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CASE REPORT

Papillary Adenoma of Kidney- An Incidental Autopsy Finding: Report of Two Cases

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Abstract:

Background: Renal papillary adenoma is usually an incidental finding at autopsy with an incidence of 7% to 23%. The frequency of small papillary tumours of kidney increases with age to approximately 40% of the population over the age of 65. These tumours occur more frequently in scarred kidneys, acquired renal cystic disease and in children with von Hippel-Lindau syndrome. *Case history*: In this report we describe renal papillary adenoma incidentally detected during autopsies of two elderly males. Gross examination of kidney showed two tiny subcapsular yellowish nodules in one case and single nodule with similar morphology in the other. Microscopic examination in both the cases showed a well circumscribed tumour composed of densely packed tubules and papillae lined by small cuboidal to columnar cells with rounded uniform nuclei. However there was no nuclear atypia, mitosis or necrosis.

Key Words: Renal papillary adenoma, Autopsy, Adenomatosis

Introduction:

The current WHO classification of renal epithelial tumours defines papillary adenoma as tumour with papillary or tubular architecture of low nuclear grade and 5 mm in diameter or smaller. The lesions with clear cells are considered malignant regardless of the size. Usually papillary adenomas are solitary. But occasionally they are multiple and bilateral. When they are numerous, the condition is called renal adenomatosis. Majority of the patients remain asymptomatic and the tumours are undetectable radiologically owing to their small size. They are usually well circumscribed, yellow to greyish white nodules occurring just below the renal capsule. The microscopic morphology of papillary adenoma resembles closely with both type 1 and 2 papillary renal cell carcinoma [1, 2]. We report two cases of renal papillary adenoma incidentally detected during autopsy.

Case History:

Deceased 1 was a 55 year old male. Autopsy findings revealed features of healed rheumatic heart disease, focal chronic pericarditis, pleuritis and chronic passive venous congestion of liver. Gross examination of kidney showed two tiny yellowish white nodules, each measuring 0.2 cm in diameter just beneath the capsule. Deceased 2 was a 78 year old male. Autopsy findings revealed changes of chronic ischemic heart disease, focal fatty

change in liver and congestive splenomegaly. Gross examination of kidney showed single yellowish subcapsular nodule measuring 0.1 cm in diameter. Microscopic examination in both cases showed a well circumscribed tumour composed of densely packed tubules and papillae lined by small cuboidal to columnar cells with rounded uniform nuclei (Figure-1). There was no nuclear atypia, mitosis or necrosis. The interface with normal renal parenchyma was sharp and without any stromal reaction. In case 1, there were two tumours, out of which one showed occasional psammoma bodies and nuclear grooves (Figure-2). In both the cases, the adjacent kidney showed evidence of chronic pyelonephritis.

Fig 1: Photomicrograph showing subcapsular, circumscribed tumour composed of tubules and papillae (H&E, X100).

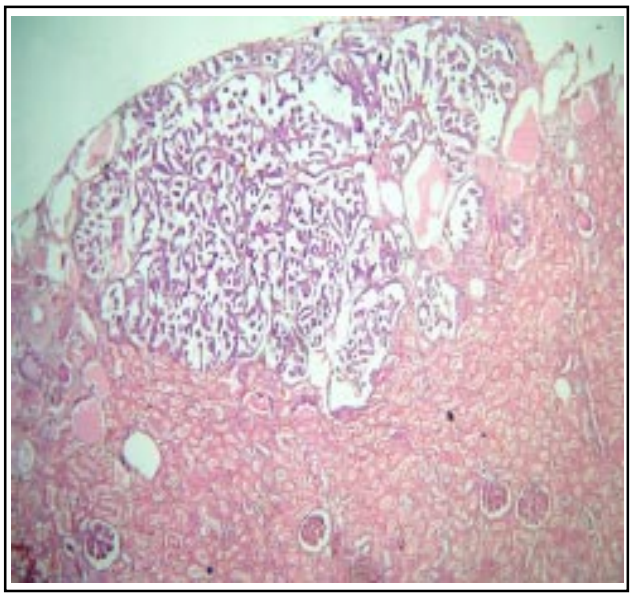
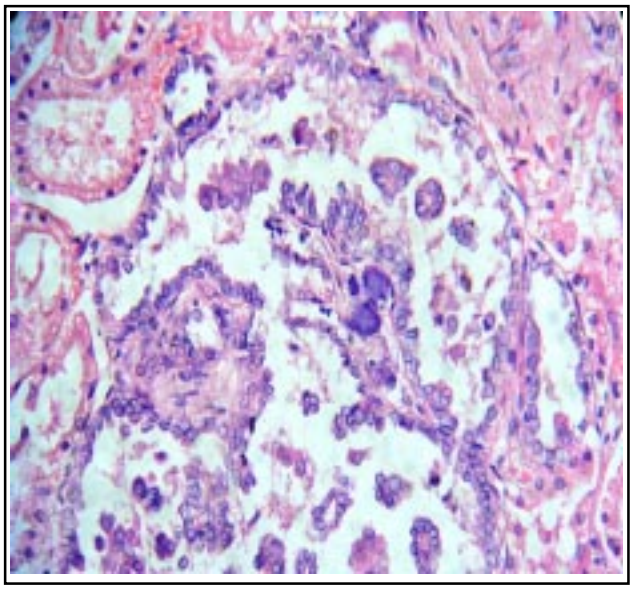


Fig 2: Photomicrograph showing papillae lined by uniform cells with low grade nuclei. The core shows psammoma bodies. (H&E, X400).



