



:
.
: (CT)
76 9 4
CT ,
, T1 T2 - ,
:
5 2 , 3 , 3
2 , 1 9
, 3 1 CT
8 7 , 1 ,
4 3 , 1 CT
3 T2 - , T1 -
, T2 - T1 - , T2 -
5 가 9 7
, 3 T1 -
, 2 , 2 , 5
:
, CT , T2 - , T1 -
, 가 .

(1).

(CT)

가 가 (2, 3).

1998 5 2001 8 CT (MRI)
76

(4),

CT 가
9

3 (tuberosus sclerosis)가 , 1 CT MRI 2.0 cm 5.1 cm(3.5 cm), 6.2 cm(4.0 cm) . 36 9 60 , 3 CT 12 1 11 . CT CT , MRI T1 - T2 - 2 . CT MRI

Table 1

5 2 , 3 (Fig. 1A), 3 2 (Fig. 2A), 1

Table 1. Radiologic Differentiation of Homogeneously Solid Renal Cell Carcinoma and Muscle-Predominant Angiomyolipoma

Imaging Findings		HS-RCC	MP-AML
Echogenicity on sonogram	Iso-echoic	2	2
	High-echoic	3	0
	Mixed-echoic	0	1
Shape on CT	Round/Oval	9	1
	Dumbbell/Lobulated	0	3
Density on pre-enhanced CT	Low	1	0
	Iso	7	1
	High	0	3
Degree of enhancement on enhanced CT	Mild	3	0
	Moderate	4	4
	Strong	1	0
Signal intensity on T2-weighted MR imaging	Low	2	3
	Iso	2	0
	High	5	0
Degree of enhancement on enhanced MR imaging	Mild	2	1
	Moderate	2	1
	Strong	5	0
Capsule	Present	7	0
	Absent	2	3

HS-RCC: homogeneously solid renal cell carcinoma
MP-AML: muscle-predominant angiomyolipoma

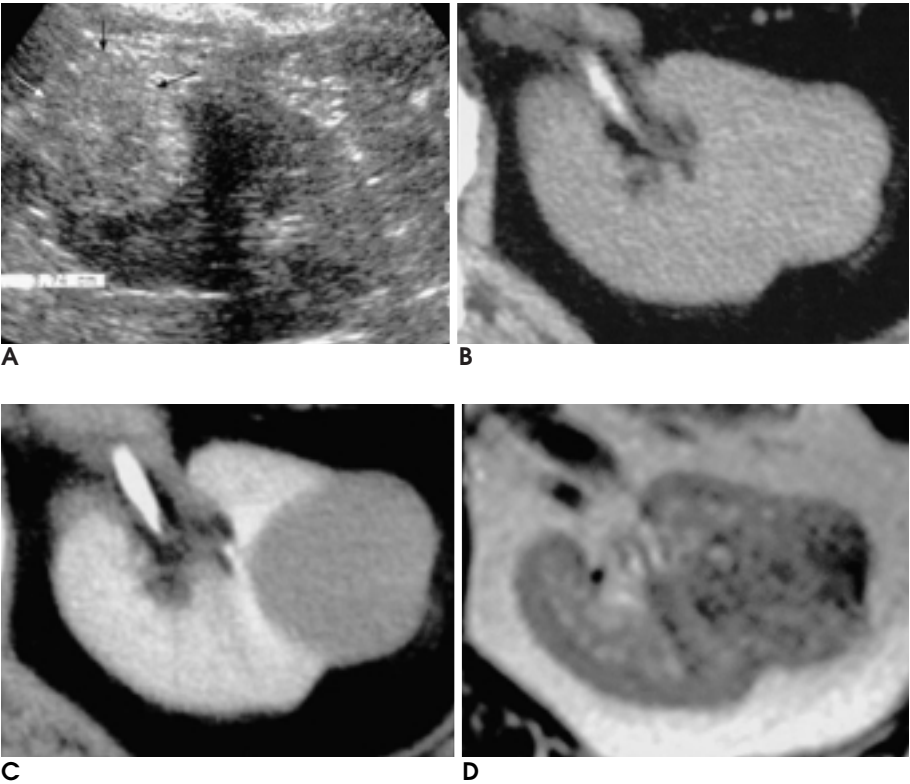


Fig. 1. A 56-year-old-woman with renal cell carcinoma. Renal ultrasonogram (A) shows a round hyperechoic mass lesion (arrows). An isodense mass lesion with contour bulging on non-enhanced CT scan (B) was minimally enhanced on enhanced scan (C). On T2-weighted MR image (D), the mass lesion is isointense to the renal cortex.

