



· 论 著 ·

肾嗜酸细胞瘤的CT表现

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[摘要] 背景与目的: 影像学检查是目前诊断肾嗜酸细胞瘤的重要方法。该研究总结肾嗜酸细胞瘤的CT表现, 旨在提高临床医师对肾嗜酸细胞瘤的认识, 提高诊断的准确性。**方法:** 复旦大学附属肿瘤医院2008年7月—2017年10月术后病理学检查证实为肾嗜酸细胞瘤的患者共66例, 术前在复旦大学附属肿瘤医院行腹部CT增强检查及CT检查前未行治疗和穿刺检查的共有17例, 分析这17例患者的临床资料并总结CT特征。**结果:** 17例患者中, 男性9例, 女性8例, 年龄31~69岁, 中位年龄59岁, 均为单发病灶。肿瘤主要呈球形, 最大径为18~100 mm, 平均为(39.0±26.8) mm。增强扫描主要呈明显强化(16/17, 94.1%), 但强化程度一般低于肾皮质(平均肿瘤-皮质增强指数为0.78±0.19)。强化方式主要为持续强化型(15/17, 88.2%)。7例(41.2%)出现星芒状瘢痕。5例(29.4%)出现“分段增强反演”现象。**结论:** 肾嗜酸细胞瘤多为明显持续强化, 有时伴有“分段增强反演”现象及星芒状瘢痕, 这些CT特征可以提示肾嗜酸细胞瘤。

[关键词] 肾嗜酸细胞瘤; CT; 持续强化; 分段增强反演

DOI: 10.19401/j.cnki.1007-3639.2018.07.006

中图分类号: R445.3 文献标志码: A 文章编号: 1007-3639(2018)07-0511-04

CT manifestations of renal oncocytoma LU Jie¹, CHANG Bin², WANG Wei¹ (1. Department of Diagnostic Radiology, Fudan University Shanghai Cancer Center, Department of Oncology, Shanghai Medical College, Fudan University, Shanghai 200032, China; 2. Department of Pathology, Fudan University Shanghai Cancer Center, Department of Oncology, Shanghai Medical College, Fudan University, Shanghai 200032, China)

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[Abstract] **Background and purpose:** At present, imaging examination is an important method for the diagnosis of renal oncocytoma. Our study summarized the CT manifestations of renal oncocytoma in order to promote clinicians' understanding of renal oncocytoma and improve the accuracy of diagnosis. **Methods:** There were 66 patients with pathologically confirmed renal oncocytoma in Fudan University Shanghai Cancer Center from July 2008 to October 2017. Among them, there were 17 patients who underwent abdominal CT enhancement examination before operation without treatment or biopsy prior to CT examination. The clinical data and preoperative CT images of 17 patients were retrospectively reviewed. **Results:** Among the 17 patients, 9 patients were male and 8 patients were female. Patients' ages ranged from 31 to 69 years, and the median age was 59 years. Each patient had a single lesion. Most tumors were spherical. The maximum diameter of tumors ranged from 18 to 100 mm, and the average maximum diameter was (39.0±26.8) mm. Most cases (15/17, 88.2%) showed obvious enhancement but less than the enhancement of renal cortex (average ratio of lesion-to-cortex attenuation: 0.78±0.19). Nephrographic phase images often showed a prolonged enhancement compared with the corticomedullary phase (15/17, 88.2%). There were 7 cases (41.2%) having stellate scar. Five cases (29.4%) showed segmental enhancement inversion. **Conclusion:** Most of the renal oncocytomas demonstrate obvious prolonged enhancement, sometimes accompanied by segmental enhancement inversion and stellate scars. These CT features may suggest the diagnosis of renal oncocytoma.

