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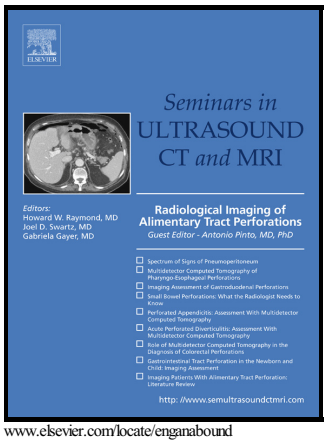

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A practical approach to indeterminate and cystic renal masses

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1 Introduction

The wide majority of renal masses are currently found incidentally on abdominal ultrasound (US) and cross sectional imaging studies. Consequently, the masses discovered have become smaller and therefore harder to be characterized. An accurate characterization remains however essential to ensure appropriate management and therapeutic decision making process (masses that need to be excised versus those that do not require surgery). Such a diagnostic challenge is encountered by the radiologist in daily practice and requires a good knowledge of imaging findings and proper characterization of cystic lesions.

A renal mass should be first categorized as either solid or cystic. Although grey scale US and computed tomography (CT) allow masses to be divided into cystic and solid lesions in most cases, some masses remain indeterminate at CT because of their small size or the potential unreliability of Hounsfield units and post contrast enhancement. On the other hand, most of renal masses are benign simple cysts that are easily diagnosed on either US or CT.

Since the solid nature is demonstrated, the second step consists in differentiating typically benign non-surgical renal masses including pseudo tumors (due to localized hypertrophy, dysmorphism or chronic inflammation) and fat containing angiomyolipomas from those associated with a high risk of malignancy that need to be surgically removed or biopsied.