

Segmental enhancement inversion of small renal oncocytoma: different prevalence according to tumor size

Sungmin Woo¹, Jeong Yeon Cho¹, Seung Hyup Kim¹, Sang Youn Kim¹, Hak Jong Lee², Sung Il Hwang², Min Hoan Moon³, Chang Kyu Sung³

¹Seoul National University Hospital, ²Seoul National University Bundang Hospital, ³SNU Boramae Medical Center, Korea.
radjycho@snu.ac.kr

PURPOSE: The objective of our study was to retrospectively assess the prevalence of segmental enhancement inversion of small renal oncocytomas according to tumor size.

MATERIALS AND METHODS: Thirty-three patients with 33 oncocytomas diagnosed by surgical resection who had undergone contrast enhanced biphasic CT between January 2000 and December 2011 were included. CT scans were analyzed for size, presence of segmental enhancement inversion, enhancement pattern and homogeneity. Segmental enhancement inversion was present when a renal mass was divided into two differently enhanced segments in corticomedullary phase, with the enhancement degree reversed in early excretory phase. The masses were further assessed for fibrous septa, cystic change, hemorrhage and necrosis.

RESULTS: The mean diameter of 33 renal oncocytomas was 2.65 cm (range, 0.8–4.8 cm). There was no significant linear trend according to size ($p = 0.762$), although segmental enhancement inversion was significantly ($p = 0.006$) more common (10/12) in tumors sized 1.5–2.9 cm. Pathological change was present in 14 oncocytomas. There was no significant linear trend according to size ($p = 0.068$), but 2.5 cm and larger tumors showed significantly higher prevalence (57.9%) ($p = 0.036$). Segmental enhancement inversion was more common (13/19) in tumors without pathological change ($p = 0.024$).

CONCLUSION: In agreement with our previous report, segmental enhancement inversion is a characteristic finding of small renal oncocytomas, especially in tumors 1.5–2.9 cm in size. Pathological changes such as central scar are more common in oncocytomas larger than 2.5 cm, and may be related to low occurrence of segmental enhancement inversion.