[Key words] Renal oncocytoma; CT; Prolonged enhancement; Segmental enhancement inversion

肾嗜酸细胞瘤是常见的肾脏良性肿瘤,占肾脏实性肿瘤的3%~7%^[1]。目前影像学检查是诊断肾嗜酸细胞瘤的重要方法,临床需要根据影像表现来制定合适的治疗方案,术前影像学检查对于避免过度的外科手术而尽可能保留肾单位至关重要。文献报道的肾嗜酸细胞瘤CT表现主要有边界清晰、强化较均匀及星芒状瘢痕等。然而,目前国内关于肾嗜酸细胞瘤的报道有限,而且仅根据CT表现诊断肾嗜酸细胞瘤仍存在很大挑战。因此,本研究回顾性地分析17例肾嗜酸细胞瘤患者的临床资料及腹部增强CT图像,总结病灶的CT特征,旨在提高临床医师对肾嗜酸细胞瘤的认识,提高诊断的准确性。

1 资料和方法

1.1 一般资料

复旦大学附属肿瘤医院2008年7月—2017年10月术后病理学检查证实为肾嗜酸细胞瘤的患者共66例,纳入标准为:①术前在复旦大学附属肿瘤医院行腹部CT增强检查;②CT检查前未行治疗及穿刺检查。共17例纳入本研究,其中男性9例,女性8例,年龄31~69岁,中位年龄59岁。

1.2 影像学设备及检查方法

17例患者均在复旦大学附属肿瘤医院放射诊断科行腹部增强CT检查,使用Somation 40或64层螺旋CT(购自德国Siemens公司),管电压为120 kV,管电流为250 mA,层厚5 mm。患者检查前6 h禁食,取仰卧位。对比剂为非离子型(碘普胺或碘海醇)95 mL。使用高压注射器(购自美国Meorao公司或德国Ulrich公司)团注,注射速率为3 mL/s。使用平扫和双期或三期增强扫描。

1.3 影像学评估

由2名放射科医师评估上述17例患者病变的影像学表现,包括:

①肿瘤一般特征:大小、形态及位置。②强化均匀程度:均匀指肿瘤主体呈基本均匀,未见明显囊变坏死区及瘢痕区;欠均匀指肿瘤囊变坏死区和(或)瘢痕区面积<主体的10%;不均匀指肿瘤囊变坏死区和(或)瘢痕区面积≥主体的10%。③各期肿瘤强化程度、CT值及肿瘤-皮

质增强指数:增强绝对值10~30 Hu为轻度强化,30~50 Hu为中度强化,50 Hu以上为明显强化。肿瘤-皮质增强指数是指各期肿瘤CT值/皮质CT值百分比。④强化方式:持续强化型为肾实质期比皮髓期增加>10%;平台型为CT值变化≤10%;减退型为肾实质期比皮髓质期减小>10%。⑤分段增强反演:肿块在皮髓质期分为强化较强和较弱的两部分,在早期排泄期原来强化较强的部分变成强化较弱的部分,而原来强化较弱的部分变成强化较强的部分^[2]。⑥星芒状瘢痕。⑦囊变、钙化及脂肪。⑧是否合并肝脏转移。

2 结果

2.1 临床表现及手术方式

所有患者均为影像学检查(超声、CT或MRI)偶然发现肾脏肿瘤,无明显临床症状。17例患者中,11例(64.7%)接受肾部分切除术,6例(35.3%)接受肾根治性切除术。2例(11.8%)接受开放手术,15例(88.2%)接受腹腔镜手术。

2.2 肿瘤CT表现

17例患者中,病灶位于左肾者6例(35.3%),右肾者11例(64.7%)。17例均为单发。肿瘤位于中上极及上极6例(35.3%),中下极及下极6例(35.3%),中极5例(29.4%)。肿瘤呈球形14例(82.4%),分叶状2例(11.8%),不规则形1例(5.9%)。肿瘤最大径为18~100 mm,平均为(39.0±26.8) mm。肿瘤向肾外生长14例(82.4%),向肾窦生长3例(17.6%)。均匀强化者5例(29.4%),欠均匀强化者4例(23.5%),不均匀强化者8例(47.1%)。明显强化16例(94.1%),轻-中度强化1例(5.9%,图1)。各期肿瘤CT值及肿瘤-皮质增强指数见表1。肿瘤为持续强化型15例(88.2%),减退型2例(11.8%)。7例(41.2%)出现星芒状瘢痕(图2)。5例(29.4%)出现“分段增强反演”现象(图3)。所有病例均未出现囊变、钙化及脂肪。没有病例合并肝脏转移。

