Case report

Giant asymptomatic left renal oncocytoma in a 40-year-old man: a case report

Sultan Qaid, Radman Ghaleb, Faisal Ahmed, Ebrahim Al-shami, Qasem Alyhari, Saleh Al-wageeh, Mohammad Reza Askarpour

Corresponding author: Faisal Ahmed, Urology Research Center, Al-Thora General Hospital, Department of Urology, School of Medicine, Ibb University of Medical Science, Ibb, Yemen. fmaaa2006@yahoo.com

Received: 18 Jun 2022 - Accepted: 29 Jun 2022 - Published: 05 Jul 2022

Keywords: Giant, renal oncocytoma, central stellate scar, case report

Copyright: Sultan Qaid et al. Pan African Medical Journal (ISSN: 1937-8688). This is an Open Access article distributed under the terms of the Creative Commons Attribution International 4.0 License (https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Cite this article: Sultan Qaid et al. Giant asymptomatic left renal oncocytoma in a 40-year-old man: a case report. Pan African Medical Journal. 2022;42(177). 10.11604/pamj.2022.42.177.35965

Available online at: https://www.panafrican-med-journal.com/content/article/42/177/full

Giant asymptomatic left renal oncocytoma in a 40-year-old man: a case report

Sultan Qaid¹, Radman Ghaleb¹,², Faisal Ahmed¹,⁶, Ebrahim Al-shami³, Qasem Alyhari³, Saleh Al-wageeh³, Mohammad Reza Askarpour⁴

¹Urology Research Center, Al-Thora General Hospital, Department of Urology, School of Medicine, Ibb University of Medical Science, Ibb, Yemen, ²Department of Urology, Alhamd Hospital, Ibb, Yemen, ³Department of General Surgery, School of Medicine, Ibb University of Medical Science, Ibb, Yemen, ⁴Department of Urology, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

*Corresponding author
Faisal Ahmed, Urology Research Center, Al-Thora General Hospital, Department of Urology, School of Medicine, Ibb University of Medical Science, Ibb, Yemen
Abstract

Renal oncocytoma is a benign tumor that arises from epithelial cells of the distal renal tubules. It is naturally presented with a small-sized mass, and giant oncocytoma is uncommon. Renal oncocytoma is frequently asymptomatic and challenging to distinguish preoperatively from renal cell carcinoma (RCC). We present a 40-year-old man who presented with intermittent abdominal pain in the last two years. Abdominal computed tomography (CT) scan showed a large, heterogeneous left renal mass measured 15 x 16 x 19.5 cm and associated with central calcifications suspected of RCC. The patient underwent a left radical nephrectomy without complication. The histopathological study revealed typical oncocytoma features. There was no detected recurrence or distant metastasis on six months follow-up. In conclusion, it is challenging to distinguish renal oncocytoma from RCC via preoperative radiology images, especially when a giant mass is present. The only histopathology examination of the removed specimen can provide a definitive diagnosis.

Introduction

Renal oncocytoma is responsible for 3-7% of all kidney cancers. The average age of onset is in the sixth-seventh decades with male predominance. Renal oncocytoma is primarily single and unilateral, but in 4-5% of cases, it is bilateral, and in 13%, it might be multifocal [1]. Renal oncocytoma is typically hypervascular and homogeneous and presents a characteristic central scar on computed tomography (CT) scan. However, these radiological findings had a poor predictive value and no definite radiologic features to differentiate it from renal cell carcinoma (RCC) [2]. Oncocytoma is naturally presented with a small-sized mass, and giant oncocytoma is uncommon. Nevertheless, the prognosis of enormous oncocytoma is similar to other smaller lesions [3,4]. Few patients reported incidentally detected giant renal oncocytomas in the literature [2,3]. Therefore, we reported a case of huge left renal oncocytomas in a 40-year-old man.

Patient and observation

Patient information: a 40-year-old male presented with generalized abdominal pain for two years. The pain was mild and radiated to the left flank area. No history of urinary tract symptoms such as hematuria or dysuria. No record of fever, weight loss, or other constitutional symptoms. The patient was a nonsmoker without a family history of cancer.

Clinical findings: the patient’s vital sign was stable, and a palpable abdominal mass in the left upper quadrant was detected on physical examination. The mass was not mobile or tender.

Diagnostic assessment: liver and renal function tests, and haematological tests, are normal (Routines Lab tests). The ultrasonography (US) of the abdomen showed a large, well-defined, varied echogenicity and central necrosis left renal mass measured about 15 x 16 cm. A computed tomography (CT) scan of the abdomen with intravenous contrast administration showed a large, heterogeneous left renal mass measured about 15 x 16 x 19.5 cm. The mass was well-defined, lobulated, and associated with central calcifications. Radiological characteristics were insufficient to distinguish this lesion from RCC (Figure 1).

