

**Differentiation of angiomyolipoma without visible fat from small clear cell renal cell carcinoma: usefulness of attenuation value on biphasic helical CT scan**

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**PURPOSE:** The purpose of our study was to differentiate of angiomyolipoma (AML) without visible fat from small clear cell renal cell carcinoma (RCC) by using of attenuation value on biphasic helical CT scan.

**MATERIALS AND METHODS:** This retrospective study was approved by the institutional review board; informed consent was waived. Fourteen cases of histopathologic proven renal AML without visible fat (mean diameter, 20.9 mm; range, 12–40 mm) and thirty-one pathologic diagnosed small clear cell type RCC (mean diameter, 28.9 mm; range, 15–40 mm) with tumor size matched control group, less than 4cm were included in the study. Patients underwent pre-operative biphasic CT scan (corticomedullary and excretory phase scan). Two reviewers who were unaware of the diagnosis recorded tumor attenuation on both phase scans; degree of enhancement, percentage of contrast enhancement excretion between corticomedullary and excretory phase scans and presence of necrosis by using region-of-interest measurements within tumor. Degree of enhancement and presence of necrosis were compared between two groups by use of the Mann-Whitney U test and Fisher's exact test, respectively.

**RESULTS:** On both the corticomedullary and excretory phase image, clear cell RCC showed greater mean enhancement value (173.8 HU and 112.2 HU, respectively) than AML without visible fat (158.5 HU and 100.6 HU, respectively), but did not show significant difference ( $p > 0.05$ ). The mean percentage of contrast enhancement excretion was approximately equal as 34.0% and 34.1% in clear cell RCC and AML without visible fat, respectively. Among 31 cases of clear cell RCC, 21 cases contained necrosis (mean percentage of necrosis of entire tumor, 9.8%; range, 4.3–26.6%), but only 2 of 14 AML without visible fat (mean percentage, 11.8%; range, 11.6–11.9%) did. ( $p = 0.01$ ).

**CONCLUSION:** The presence of necrosis is valuable parameter for the differentiation of the clear cell type RCC from AML without visible fat. However, degree of enhancement and percentage of contrast enhancement excretion cannot serve supplemental roles in identification of AML without visible fat from clear cell RCC.