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Рак почки при центральной локализации: диагностическая дилемма

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Опухоль почки с центральной локализацией представляет собой проблему для дифференциальной диагностики почечно-клеточной карциномы и переходно-клеточного (уротелиального) рака. Применения только методов визуализации недостаточно для постановки диагноза, требуются определенные инвазивные диагностические исследования. В статье описан пациент, 60 лет, с диспепсией. При обследовании по данным компьютерной томографии почек с контрастированием была выявлена опухоль правой почки с центральной локализацией. Перед принятием решения о лечении была выполнена биопсия опухоли почки, по результатам которой диагностирована почечно-клеточная карцинома. Пациенту выполнили операцию – робот-ассистированную лапароскопическую нефрэктомию справа. В данном клиническом случае биопсия почки помогла принять решение в пользу радикальной нефрэктомии вместо радикальной нефруретерэктомии, последняя ассоциирована с большей частотой послеоперационных осложнений. Таким образом, в случае опухоли почки с центральной локализацией важно выполнять биопсию ткани перед принятием решения о хирургическом вмешательстве, так как это предотвращает неполное (undertreament) или излишнее (overtreatment) лечение пациента.

Ключевые слова: почечно-клеточный рак с центральной локализацией, уротелиальный рак лоханки, уротелиальный рак верхних мочевых путей

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Central renal cell carcinoma: a diagnostic dilemma

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Centrally located renal tumor poses a diagnostic challenge to differentiate between renal cell carcinoma and transitional cell carcinoma. Imaging alone is not sufficient to make the diagnosis, some invasive diagnostic investigations are required to ascertain the diagnosis. We present a 60 years old gentleman, who presented dyspepsia and further investigation by contrasted CT kidney revealed a centrally located right renal tumor. Before making a management decision, we performed the right renal biopsy of the tumor which turns out to be a renal cell carcinoma. Henceforth, we performed a robotic-assisted laparoscopic right nephrectomy. A renal biopsy, in this case, assisted to decide only radical nephrectomy instead of radical nephroureterectomy which has higher associated morbidity. Thus, it is important to make confirm by tissue biopsy before deciding on surgery in case of the central renal tumor as this prevents subjecting a patient to under-or overtreatment.

Key words: central renal cell carcinoma, renal pelvis urothelial carcinoma, upper tract urothelial carcinoma

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Background

Renal cell carcinoma is a rare carcinoma accounting for 1.3 incidences per 100,000 Malaysian population [1]. Contrast-enhanced CT kidney and magnetic resonance imaging are the best imaging modalities to diagnose renal cell carcinoma, limiting invasive renal biopsies for only perceived metastatic disease [2]. However, distinguishing centrally renal cell carcinoma from upper tract urothelial carcinoma on contrasted CT is challenging. Here, we would like to present one such case at our center and how we tackled this diagnostic dilemma.

Case presentation

60 years old, the gentleman presented to a private medical center with severe dyspepsia leading to detection of right renal pelvic mass on USG abdomen. Later, he was referred to us for further management.

History. *The patient's primary complaint was burning epigastric dyspepsia, which occurred suddenly in onset. He denies hematuria, flank pain or abdominal pain, or swellings. He does not have any family members with a history of malignancy. He is a known smoker and a retired army veteran. The patient has an underlying history of coronary artery bypass grafting done in 2002 for coronary artery disease. He too has hypertension and types 2 diabetes mellitus. Despite, lack of response initial treatment for his dyspepsia, lead physicians to order USG abdomen to rule out another differential diagnosis. This lead to incidental finding of right solid renal pelvis tumor and was referred to us.*

Examination. *Generally, the patient is a fit man who is ambulatory. Abdominal examinations were unremarkable, there were no palpable abdominal masses and kidneys were not ballotable.*

Investigations. *A contrasted CT kidney was ordered which showed a filling defect involving a right renal pelvis mass measuring 3.0 × 4.2 × 4.3 cm with no features of local invasion or lymphadenopathy (Fig. 1, 2). A right ureteroscopy was performed and no significant abnormality was detected at the right ureter. Right ureteric barbotage and cytology revealed mild atypia for the renal pelvis.*

