

Spectrum of Incidental Renal Masses Detected at Autopsy

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Abstract

The incidence of benign renal tumours is less, especially when compared to renal cell carcinomas, as most are detected incidentally or at autopsy. Few of the benign tumours are unique to the kidney while few are known to occur at any site such as lipoma. We report 4 cases of incidental benign renal masses and 1 clear cell carcinoma which is a multilocular cystic renal cell carcinoma (MCRCC), an incidental finding of smallest size which is probably the first being reported.

Introduction

Some of these tumours, as their names imply, are unique to the kidney, e.g., renal adenoma, metanephric adenoma, renal oncocytoma, nephrogenic adenofibroma, medullary fibroma, cystic nephroma, cystic partially differentiated nephroblastoma, and cystic hamartoma of the renal pelvis, while others, such as angiomyolipoma, leiomyoma, haemangioma, lipoma, etc., are not unique to the kidney and show similar morphologic features in the other sites they affect. The adenomas are a true clinico-pathological dilemma, not only because they can be confused by imaging diagnosis, but because there are biological dilemmas to determine and therefore different questions emerge: firstly, do the renal adenomas really exist?, and secondly, in case they do exist, are they precursor lesions of renal carcinomas?, and if they were, do we have the possibility of differentiating the benign neoplasias from the malignant ones?

The current classifications of renal

carcinomas have managed to integrate the genetic and molecular findings with the cytological characteristics.³ This conjunction has made it possible to correlate the histological subtypes with the prognostic and therapeutic ones. For this reason, we can approach the renal adenomas according they are of clear cells, of eosinophilic cells (oncocytes), with papillary growth, or have a metanephric blastoma appearance.

Material and Methods

A retrospective study of postmortem cases were studied and we archived 5 cases from the total of 650 postmortems which showed incidental renal masses detected at autopsy. These cases were asymptomatic and had no symptoms related to the masses and the causes of death were unrelated to the renal masses. All the other organs in these 5 cases were studied and there was no evidence of any other lesions secondary (metastases) of these incidental renal masses seen at autopsy.

The Table 1 shows a brief history of these 5 cases with cause of death.

Discussion

Autopsy results have shown that

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Table 1 :

No.	Age/Sex	Cause of death	Gross of kidney	Microscopy
1	40 year /male	Perforative peritonitis and septicaemia	Kidney showing a nodule of size 2.2 cm x1.5 cms. The cut section was multiloculated and cystic and contents of cyst was clear fluid. There was no blood or clot seen (Fig. 1).	Section from the cystic mass shows cysts separated by the fibrocollagenous tissue and lining by clear cells (Fig. 1). Diagnosis: Multilocular cystic renal cell carcinoma (MCRCC)
2	70 year /male	Perforative peritonitis and septicaemia	Kidney showed 0.4 cm x 0.4 cms nodule in the cortex. The cut section was whitish and firm with no areas of haemorrhage or necrosis seen (Fig. 2a).	Section from the nodule showed tubulo-papillary pattern. (Figs. 2B and C) Diagnosis: Cortical adenoma
3	43 year /female	Disseminated tuberculosis with cachexia	Normal sized kidneys with miliary tubercles of size 0.2-0.3 cm and slightly larger nodule of 0.5 cm in the cortex. The cut section was whitish.	Section showed predominantly tubular architecture with few papillary areas. (Figs. 3A and B) Diagnosis: Cortical adenoma
4	35 year /male	Tuberculous bronchopneumonia	Kidney was normal size and showed a nodule of size 1 cm x 1 cm in the medullary region. The cut section was whitish and firm. There was no hyperaemic zone seen around the mass.	Section shows circumscribed tumour composed of spindle shaped cells with dense, collagenised stroma. (Figs. 3C and D) Diagnosis: Medullary fibroma
5	38 year /male	Acute febrile illness with cerebral malaria	A whitish firm nodule of 0.7 x 0.7 cm in medullary region.	Diagnosis: Medullary fibroma. (Figs. 3 C and D)

approximately 50 per cent of persons older than 50 years have one or more renal cysts.¹ Other studies indicate that almost one third of persons in this age group have at least one renal cyst that is identifiable on a CT scan.² Most of these lesions are benign simple cysts that require no further evaluation, intervention or urologic consultation

Out of 650 autopsies we encountered 5 incidental renal masses, with an incidence of less than 1%.

Adenomas with Clear Cells?

