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Huge Renal Leiomyoma Masquerading as Cystic Renal Cell Carcinoma: a case report

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Abstract

Background Renal leiomyoma is an extremely rare benign tumour of the kidney. It is mostly asymptomatic. Our aim was to report the first case of symptomatic renal leiomyoma in Nigeria which was suspected to be renal cell carcinoma and our objective was to document the clinical, radiological, histological and treatment of this rare lesion.

Case presentation We describe a 46-year-old woman with a two-week history of right flank pain and intermittent haematuria. The examination was remarkable for the ballotable right kidney. Abdominopelvic sonogram and computed tomography were suggestive of cystic right renal mass with suspicion of right renal cell carcinoma. She had surgical resection of the mass and histopathological analysis showed renal leiomyoma.

Conclusion We have illustrated our experience on the first case of symptomatic renal leiomyoma masquerading as cystic renal cell carcinoma in Nigeria. A high index of suspicion is required for accurate diagnosis. This may go a long way in considering kidney-sparing surgery rather than radical nephrectomy.

Keywords Renal leiomyoma, Cystic renal cell carcinoma, Masqurading

1 Background

Renal leiomyoma is an extremely rare tumour of the kidney [1]. It accounts for 0.5% of the surgically resected tumour of the kidney. Renal leiomyoma has a prevalence of 4.5–5% based on autopsy reports [2]. The average age of incidence is between 40 and 45 years and is mostly found in females [3]. It is mostly asymptomatic [3]. However, symptomatic patients with renal leiomyoma may r present with flank pain, palpable mass and haematuria mimicking the classical triad that is commonly found in patients with renal cell carcinoma [4]. Radiological diagnosis of renal leiomyoma is inconclusive as cystic renal cell carcinoma, leiomyosarcoma and angiomyolipoma among others are close differentials [5]. Diagnosis is confirmed following histopathological analysis of the resected specimens which may be following radical nephrectomy based on a suspected pre-operative diagnosis of renal cell carcinoma [6]. The definitive treatment of renal leiomyoma could either be image surveillance or surgical resection depending on the size, symptoms or location [7]. The challenges involved in establishing an accurate pre-operative diagnosis pose a threat to conservative surgical therapy. Pre-operative cross-sectional imaging and gross intra-operative findings may influence the decision on the appropriate definitive therapy. Our aim was to report the first case of symptomatic renal leiomyoma in Nigeria masquerading as cystic renal cell carcinoma and our objective was to document the clinical,

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radiological, histological and treatment of this rare renal cystic lesions.

2 Case presentation

We report a 46-year-old woman with a 2-week history of right flank pain and intermittent haematuria. She does not smoke cigarette and had no history of exposure to a urothelial carcinogen. Past surgical and medical history were not remarkable. The right kidney was ballotable on examination. Renal function tests and other laboratory investigations were normal. Abdominopelvic sonogram was suggestive of a suspicious right renal mass. Contrast enhanced computed tomography showed a huge thick wall septated cyst involving the mid and lower pole of the right kidney with homogenous septal enhancement measuring 8.14 cm by 8 cm in length and anterior–posterior diameter (Bosniak iv). There was prompt and satisfactory contrast excretion and good corticomedullary differentiation bilaterally as shown in Fig. 1a and b. Metastatic work-up was negative. She was prepared for right radical nephrectomy but gross intra-operative findings showed a huge well-circumscribed cystic lesion involving the mid and lower pole of the right kidney and substantially grossly normal renal parenchyma as shown in Fig. 2. Contralateral kidney was grossly normal. She had surgical resection of the cystic lesion. Histopathological analysis revealed renal leiomyoma involving partly the renal pelvis and the tubules as demonstrated in Fig. 3a, b and c. The patient was discharged on post-operative day five. Renal ultrasound scan as well renal function tests done on follow-up at the surgical outpatient clinic were essentially normal.

3 Discussion

Renal leiomyoma is an extremely rare tumour of the kidney. This is the first case of symptomatic renal leiomyoma in Nigeria to the best of the authors knowledge.