Therapeutic interventions: after general anesthesia and with a left subcostal incision, the retroperitoneal space was opened. A large renal mass was identified. After mobilization and release of the left kidney, radical nephrectomy was performed. The specimen weighed 3500 g and measured 15 x 16 x 195 cm (Figure 2).

Follow-up and outcome: the patient’s postoperative recovery was unremarkable, and he was discharged without complications on the third postoperative day. The histopathology showed
tumour cells formed of sheets and alveoli of mosaic oncocytic cells with small rounded nuclei, sometimes binucleation with perinuclear halo and low nuclear/cytoplasmic ratio (features between oncocytoma and chromophobe renal cell carcinoma). No capsular invasion or renal sinus invasion. The final diagnosis was oncocytic renal neoplasm of low malignant potential, stage II (pT2bNxMx) (Figure 3).

**Patient perspective:** during treatment, the patient was satisfied with the level of care provided to him.

**Informed consent:** written informed consent was obtained from the patient for participation in our study.

**Discussion**

Oncocytomas are the most common benign solid renal tumours, usually misdiagnosed preoperatively with RCC, and definite diagnosis usually obtained via histopathologic evolutions [5]. The current case describes a rare asymptomatic giant renal oncocytoma that was difficult to differentiate from RCC preoperatively depending on the radiologic features of the CT scan. Zippel et al. firstly described this tumor as a distinct pathologic entity in 1942 [3]. As in our case, these lesions are usually asymptomatic and discovered incidentally during a workup for another reason. However, hematuria, palpable mass, and flank pain are the most frequent complaint in symptomatic patients [2].

The US, CT scan, and magnetic resonance imaging are helpful radiological imaging techniques for diagnosis. Oncocytomas appear on CT scans as a solid mass with homogeneous and varying attenuations, similar to RCC. The central stellate pattern scar on the CT scan could indicate the diagnosis of oncocytoma. However, CT scans still had inadequate predictive value and could not accurately distinguish oncocytomas from RCC [4]. In our case, the central scar was seen on the CT scan; however, the CT scan was still suspicious for RCC. Fine-needle aspiration (FNA) may provide a preliminary diagnosis. However, it is not reliable for accurate diagnosis. In FNA biopsy, no sufficient tumour specimen is obtained, and the risk of bleeding from a hypervascular tumour may occur. Additionally, RCC and oncocytoma may present in the same lesion or different areas of the same kidney [6]. Due to the preoperative suspicion of RCC and the unreliability of frozen section diagnosis, radical nephrectomy is the least risky treatment unless other factors preclude it, such as solitary kidney, bilateral tumours, or poor renal function [6].

Oncocytomas are commonly associated with three distinct genetic abnormalities; nevertheless, no chromosomal abnormalities have been found in several cases. The genetic associations are chromosome Y loss or monosomy, translocations in the 11q13 region, and congenital abnormalities such as trisomy, monosomy, or heterozygosity loss [7]. These genetic changes are unique to oncocytoma and do not occur in RCC [7]. There were no congenital abnormalities in our patient. Radical nephrectomy is still the gold standard treatment for giant renal oncocytomas [3]. However, surgical treatment of small masses is still unclear. Organ-sparing surgery such as partial nephrectomy should be kept for bilateral tumours, tumours less than 4 cm in upper or lower poles, or solitary kidney patients [5]. Oncocytomas and different histological subtypes of RCC can usually be distinguished based on gross and microscopic histopathologic examination of removed spacemen. However, sometimes distinguishing it from the eosinophilic variant of chromophobe RCC (ChRCC) and the granular variant of conventional RCC is difficult and Immunohistochemistry (IHC) makes an accurate final diagnosis [8]. In our case, gross and microscopic histopathologic examinations of removed spacemen were enough to make the definitive diagnosis.

The most useful IHC markers are Vimentin, CK7, DOG1, Cyclin D1, and CD10. In Vimentin which is (+) in conventional RCC, (-) ChRCC, and (-) in oncocytoma. CK7 which (+) in ChRCC, (-) in
oncocytoma, and (-) in conventional RCC. CD10 which (+) in conventional RCC, (-) in ChRCC, and (-) in oncocytoma. DOG1 was positive in ChRCC and renal oncocytoma and negative in RCC. Cyclin D1 was positive in renal oncocytomas but negative in the ChRCC and RCC. Hale’s colloidal iron staining with diffuse reticulitis which (+) in ChRCC but (-) in oncocytoma and (-) in conventional RCC [8,9]. Renal oncocytoma is an almost benign tumour, with no reports of metastasis or recurrence, even giants in size. In 10% to 32% of patients, the tumor could coexist with RCC or have rapid growth and even destroy adjacent parenchyma, demanding close monitoring of the tumor for possible mandatory intervention [3,4]. In our case, there was no recurrence or metastasis in the first six months after surgery. Few cases of giant oncocytomas have been reported, such as Demos et al., who reported oncocytoma measured 27 × 20 × 15 cm and weighed 4652 g [10]. Sundararajan et al. reported renal oncocytoma weighted 3353 g and sized 20 cm [11]. Banks et al. reported renal oncocytoma weighted 3090 g and sized 21 x 18 x 15 cm [12]. Akbulut et al. reported renal oncocytoma weighed 3380 g and measured 25 x 15 x 12 cm [2]. Similar to the previous reports, our case was a giant renal oncocytoma that weighed 3500 g and measured 15 x16 x19.5 cm.

