International Surgery Journal
Ghosh S et al. Int Surg J. 2023 Jun;10(6):1134-1136
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: https://dx.doi.org/10.18203/2349-2902.isj20231756

Case Report

Metanephric adenoma of kidney: a rare case report

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Received: 21 April 2023
Accepted: 17 May 2023

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ABSTRACT

Metanephric adenoma is a rare benign neoplasm of kidney and is usually a differential diagnosis of Wilms tumor (in children) and papillary renal cell carcinoma (in adults). Here, we present a case report of a 40-year-old gentleman with a right renal mass that was ultimately diagnosed by immunohistochemistry of the final specimen after surgery to be a metanephric adenoma. To prevent needless radical nephrectomies in middle-aged patients metanephric adenoma must be considered in the differential diagnosis of renal mass.

Keywords: Renal mass, Partial nephrectomy, RCC, Nephron-sparing surgery, Benign

INTRODUCTION

There are very few incidences of metanephric adenoma (MA), a rare benign kidney tumour that primarily affects middle-aged women, detected in just 0.2% of adult renal epithelial tumours.[1,2] Wilms' tumour and papillary renal cell cancer are the differential diagnoses for metanephric adenoma. It might be challenging to preoperatively diagnose MA based on radiological signs, but proper diagnosis is crucial as it may avoid needless radical surgery.[1] In order to increase our awareness of the features of metanephric adenoma, we present here a rare case report of a metanephric adenoma of the lower pole of the right kidney.

CASE REPORT

A 40-year-old gentleman presented with right flank lump for 1 year, gradually progressive. Complained of mild dull aching pain however there was no history of hematuria**.**

On examination there was fullness in right lumbar region and right renal angle on inspection (Figure 1). An ill-defined, non-tender lump of size 15×10 cm was palpated in right lumbar region which was bimanually palpable not moving with respiration; there was no evidence of ascites.

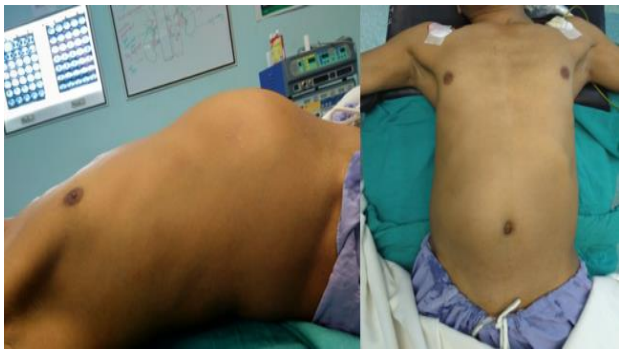

Figure 1: Clinical photographs of the patient.

Contrast enhanced computed tomography (CECT) abdomen showed a well circumscribed, heterogeneously enhancing solid-cystic renal mass 11.6×14.1×12.1 cm protruding out of renal outline of lower pole of right kidney (Figure 2).

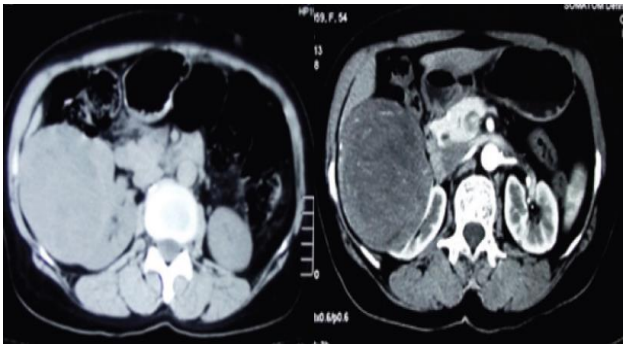

Figure 2: Cross-sectional CT scan images showing solid-cystic right renal mass.

Exploratory laparotomy was performed and Intra-op findings revealed well-defined, solid-cystic mass of size 15×13×11 cm originating from the cortex of the right kidney's inferior segment, with an intact capsule (Figure 3). We went ahead with wide local excision of right lumbar mass (open partial nephrectomy) with inferior segment of right kidney closed by omentopexy (Figure 4).