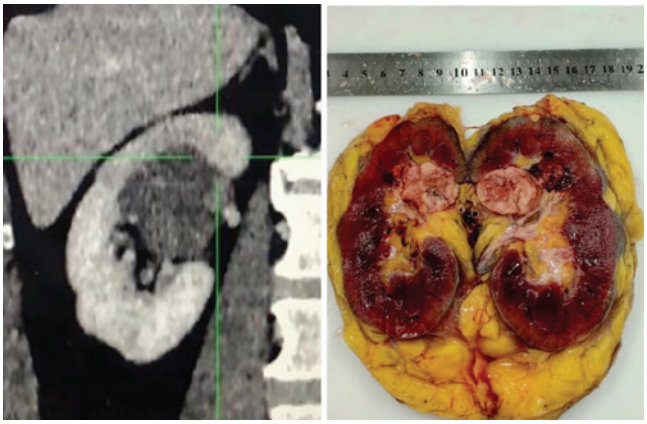

Fig. 1. *A coronal view CT image of the right renal tumour (left image). Right kidney specimen, split-half, arrows pointing at right renal tumour (right image)*

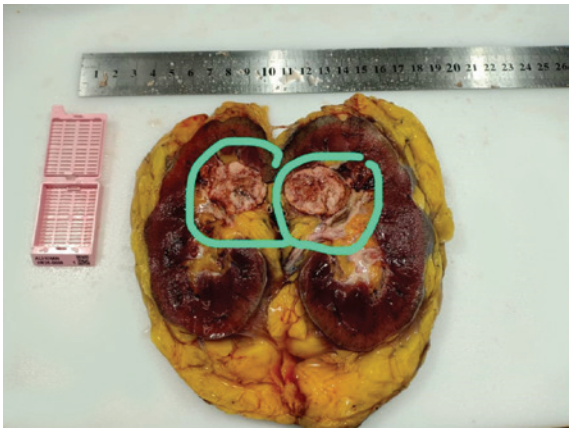

Fig. 2. *Shows cut section of right kidney specimen, split into half. Right renal tumours sections (encircled in green)*

Diagnostic dilemma of renal cell carcinoma versus upper tract urothelial carcinoma encountered. To ascertain a diagnosis, a renal percutaneous biopsy was performed and a histopathology report revealed clear cell type, renal cell carcinoma WHO/ISUP Grade 2.

Management. *Based on options of treatments given to patients. He opted and underwent robotic-assisted laparoscopic right radical nephrectomy. The patient recovered and was discharged home after 5 days of stay inward.*

Histopathology of the right kidney was reported as papillary renal cell carcinoma, type II, invading the renal sinus fat and renal capsule, stage T3aN0Mx by TNM AJCC 8th edition.

Discussion

Since the development of contrasted CT renal in the early 1990s, it had been routinely used to assess solid renal tumors. In most instances, radiologists can confidently diagnose a renal cell carcinoma based on CT and histopathology reports will correlate [3]. However, in certain circumstances like a centrally located renal tumor, it may be challenging for the radiologist to distinguish between centrally located renal cell carcinoma, intrarenal transitional cell carcinoma (TCC), lymphoma, and metastasis to the kidney [4]. Differentiating this centrally located renal cell carcinoma and intrarenal TCC are extremely important from a management point of view and also a follow-up of the patient after the intervention.

For localized renal cell carcinoma, the patient will be counselled for radical nephrectomy and will have half-yearly follow up with CT scan, however, a case of upper tract urothelial carcinoma will need to undergo radical nephroureterectomy with retroperitoneal lymph node dissection and more intense follow up with flexible cystoscopy and CT scan every quarter yearly [5, 6].

