of the enhancement characteristic of highly vascular renal parenchymal tumors.