Most cases of renal leiomyoma are asymptomatic as reported in the medical literature [8, 9]. They are found either incidentally or at autopsy. This index case, however, differs as we observed symptoms and signs mimicking renal cell carcinoma in our patient. This was similar to what was reported by Abudullah Waleed in his report titled Renal Leiomyoma; Case Report and Literature Review [10]. The development of flank pain may be due to the pressure effect on the renal capsule while the haematuria may be unconnected to the lesion involving the renal pelvis.

The age and sex of our patient aligned with the age and gender distribution among patients with confirmed cases of renal leiomyoma in the medical literature which have been said to be between the age of 40–45 years and female preponderance. This did not differ from what was reported by Chaniotakis et al. and Ma in their series titled Large Renal Leiomyoma; A Multidisciplinary Approach and Acute Abdominal Pain Induced by Renal Leiomyoma, respectively [6, 11]. It is very rare in the paediatric age group [12].

Pre-operative imaging modalities for a suspected case of renal leiomyoma are inconclusive. This was observed by MN Mercimek following a case series of four adult patients with renal leiomyoma [13]. Our experience, in this case, was not different as the patient was pre-operatively planned for radical nephrectomy based on suspicion of renal cell carcinoma. The pre-operative contrast enhanced computed tomography of the description of this cystic renal lesions fell within category iv of Bosniak

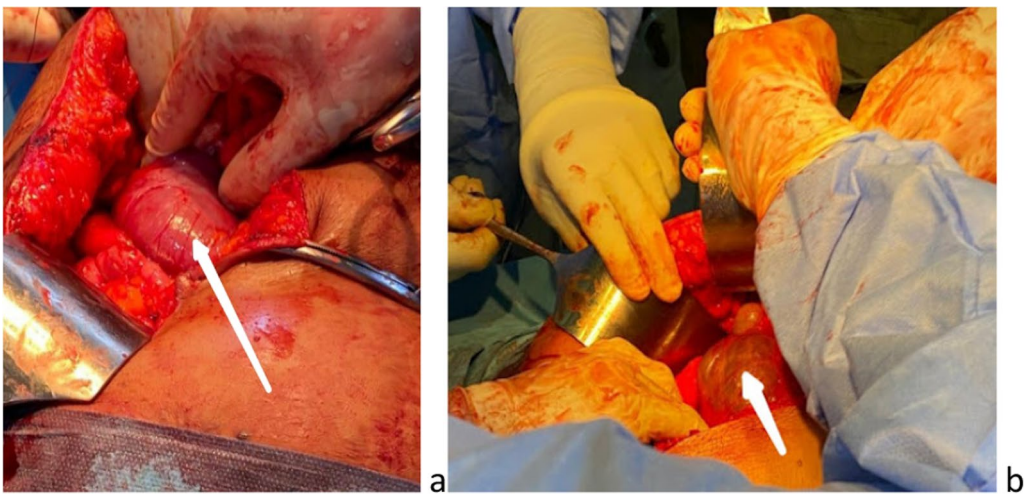

Fig. 1 **a** and **b** The cyst during surgery (**a**) and grossly normal renal parenchyma (**b**) as demonstrated by the respective white arrow

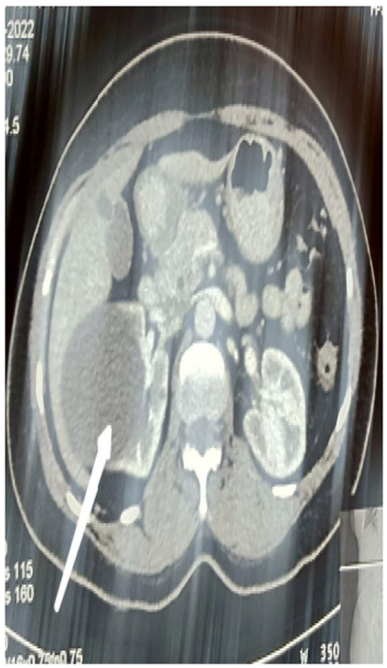

Fig. 2 The computed tomography image of the right cystic kidney indicating an arrow showing septation with homogenous septal enhancement