Enhancement of solid renal tumor and characteristic of the tumor had been used to define renal cell carcinoma based on CT images. Clear cell renal cell carcinomas

enhance to a greater extent and has a heterogeneous appearance in comparison to non-clear cell renal cell carcinomas which are homogenous and have lesser parenchyma to tumor enhancement ratio [7]. On multidetector CT, pelvicalyceal TCC appears as single or multiple sessile filling defects which compresses on renal sinus fat with pelvicalyceal irregularities like focal or diffuse mural thickening. Infiltrative pelvicalyceal TCCs usually present at more central location, however rarely TCCs can present more eccentric or peripheral location. If eccentric infiltrative TCCs distorts normal reniform shape of kidney, it may mimic renal cell carcinoma [8].

Based on a study, S.A. Raza et al. had suggested looking for other signs such as a filling defect in the renal pelvis, tumor center within the renal pelvis, preservation of renal shape, absence of cystic/necrotic changes, tumor extending into the pelvic ureteric junction, and homogeneity of tumor which suggest intrarenal TCC. Yet, these signs have a specificity of 79–89 % and sensitivity of 68–82 % [4].

By going through previous reported cases and literature, we decided that CT alone may not suffice to provide a diagnosis in our case, which leads us to perform ureteroscopy and barbotage to obtain the right renal pelvis cytology which showed mild atypical cell. Ureteral barbotage cytology has a sensitivity of 77 % and specificity of 31 % [9].

Based on radiological, clinical, and biochemical findings was leading towards intrarenal TCC. A decision was made to ascertain diagnosis by invasive diagnostic technique to guide us to counsel patients on definitive surgical intervention. A percutaneous renal tumor biopsy revealed the diagnosis of renal cell carcinoma, much to the surprise of the attending urologist. Although, the majority of renal tumors can be diagnosed based on multiphasic CT renal alone. Certain tumors such as a centrally located renal tumor in our case need further evaluation even if it involves an invasive diagnostic method. A diagnosis of malignancy is devastating news for the patient and the attending physician's role is vital for proper management and outcome. Accurate diagnosis of the tumor prevents unnecessary intervention that can increase morbidity and even mortality.

Conclusion

Managing this individual case, thought us that a centrally located renal tumor requires more than just multiphasic CT renal alone to conclude on the potential diagnosis of renal cell carcinoma.

ЛИТЕРАТУРА / REFERENCES

1. National Cancer Registry 2012–2016. P. 26.
2. Bagheri M.H., Ahlman M.A., Lindenberg L. et al. Advances in medical imaging for the diagnosis and management of common genitourinary cancers. Urol Oncol 2017;35(7):473–91. DOI: 10.1016/j.urolonc.2017.04.014.
3. Van Oostenbrugge T.J., Fütterer J.J., Mulders P. Diagnostic imaging for solid renal tumors: a pictorial review. Kidney Cancer 2018;2(2):79–93. DOI: 10.3233/KCA-180028.
4. Raza S.A., Sohaib S.A., Sahdev A. et al. Centrally infiltrating renal masses on CT: differentiating intrarenal transitional cell carcinoma from centrally located renal cell carcinoma. AJR Am J Roentgenol 2012; 198(4):846–53. DOI: 10.2214/AJR.11.7376.
5. EAU Guidelines on Renal Cell Carcinoma 2021. Pp. 27–55.
6. EAU Guidelines on Upper Urinary Tract Urothelial Carcinoma 2021. Pp. 14–22.
7. Ng C.S., Wood C.G., Silverman P.M. et al. renal cell carcinoma: diagnosis, staging, and surveillance. Am J Roentgenol 2008;191(4):1220–32. DOI: 10.2214/AJR.07.3568.
8. Prando A., Prando P., Prando D. urothelial cancer of the renal pelvicaliceal system: unusual imaging manifestations. Radiographics 2010;30(6):1553–66. DOI: 10.1148/rg.306105501.
9. Konety B.R., Metro M.J., Melham M.F., Salup R.R. Diagnostic value of voided urine and bladder barbotage cytology in detecting transitional cell carcinoma of the urinary tract. Urol Int 1999;62(1): 26–30. DOI: 10.1159/000030350.

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