Discussion:

Papillary adenomas are frequently found incidentally at autopsy as well as in nephrectomies performed for other diseases. The reported incidence is 7% in nephrectomy specimens and 10-40% in autopsies [3]. The frequency of small papillary tumours of kidney increases with age. Eble and Warfel reported on a series of 400 consecutive autopsies in which the kidneys were carefully sectioned and examined; epithelial cortical lesions were found in 83 instances (21%), the frequency increasing with age (10% in 21-40-year-olds versus 40% in 70-90-year-olds) [2]. Jones et al reported renal cortical adenoma incidentally found during living donor nephrectomy [4].

Papillary adenoma occurs more frequently in kidneys scarred from chronic pyelonephritis or renal vascular disease, long term hemodialysis, acquired renal cystic disease and in children with von Hippel-Lindau syndrome [5]. Additionally, papillary adenomas often occur coincidentally with Papillary Renal Cell Carcinoma (PRCC). A recent series of papillary adenomas in surgical specimens have demonstrated that nearly 50% of adenomas have been identified in patients with PRCC; less than 10% have been present in the setting of other renal diseases including other renal neoplasms and end-stage renal disease. It has been proposed that renal papillary adenomas are precursor lesions of papillary renal cell carcinoma because of its association with PRCC and similar immunohistochemical expression of alpha-methylacyl-coenzyme A racemase (AMACR) [3].

The concept of renal papillary adenoma is controversial and has evolved over the past 3 decades. The term has historically been used to refer to small proliferations of papillary or tubulo-papillary epithelium in the renal cortex which theoretically has no metastatic potential. Reliable criteria for differentiating adenoma from carcinoma remain elusive. In 1950, Bell classified all tumours less than 3 cm in diameter as adenoma [6]. Small cortical tumours have repeatedly demonstrated malignant behaviour, confirming that size alone is not a reliable diagnostic criterion. Thoenes et. al have defined adenoma as any tumour up to 1 cm in size with grade 1 cytology (small uniform nuclei with delicate or condensed chromatin, inconspicuous nucleoli, absent mitotic figures) and included clear cell tumours in this definition [7]. Murphy et. al have considered adenomas as the tumours with closely packed tubules with or without papillae and composed of small regular cuboidal cells with rounded, uniform nuclei lacking any features of anaplasia and rare or absent mitotic figures [5]. Currently low grade papillary epithelial tumours, 0.5 cm or less in diameter are defined as adenomas but clear cell morphology excludes the diagnosis of papillary adenoma irrespective of size [1, 2].

Renal papillary adenoma should be differentiated from papillary renal cell carcinoma and metastatic papillary carcinoma as the clinical course and outcome of these tumours differ. Renal papillary adenoma shares few important morphological features with papillary renal cell carcinoma such as papillary architecture, psammoma bodies and presence of foamy histiocytes in the papillary cores. Also cytogenetic changes in papillary adenoma and carcinoma are similar. Both show trisomies of chromosome 7 and 17 and loss of chromosome Y [2]. But papillary adenoma is a small (0.5 cm or smaller), well circumscribed, unencapsulated tumour which does not show any nuclear atypia or mitosis. The cells have scanty to moderate amount of eosinophilic cytoplasm. There is no immunohistochemical, molecular or electron microscopic finding that can unequivocally define this neoplasm [2]. Papillary adenoma simulates metastatic papillary carcinoma especially of thyroid from which it is differentiated by its circumscription, lack of optically clear nuclei and nuclear inclusions. The metastatic tumours have history

or findings indicative of primary carcinoma and usually show marked nuclear atypia and desmoplastic stroma. An unusual reactive process, adenomatoid metaplasia of the epithelium of Bowman's capsule, may mimic the changes seen in renal adenomatosis. Adenomatoid metaplasia occurs most often in patients with malignancies involving the liver (both primary and secondary) [5].

With advances in imaging techniques more number of such tumours may be identified preoperatively and treatment decisions in these cases can be difficult. Definitive classification of solid renal masses cannot be made by imaging alone. However, observation is generally recommended for solid renal masses <1cm, as these are likely to behave in a benign fashion [3]. To conclude, one should be aware of renal papillary adenoma occurring incidentally in autopsies and in nephrectomy specimens which should not be misdiagnosed as metastatic papillary carcinoma.

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