

## **Contrast-Enhanced Ultrasound (CEUS) in Imaging of Renal Space Occupying Lesion: What Is Its Role?**

**Introduction and Objective:** Contrast agents for ultrasonography comprises of microscopic bubbles of gas in an encapsulating shell. They are unique in that they interact with the imaging process, oscillating in response to a low-intensity ultrasound field and disrupting in response to a high-intensity field. CEUS has a high impact for the characterization of hepatic lesions. Its use in renal masses has been less comprehensively studied. These agents are safe, not nephrotoxic and require no radiation exposure. We present the results of our initial 22 cases. Aim: evaluate the role of CEUS in characterizing renal space occupying lesion (SOL).

**Material and Methods:** With consent, we performed CEUS in patients with renal SOL (single, less than 5cm and with good acoustic window on conventional USG) before surgery using the microbubble contrast agent SonoVue (Bracco, Italy). The examination was performed with an ultrasound machine with a low mechanical index (low MI) using the contrast agent imaging method "contrast pulsed sequencing" (CPS). We recorded the vascularization in the early phase (< 30 s) and the late phase (60 - 120 s). These findings were compared to contrast CT and final histopathological report.

**Results:** A total of 22 cases were studied until March 2012. Mean size of SOL was 4.2 cm. Out of 22, 11 renal SOL was solid, 7 cystic and 4 with mixed echogenicity. In solid SOL, mean early enhancement was 9 Sec and with early wash out of 65 sec. Out of 11, 9 patients were operated and diagnosed as different variant of renal cell carcinoma. Out of 7 cystic SOL, 4 were homogeneously enhanced and finally reported as RCC while in three cases only wall was enhanced, reported as cyst. Four cases with mixed echogenicity were inhomogeneously enhanced with thick wall and delayed wash out, finally reported as abscess. All patients tolerated the procedure well and had no nephrotoxicity.

**Conclusion:** CE US plays a vital role in imaging renal SOL over conventional ultrasound and has expanding role in management and patient care. It can be safely used in patients with deranged renal function and patients allergic to ionic contrast.