Conclusion

Renal oncocytoma disregarding the size has a good prognosis and a benign clinical course. Unfortunately, clinical or radiographic criteria cannot differentiate most renal oncocytomas from malignant RCC. In larger renal masses, such as our case, radical nephrectomy will remain the preferred management strategy.

Competing interests

The authors declare no competing interests.

Authors' contributions

Patient management: FA, RG, and SQ. Data collection: QA, EA, and MRA. Manuscript drafting and revision: FA. All authors read and approved the final version of the manuscript.

Acknowledgments

The authors would like to thank the General Manager of Al-Thora General Hospital, Ibb, Yemen, Dr. Abdulghani Ghabisha, for editorial assistance.

Figures

Figure 1: abdominal computed tomography scan showing the left renal mass with solid and cystic composition in axial (A) and coronal (B) views (arrows)

Figure 2: intraoperative photo of mass showing a giant resected mass (A) and central area of scarring (arrows) (B)

Figure 3: histopathologic examination showing the classic architecture of an oncocytoma; large eosinophilic cells arranged in distinct nests (A x100, B x200)

References

1. Romis L, Cindolo L, Patard JJ, Messina G, Altieri V, Salomon L et al. Frequency, clinical presentation and evolution of renal oncocytomas: multicentric experience from a European database. Eur Urol. 2004 Jan;45(1): 53-7; discussion 7. PubMed | Google Scholar

2. Akbulut S, Senol A, Cakabay B, Sezgin A. Giant renal oncocytoma: a case report and review of the literature. J Med Case Rep. 2010 Feb 17;4: 5. PubMed | Google Scholar

3. Ahmad S, Manecksha R, Hayes BD, Grainger R. Case report of a symptomatic giant renal oncocytoma. Int J Surg Case Rep. 2011;2(6): 83-5. PubMed | Google Scholar
4. Dey S, Noyes SL, Uddin G, Lane BR. Palpable Abdominal Mass is a Renal Oncocytoma: Not All Large Renal Masses are Malignant. Case Rep Urol. 2019;2019: 6016870. PubMed | Google Scholar

5. Ravikanth R. High-Resolution Ultrasonography of Renal Oncocytoma Presenting with Symptomatic Hematuria and Urinary Bladder Clot Retention-A Rare Occurrence. J Kidney Cancer VHL. 2022;9(1): 15-8. PubMed | Google Scholar

6. Liu J, Fanning CV. Can renal onc cytomas be distinguished from renal cell carcinoma on fine-needle aspiration specimens? A study of conventional smears in conjunction with ancillary studies. Cancer. 2001 Dec 25;93(6): 390-7. PubMed | Google Scholar

7. Junker K, Weirich G, Moravek P, Podhola M, Ilse B, Hartmann A et al. Familial and sporadic renal onc cytomas--a comparative molecular-genetic analysis. Eur Urol. 2001 Sep;40(3): 330-6. PubMed | Google Scholar

8. Cochand-Priollet B, Molinié V, Bougara J, Bouvier R, Dauge-Geffroy MC, Deslignières S et al. Renal chromophobe cell carcinoma and onc cytoma: a comparative morphologic, histochemical, and immunohistochemical study of 124 cases. Arch Pathol Lab Med. 1997 Oct;121(10): 1081-6. PubMed | Google Scholar

9. Geramizadeh B, Ravanshad M, Rahsaz M. Useful markers for differential diagnosis of onc cytoma, chromophobe renal cell carcinoma and conventional renal cell carcinoma. Indian J Pathol Microbiol. 2008 Apr-Jun;51(2): 167-71. PubMed | Google Scholar

10. Demos TC, Malone AJ Jr. Computed tomography of a giant renal onc cytoma. J Comput Assist Tomogr. 1988 Sep-Oct;12(5): 899-900. PubMed | Google Scholar

11. Sundararajan S, Dyer J, Pemberton R, Cohen RJ. Asymptomatic giant renal onc cytoma presenting with hypertension. Pathology. 2008 Dec;40(7): 723-4. PubMed | Google Scholar

12. Banks KL, Cherullo EE, Novick AC. Giant renal onc cytoma. Urology. 2001 Feb;57(2): 365. PubMed | Google Scholar

Figure 1: abdominal computed tomography scan showing the left renal mass with solid and cystic composition in axial (A) and coronal (B) views (arrows)
Figure 2: intraoperative photo of mass showing a giant resected mass (A) and central area of scarring (arrows) (B)

Figure 3: histopathologic examination showing the classic architecture of an oncocytoma; large eosinophilic cells arranged in distinct nests (A x100, B x200)