The most frequent renal neoplasia of the adult is the clear cell renal cell carcinoma. Since Bell's descriptions⁴ it is well known that some of the small clear-cell tumours have

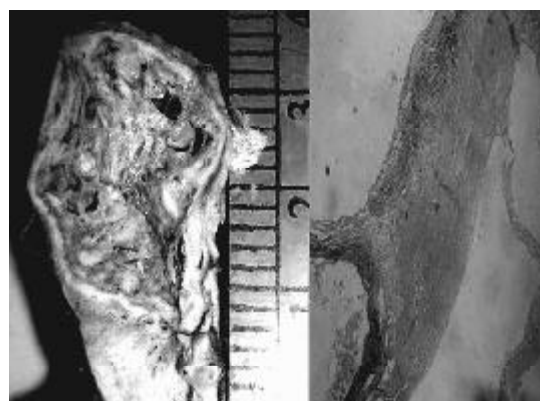


Fig. 1: Gross view of the kidney mass of 2.2 cms (scale) size with multicystic appearance. Microscopic view shows cysts separated by the fibrocollagenous tissue and lining by tumour cells with clear cells.

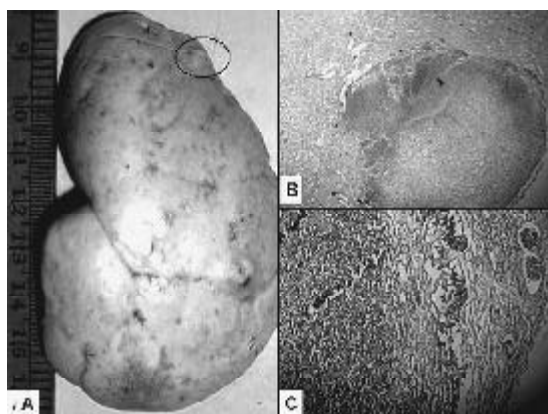


Fig. 2: A) Gross photograph of the kidney showing a renal cortical adenoma (box) and (B) Shows a microscopy of adenoma, composed of tubulo-papillary pattern resembling papillary type of renal cell carcinoma. (C) High power shows a papillary architecture except that you don't see the foamy histiocytes and the psammoma bodies which are seen in papillary carcinoma. (H and E).

metastasis capacity and therefore currently the existence of an adenoma of clear cells is not accepted, instead it is considered that all the clear-cell tumours are carcinomas, with greater or lesser aggressiveness. The differential diagnosis of a multilocular cystic renal mass includes numerous cystic diseases of the kidney, most of which are easily excluded based on CT findings.⁵ However, multilocular cystic nephroma, formed by multiple separate cysts (which are also known as multilocular cyst) is a rare benign tumour of the kidney, frequently cannot be distinguished from multilocular cystic RCC by imaging. Microscopic examination of surgically resected tissue is often necessary to distinguish between these two neoplasms.

Our first case though cystic was lined by clear cells, and therefore cannot be called as adenoma. This tumour was multilocular cystic renal cell carcinoma smallest one reported and that too incidental at autopsy which is a

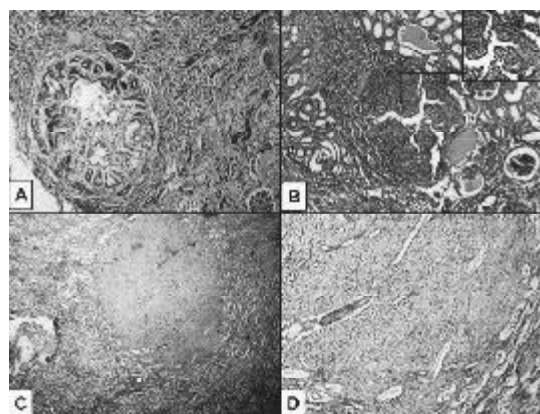


Fig. 3: (A and B) shows small cortical adenoma showing predominantly tubular architecture. (C and D) shows small renomedullary interstitial cell tumour showing circumscribed tumour composed of spindle shaped cells with dense, collagenised stroma.

rare occurrence. This tumour has excellent prognosis with no metastases reported, many authors suggest to rename this tumour as multilocular cystic renal cell neoplasm of low malignant potential which might help urologists approach the patients conservatively. The literature on MCRCC reports the average diameter ranging from 3.5 cms – 13 cms¹ and there were no reports on incidentally detected MCRCC.

Hence our case was a rare occurrence detected at autopsy and is probably the first case of incidental MCRCC of smallest size.

Papillary adenomas (Two cases):

The renal cortical adenomas are detected at autopsy with an incidence of 1-2%.