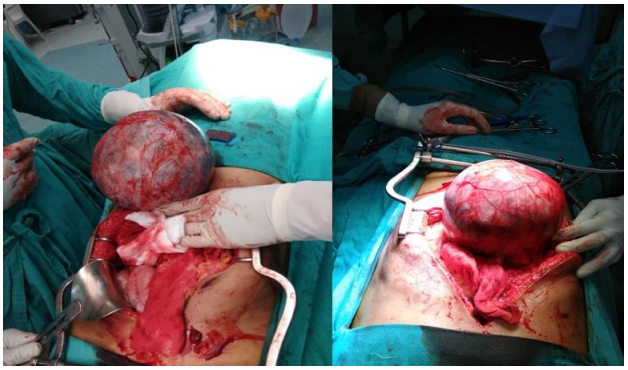

Figure 3: Intraoperative images showing well encapsulated right renal mass.

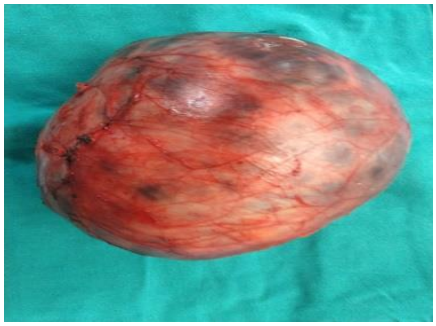

Figure 4: Partial nephrectomy specimen photograph showing well-encapsulated solid-cystic renal mass.

Final histopathology revealed atypical cells with small round morphology, basophilic with scant cytoplasm, round hyperchromatic nuclei. Tightly packed back-to-back tubules (tubular configuration) with minute lumina accompanied by very scanty stoma. Extensive calcification present. Immunohistochemistry was done which showed CK (AE1/AE3) +, CD 99 +, CD57 +, VIMENTIN +, PAX 8/PAX 2 diffuse +; morphological and immunochemical possibilities included metanephric adenoma and solid variant of papillary renal cell carcinoma (Figure 5). However, CK7 and AMACR immunonegativity ruled out the latter possibility.

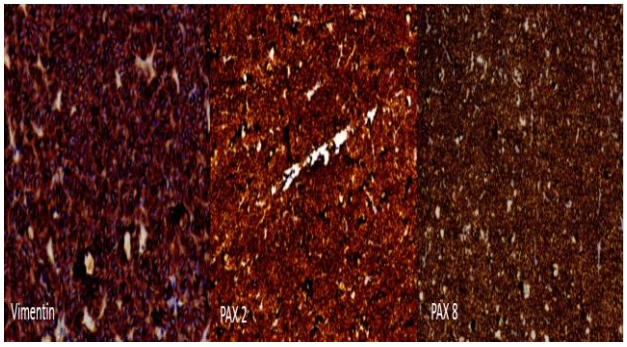

Figure 5: Immunohistochemistry images showing vimentin, PAX 2, PAX 8 immunopositivity.

DISCUSSION

The benign metanephric adenoma (MA) is a renal tumour which has a low growth rate and a good prognosis.[3] A mass of spindle cells connected to epithelial cells is what is known as MA. The majority of MA patients are female (female: male=2:1), asymptomatic, and incidentally found throughout a wide age range. However, the patient in this case was a middle-aged man. Imaging investigations make it challenging to differentiate MA from other aggressive renal cell carcinomas.[4]

Furthermore, it could be difficult to make a histological diagnosis of MA.[4] The solid variant of papillary renal cell carcinoma (PRCC) and Wilms tumour, both of which exhibit aggressive activity, have comparable morphologies to MA. The exceedingly low incidence of metanephric adenoma occurrence contributes to the difficulty of detecting it prior to surgery.[4] Metanephric adenoma may be taken into account in making the differential diagnosis of renal masses, especially in patients who are female, middle-aged, and have hypovascular tumours with defined margins. Our present case had undergone a nephron sparing surgery (partial nephrectomy) as the tumor was away from hilum of kidney (entirely below the lower polar line) and was exophytic, and hence was amenable for nephron sparing surgery by preservation of hilar vessels. But still most metanephric adenomas are recognized after a radical nephrectomy.[5] Patients with this condition does not need a radical nephrectomy because the tumour is known to be benign.

CONCLUSION

In the current study, a rare metanephric adenoma case that required open partial nephrectomy is described. To prevent needless radical nephrectomies in middle-aged patients, metanephric adenoma must be taken into account as a differential diagnosis of renal mass.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Ghosh S, Joseph B, Desai SM, Singh S, Ghosh S. Metanephric adenoma of kidney: a rare case report. Int Surg J 2023;10:1134-6.