CT 9 가
(Figs. 1, 3), 1 (Fig. 2),
3 (Fig. 4). CT 8 가 CT MRI 가
7 가 (Figs. 1B, 3A) 1 가
3 가 (Figs. 2B, 4A), 1
CT 4 85 - 90% (5, 6),
(Fig. 4B) 가 (7)
T1 - 가
, T2 - 1 가 가 가
가 5 (Fig. 3B), (Fig. 1D) 가 가
2 T2 - 가
3 (Fig. 2D, 50 - 70 가
4C), T1 - (Fig. 가
2C). T1 - 2 , 가
(Fig. 2E), 1 , 가
5 가 (Fig. 3D) 2 가
9 7 (77.8%) (Fig. 가
3 (Figs. 2, 가
4). (sporadic form)
(tuberous sclerosis)

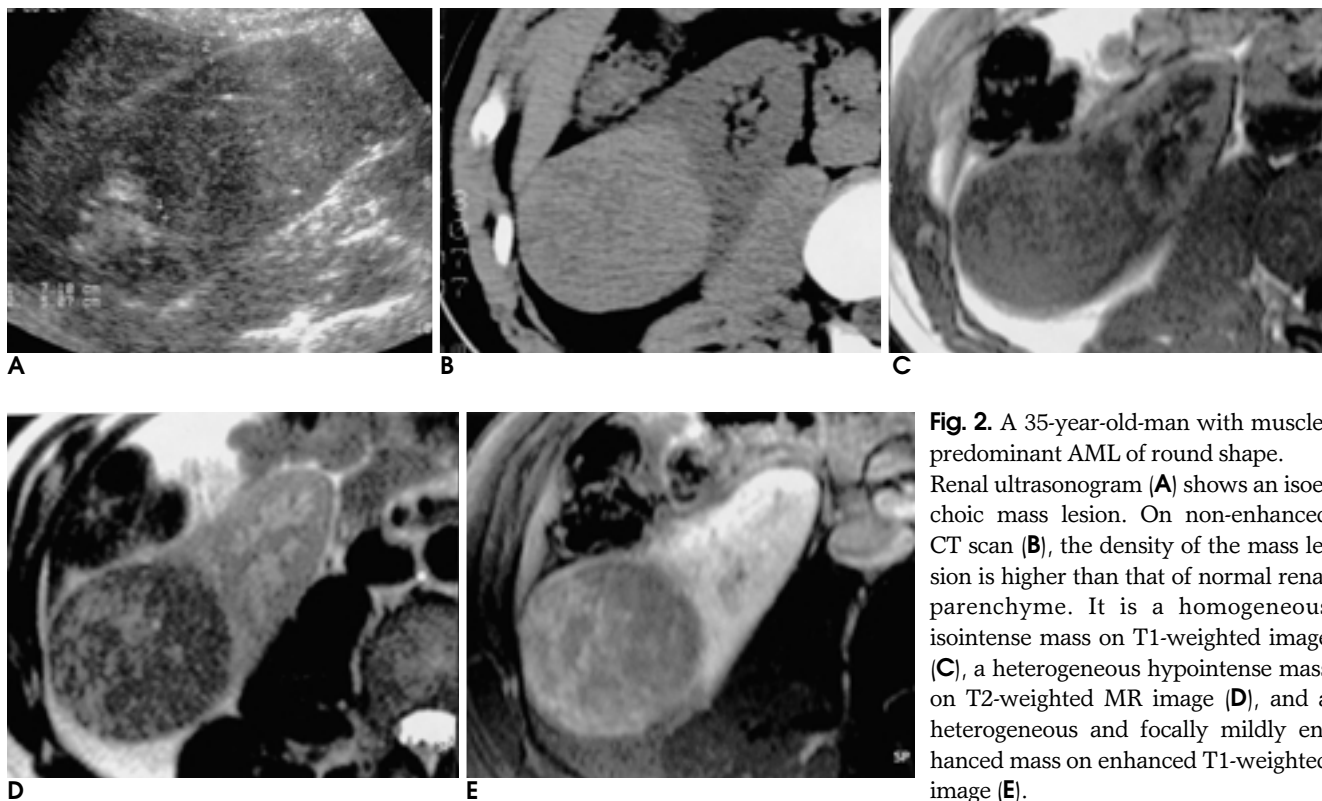


Fig. 2. A 35-year-old-man with muscle-predominant AML of round shape. Renal ultrasonogram (A) shows an isoechoic mass lesion. On non-enhanced CT scan (B), the density of the mass lesion is higher than that of normal renal parenchyma. It is a homogeneous isointense mass on T1-weighted image (C), a heterogeneous hypointense mass on T2-weighted MR image (D), and a heterogeneous and focally mildly enhanced mass on enhanced T1-weighted image (E).