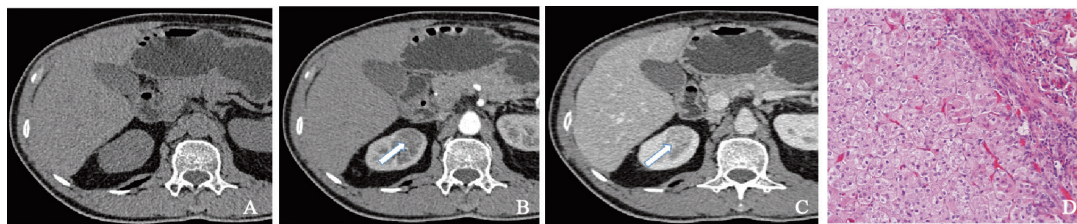


图1 59岁男性患者,病理证实肾嗜酸细胞瘤

Fig. 1 A 59-year-old male patient with pathologically proved renal oncocytoma

A: Unenhanced image demonstrated no demonstrable mass except mild bulging contour of right kidney; B: The mass showed a slight enhancement on the corticomedullary phase image; C: The mass showed a progressive enhancement compared with the corticomedullary phase on the nephrographic phase image; D: H-E stained section showed large oncocytes with densely granular eosinophilic cytoplasm, cells were round to polygonal and nuclei were round and monotonous, and nucleoli were small and inconspicuous ($\times 200$)

表1 肿瘤CT值及肿瘤-皮质增强指数

Tab. 1 CT direct measurements of the attenuation and the degree of contrast enhancement

Group	Measurements of the attenuation/Hu		
	Plain	Corticomedullary phase	Nephrographic phase
Measurements of the attenuation/Hu	33.4 ± 5.5	101.0 ± 22.0	130.0 ± 35.4
Ratio of lesion-to-cortex attenuation	0.91 ± 0.18	0.78 ± 0.19	0.78 ± 0.11

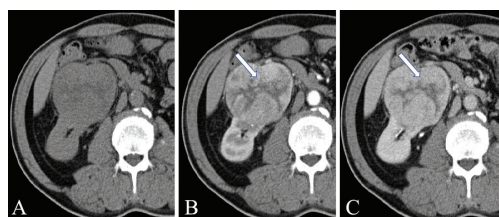


图2 61岁男性患者,病理证实肾嗜酸细胞瘤

Fig. 2 A 61-year-old male patient with pathologically proved renal oncocytoma

A: Unenhanced image demonstrated a low-density mass in the right kidney; B: The mass showed an obvious enhancement but less than the enhancement of renal cortex with a central scar (arrow) on the corticomedullary phase image; C: The mass showed a prolonged enhancement compared with the corticomedullary phase with a central scar (arrow) on the nephrographic phase image

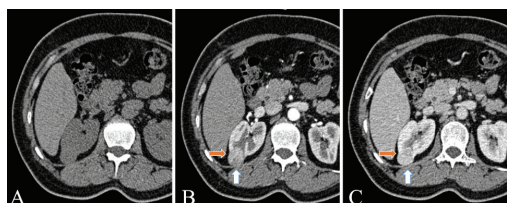


图3 51岁女性患者,病理证实肾嗜酸细胞瘤

Fig. 3 A 51-year-old female patient with pathologically proved renal oncocytoma

A: Unenhanced image showed an iso-density mass in the right kidney; B: Corticomedullary phase image showed a well-defined round mass with two well-differentiated segments, highly enhanced (yellow arrow) and less enhanced (white arrow); C: On early excretory phase images, these relative segmental intensities were inverted; highly enhanced segment during corticomedullary phase became less enhanced (yellow arrow) during early excretory phase, and less-enhanced segment during corticomedullary phase became highly enhanced (white arrow) during early excretory phase