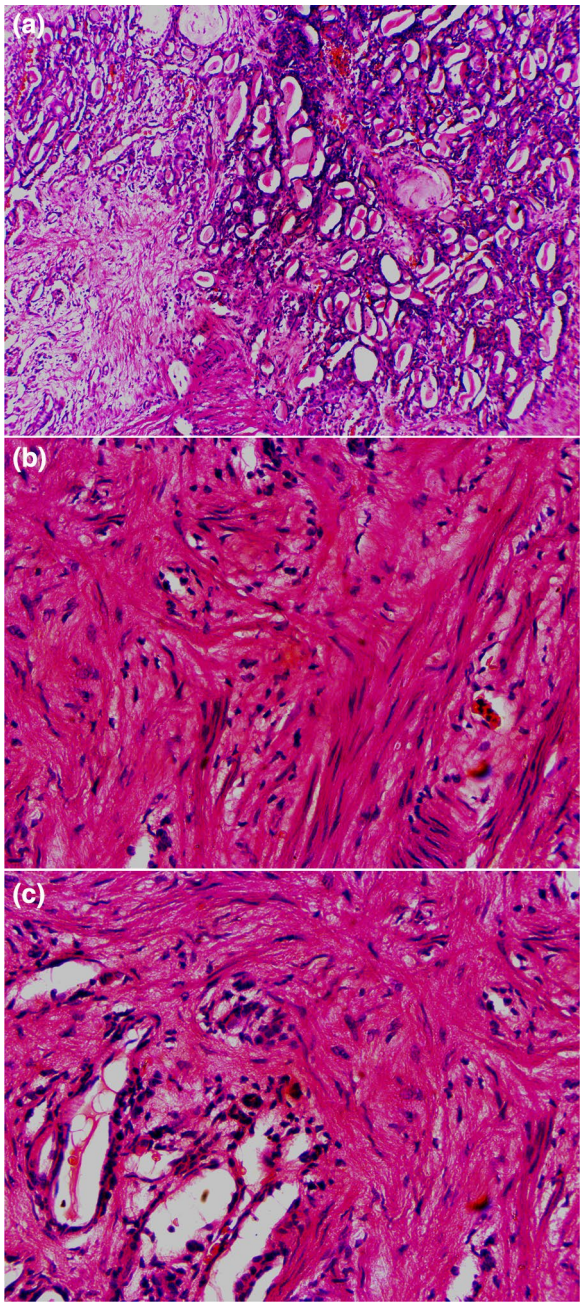

Fig. 3 **a** ×100: Sections show renal tubules, and atrophic glomeruli intermixed proliferating bundles of smooth muscle cells arranged in fascicles and nodular patterns. The cells are spindle shape with elongated cigar shaped nuclei and abundant eosinophilic cytoplasm. The section at 8 o'clock show features that are consistent with leiomyoma. **b** ×400 Mag. The section shows proliferating bundles of smooth muscle cells arranged in fascicles. **c** ×400 Magnification: Section shows the interphase of a renal leiomyoma on the right while the atrophic renal tubules are on the left side of the slides

classification. The risk of malignancy in category iv Bosniak classification has been reported to be 91.7% [14]. This informed our pre-operative surgical option of radical nephrectomy. . Some of the reports in the medical literature illustrating renal leiomyoma were following radical nephrectomy [15, 16]. What informed our choice of surgical resection rather than radical nephrectomy was gross intra-operative findings of a normal kidney on a background of pre-operative imaging that demonstrated some renal functions. This further leans credence to the fact that the gold standard treatment option for symptomatic renal leiomyoma is surgical resection most renal leiomyomas are found in the renal cortex and or renal capsule [17]. This index case was, however, observed partly in the renal pelvis. This may explain the reason for the symptoms. This was in contrast to the report by Noppadol et al. where it was noted to be located in the renal cortex [18].

4 Conclusion

We have illustrated our experience on the first case of symptomatic renal leiomyoma in Nigeria. Pre-operative imaging modalities for renal leiomyoma are inconclusive. Gross intra-operative findings may inform the choice of definitive therapy. An awareness of the condition and

a high index of suspicion is required to make a correct diagnosis and thus conservative surgical therapy rather than radical surgery.

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Author contributions
INA substantially contributed to the conception of the work, literature search and design of the study. AAA substantially revised the work and was also involved in the interpretation of data. RMW was involved in the acquisition and analysis of data. POO was substantially involved in the acquisition and analysis of data. All authors have read and have approved the manuscript.

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Declarations

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Consent for publication
Consent was obtained from the patient.

Competing interests
All authors have declared no competing interest.

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