

Hyperdense renal cysts

Portal Venous Phase CT

TABLE 2
Frequency of Specific Findings

Findings on CT Scans	High-Attenuation Cyst (<i>n</i> = 37)		Renal Cell Carcinoma (<i>n</i> = 57)	
	Reader 1	Reader 2	Reader 1	Reader 2
Attenuation > 70 HU	3	5	40	48
Presence of moderate or marked heterogeneity	0	1	46	44
Attenuation > 70 HU or presence of moderate or marked heterogeneity	3	6	52	52

Moderate or marked internal heterogeneity OR HU > 70 are more suggestive of RCC than hyperdense renal cyst

Michael Suh, MD
Fergus V. Coakley, MD
Aliya Qayyum, MD
Benjamin M. Yeh, MD
Richard S. Breiman, MD
Ying Lu, PhD

Index terms:
Kidney, cysts 81.311
Kidney neoplasms, CT, 81.12112,
81.324

Published online before print
10.1148/radiol.2282020922
Radiology 2003; 228:330-334

Distinction of Renal Cell Carcinomas from High-Attenuation Renal Cysts at Portal Venous Phase Contrast-enhanced CT¹

PURPOSE: To determine if renal cell carcinomas can be distinguished from high-attenuation renal cysts on portal venous phase contrast material-enhanced computed tomographic (CT) scans.

Hyperdense renal cysts

Unenhanced CT

Figure 1

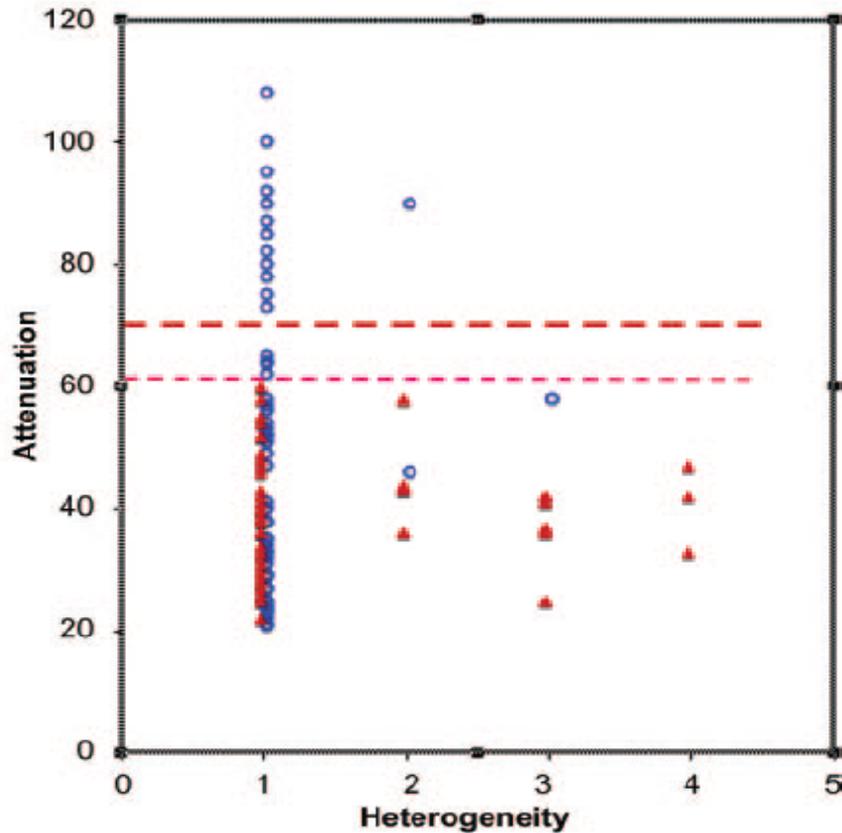


Figure 1: Scatterplot shows attenuation of cysts (○) and tumors (▲), with worst-case pooling for attenuation and heterogeneity (see text). The light dashed line (at 61 HU, the decision criterion recommended by visual inspection and CART analysis) effectively separates higher attenuation cysts from all tumors in this sample. Given the distribution of tumor attenuation values, a renal mass with attenuation of 70 HU (bold dashed line) or higher at unenhanced CT has a greater than 99.9% chance of representing a high-attenuation renal cyst.

A homogeneous mass measuring >70 HU on unenhanced CT has 99.9% chance of being a high attenuation renal cyst

Radiology

Vol 243 No 2
May 2007:
445-450

Ari I. Jonisch, MD
Ami N. Rubinowitz, MD
Pradeep G. Mutalik, MD
Gary M. Israel, MD

Can High-Attenuation Renal Cysts Be Differentiated from Renal Cell Carcinoma at Unenhanced CT?¹

Purpose:

To retrospectively determine if renal cell carcinoma can be differentiated from high-attenuation renal cysts at unenhanced computed tomography (CT) based on Hounsfield unit measurements and heterogeneity.