Now the benign neoplasms of the kidney- the renal cortical adenoma it is a very controversial entity it was believed before that anything that is less than 3 cm in diameter, is a benign lesion, called as cortical adenoma. However, there were reports of metastasis occurring in some of those which were less than 3 cm. So it did not make sense, a tumour

that is considered being benign with the metastatic potential. So this is a very controversial entity, in fact now they have dropped down the size to small as 5 mm, so from 3 cm it has been dropped down to 5 mm. These renal cortical adenomas look histologically similar to the papillary type of renal cell carcinomas and in fact they show similar chromosomal changes that is gain in chromosome 7 and 17.⁶ The small papillary tumours are characterized by a growth of cells with scant cytoplasm (chromophilic cells), occasionally somewhat eosinophilic, with tubular-papillary patterns, well delimited and not encapsulated (Fig. 2).

From these findings it was considered that there is a series of small benign lesions and that the increase in size is associated with greater amount of chromosomal alterations and therefore the possible transformation in papillary carcinomas. For this reason, the WHO 2004 renal cell tumours classification considered tumours with a maximum diameter of 5 mm as papillary adenomas. In our cases, size of lesions were 3 mm and 5 mm with tubulopapillary pattern. Also in case of papillary carcinoma, a papillary architecture with foamy histiocytes and the psammoma bodies can be seen which were not seen in our cases of papillary adenoma. In our cases, both the papillary adenoma were found as incidental finding and both the patient had normal renal parenchyma. Tubulopapillary growth can be seen in chronic scarred renal tissue secondary to dialysis or in the background of cystic change.

Renomedullary Interstitial Cell Tumour. (Two cases):

The minute "medullary fibroma" was a common incidental finding in kidneys of patients over 50 in the series of Xipell⁷ and Reese and Winstanley.⁸ These lesions are round to oval, unencapsulated, upto 7 mm in

diameter (average 3 mm), pale grey to yellow, and located in the midportion of the medulla. These ovoid to spindle-shaped cells stromal cells lack distinct margins and contain abundant cytoplasmic lipid droplets and a prominent Golgi apparatus. It is not established whether the renomedullary interstitial cell tumour represents a true neoplasm, a hamartoma,⁸ a scar in response to an unknown injury, or a simple hyperplasia with fibrosis interstitial cells.⁹

Both the benign lesions mentioned in our study; papillary adenoma and renomedullary interstitial cell tumour can be confused with miliary tuberculosis on gross examination. However the microscopy will clinch the diagnosis as there will be epithelioid cell granulomas in tubercular lesions. We had two cases of tuberculosis (case 3 and case 4) and there were tubercle granulomas seen in kidney of case 3 along with cortical adenoma.

Conclusion

The small clear-cell tumours have metastasis capacity and therefore currently the existence of an adenoma of clear cells is not accepted, instead it is considered that all the clear-cell tumours are carcinomas, with greater or lesser aggressiveness irrespective of size provided there is presence of clear cells. Among the papillary neoplasms, as per the WHO 2004 renal cell tumours classification, the papillary adenomas are tumours with a maximum diameter of 5 mm. Thus, the criteria used to consider renal neoplasia as adenoma vary a great deal according to the cellular type. For this reason, we can approach the renal adenomas according to the cell type like clear cells, or with papillary growth. Medullary fibromas are benign lesions seen in the medulla.

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SOUTH AFRICA TRIES NEW APPROACH TO RESISTANT TUBERCULOSIS

Patients with drug-resistant tuberculosis in a township near Cape Town are being encouraged to opt for treatment at home rather than in hospital isolation wards.

Busisiwe Beko had come to terms with being HIV positive, but was devastated when she was diagnosed with drug-resistant tuberculosis in 2006. She was put on a hospital waiting list and feared she would "go and die in there". In the meantime she started treatment for drug-resistant tuberculosis along with antiretroviral therapy under medical supervision at home. She was separated from her child during the ensuing nightmare, but support from her loved ones helped her to survive 6 months of painful daily injections and 18 months of "horrible drugs" that made her vomit daily. "You can get cured, that is the message I am spreading", said 35-year-old Beko, who went on to become a tuberculosis-adherence counselor with Medecins Sans Frontieres (MSF).

Patients have to cope with the stigma of wearing a face mask in a society in which HIV/AIDS and tuberculosis are still often taboo, there needs to be meticulous family screening, and there are practical difficulties in finding a separate sleeping area for infectious people living in tiny shacks?

"We probably have no other choice because of the numbers involved and the co-infection rate."

The Lancet, 2009; 374 : 441.