(hamartoma) (8), (choristoma) 20% , 80% , 가 . 가 , 가 CT , T1 - T2 - 가 (1 - 3, 9).

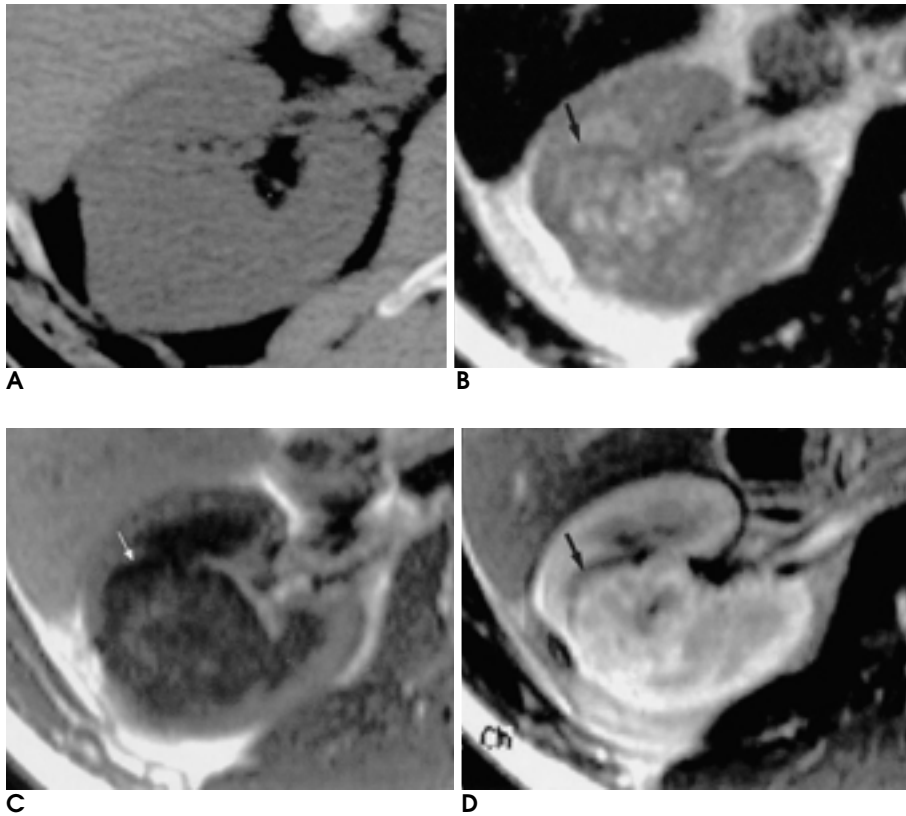


Fig. 3. A 48-year-old man with renal cell carcinoma. A mass lesion is not clearly defined on non-enhanced CT scan (**A**) as it is isodense to renal parenchyme, but MR images well demonstrate a mass lesion. It is a heterogeneous hyperintense mass on T2-weighted image (**B**) and a medium-signal intensity mass on T1-weighted image (**C**). Enhanced T1-weighted MR image (**D**) shows a heterogeneous mass with moderate contrast enhancement. Note the partially visible pseudocapsule (arrows).