3 讨论

肾嗜酸细胞瘤直到1976年才被公认为一类独立的肿瘤^[3]。肾嗜酸细胞瘤起源于肾皮质集合管上皮细胞,好发于50岁以上老年人,无性别差异^[4]。该肿瘤大多数为单发,多发和双侧发病率仅为6.0%和1.4%^[5]。肾嗜酸细胞瘤一般被认为是良性肿瘤,个别病例报道会发生肝脏转移^[6],本研究未发现合并肝脏转移现象。临床上,肾嗜酸细胞瘤患者大多数无症状,有症状的患者可能出现血尿、腹痛或可触及的肿块。本研究纳入的患者均为偶然发现,无临床症状。

本研究中肿瘤多为明显强化,主要与肿瘤血管的分布有关。Zhang等^[7]对198例肾实质肿瘤进行CT检查,发现肾透明细胞癌和肾嗜酸细胞瘤都是富含血管的肿瘤,因此会出现早期明显强化。但是,与肾透明细胞癌在皮髓质期高于肾皮质密度不同,嗜酸细胞瘤肿瘤一般不高于肾皮质密度(本研究皮髓质期肿瘤-皮质增强指数为 0.78 ± 0.19 ,小于1),而且肾实质期肾透明细胞癌多会出现明显廓清,而肾嗜酸细胞瘤多为持续强化^[8],这也与本研究结果相一致(持续强化型15例,占88.2%)。也有研究发现,肾嗜酸细胞瘤强化峰值发生在皮髓质期,肾实质期强化会降低^[9]。本研究也出现2例强化降低型,此时与肾透明细胞癌鉴别存在一定困难。

Kim等^[2]最早提出“分段增强反演”现象有助于诊断肾嗜酸细胞瘤,这可能与肿瘤基质内肿瘤细胞巢、小管和腺泡排列紧密程度不

同有关。本研究中,5例(29.4%)出现“分段增强反演”现象,低于之前何为等^[10]报道的9例(81.8%),以及彭令荣等^[11]报道的6例(66.7%)。这5例最大径均小于4 cm,本研究出现此现象的病灶占有小于4 cm病灶的38.5%,远小于之前报道的80%^[2]和63%^[12],可能与目前研究纳入病例数较少有关,更可靠的数据需要扩大样本量。但“分段增强反演”现象并不是肾嗜酸细胞瘤的特异性征象,肾嫌色细胞癌也有可能出现。有研究表明,肾嗜酸细胞瘤出现此征象的概率要远高于肾嫌色细胞癌^[12-14],而有学者认为该征象在肾嗜酸细胞瘤和肾嫌色细胞癌中的发生率差异无统计学意义,不可作为这两种肿瘤的鉴别要点^[15-16]。虽然该征象缺乏绝对特异性,但有助于放射科医师缩小鉴别诊断的范围。

本研究有7例(41.2%)患者出现星芒状瘢痕。Quinn等^[17]提出星芒状瘢痕强烈提示嗜酸细胞瘤的诊断。这可能与肿瘤生长导致供血不足且出现纤维母细胞增生有关,因此肿瘤越大,该征象发生的可能性越大^[18]。这与本研究结果相一致,本研究中有星芒状瘢痕的病灶最大径范围为40~100 mm。肾嫌色细胞癌也有可能出现星芒状瘢痕,但其发生率不及肾嗜酸细胞瘤^[13]。同时,这种星芒状瘢痕有时不易与肾透明细胞癌中央坏死相鉴别。因此这一征象的鉴别诊断价值存在一定的局限性。

总之,肾嗜酸细胞瘤临床症状多不明显,一般被认为是良性肿瘤,多为单发,增强扫描多为明显持续强化,可能伴有“分段增强反演”现象及星芒状瘢痕。这些特征可以提示肾嗜酸细胞瘤,但精确的诊断仍依赖于病理学检查。

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