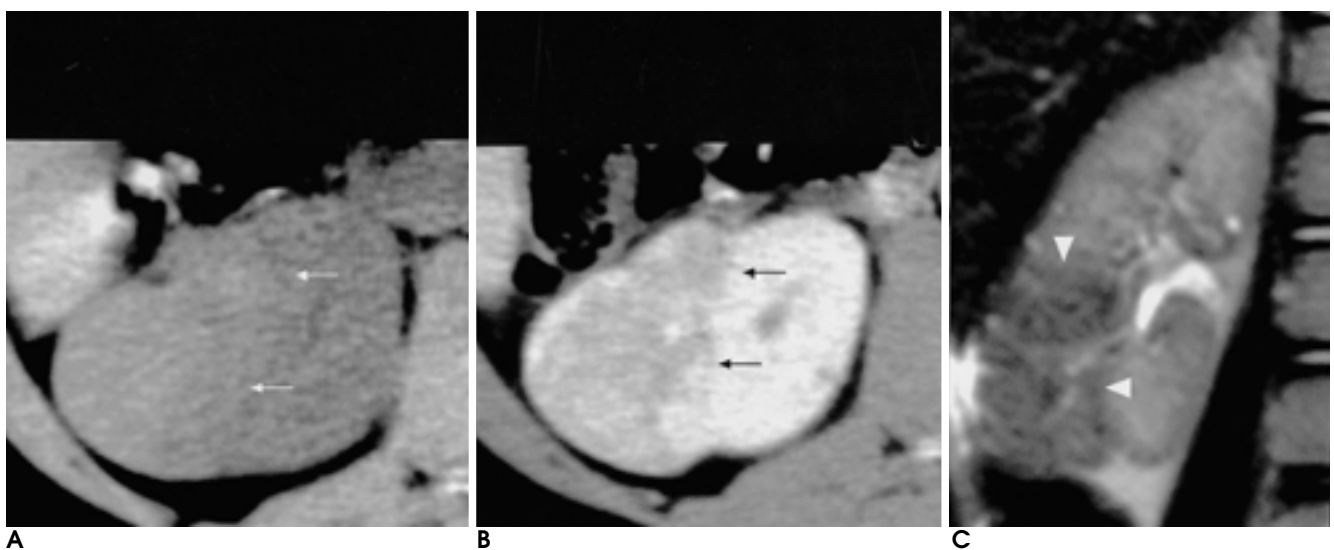


Fig. 4. A 9-year-old man with muscle-predominant AML with lobulating contour. On non-enhanced CT scan (**A**), the mass lesion is slightly hyperdense than normal renal parenchyme. It is moderately enhanced on enhanced CT scan (**B**). Medial border of the mass is irregular (arrows). Coronal T2-weighted MR image (**C**) well shows lobulated contour (arrowheads) of this mass, which is hypointense than normal parenchyme.

Kido (3)
(chemical shift)
Bosniak (7) 가 6 3 (75%)가
CT
Jinzaki (2)
CT
(10), “ ”
(1). 가 100
5 5 2
CT 75%(3/4)가 , 9 CT
가 T2 - 3
, 9 5 가 Jinzaki
(2) T2 -
가
가
(12). T2 - 5
(55.6%)가 T1 -
가
Jinzaki (2) 6 1997 100 (pseudo -
CT capsule) 가 59 - 66% (13, 14).
, MRI 100 9 7 (77.8%)
가
Bosniak (1)
, Forman (oncocytoma),
(11) 가 (stellate)
가 Jinzaki (2) 가
3 2
가 5 3 (60%)가 CT
가 (15,
16).
가 ,

- (17). (renal sinus)
- (18). 가 ,
- (19).
- (20).
- 가 ,
- 가 ,
- 4 , 가
- 가
- CT
- T2- MRI
- 가 , CT , T2-
- MRI
- 가 , 가
- 가 , 가
- CT , 가
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Radiologic Differentiation Between Homogeneously Solid Renal Cell Carcinoma and Muscle-Predominant Renal Angiomyolipoma¹

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Purpose: To compare the differential radiologic findings of renal cell carcinoma presenting as a homogeneous solid mass (HS-RCC) and muscle-predominant angiomyolipoma (MP-AML).

Materials and Methods: Nine of 76 surgically and pathologically proven RCCs presenting at CT or magnetic resonance (MR) imaging as a homogeneous solid mass, and four cases of MP-AML were included in this study. Echogenicity at sonography, attenuation at non-enhanced CT (NECT), the contour of the mass, signal intensities at T1- and T2-weighted MR imaging, the existence of a capsule, and the pattern and degree of enhancement at CT and MR imaging were retrospectively analyzed.

Results: Two of five HS-RCCs were isoechoic and three were hyperechoic. Two of three MP-AMLs, however, were isoechoic, and one was mixed echoic. All nine HS-RCCs were round or oval in shape, but three MP-AMLs were lobulated and one was round. At NECT, seven of eight HS-RCCs were isodense and one was hypodense compared to surrounding normal renal parenchyme, but three MP-AMLs were hyperdense masses and one was isodense. At enhanced CT, HS-RCCs showed various degrees of homogeneous enhancement, but all MP-AMLs showed moderate homogeneous enhancement. All three MP-AMLs demonstrated heterogeneous hypointensity at T2-weighted MRI and homogeneous hypointensity at T1-weighted MRI. HS-RCCs showed various signal intensities at both T1- and T2-weighted MRI, and in five cases, heterogeneous high signal intensity at T2-weighted MRI. Capsules were observed in seven of nine HS-RCCs but not in any of the three MP-AMLs. At enhanced T1-weighted MRI, MP-AMLs showed mild to moderate enhancement, but HS-RCCs showed mild, moderate, and strong enhancement in two, two, and five cases, respectively.

Conclusion: Echogenicity, density at NECT, signal intensity at MR T2-WI, the contour of the mass, and the existence of a capsule are features which are useful in the differential diagnosis of HS-RCC and MP-AML.

Index words : Kidney neoplasms, diagnosis

Kidney neoplasms, US

Kidney neoplasms, CT

Kidney neoplasms, MR

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