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Papillary renal cell carcinoma: Rare case report

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Abstract
Eosinophilic renal tumours comprises a range of papillary and solid lesions including both benign and malignant neoplasms. Identifying the tumor, subtyping and deducing the behaviour of the disease is essential for the purpose of correct management of the patient. Type 2 renal cell carcinomas (RCC)s have distinct cytological features that are different from type 1 papillary RCCs. These cytological features are shown to be attributed to the aggressive behaviour exhibited by these tumours. Here, we present a rare case of type 2 papillary with a special emphasis on the behaviour of the tumour.

Keywords: papillary, renal, carcinoma, oncocytic, eosinophilic, prognosis

Introduction
Eosinophilic renal tumours comprises a range of papillary and solid lesions spanning from innocuous benign oncocytoma to extremely aggressive malignant neoplasms. Identifying the expected behaviour of the neoplasm, particularly in biopsy samples, is of paramount importance for the purpose of correct management of the patient [1].

Case Report
A 59 year old male with left lower pole kidney tumour was scheduled for resection. Grossly, the specimen of left partial nephrectomy surrounded by perirenal fat measured around 3x2 cm. On sectioning, there is a well delineated hemorrhagic appearing tumour, having a dimension of 27x22x20mm [Fig 1]. Resected upper margin is located minimum 2mm away. The peri renal fat tissue is unremarkable.
Sections from the well circumscribed haemorrhagic tumour of the lower pole of kidney showed classical papillary configuration of the tumour cells arising from the tubules, the papillary component constituting more than 80% of the tumour bulk with extensive areas of haemorrhagic congestion [Fig 2]. Individual papillary fronds, at places differentiating into tubulo papillary pattern, lined by single or occasionally with pseudo stratification of columnar cells with abundant eosinophilic cytoplasm along with vesicular nuclei and prominent nucleoli is observed [Fig 3].
Scanty intervening stroma shows patchy collection of lymphocytes and areas of hemorrhagic necrosis. A pseudo capsule is seen around the tumour with the rest of the renal parenchyma exhibiting normal appearing tubules and congested glomeruli. Resected margins are totally free of the tumour and located minimum 2mm away. Perirenal fat is uninvolved by the tumour.
A diagnosis of Type II papillary renal cell carcinoma of the lower pole of the left kidney was made. Size of the papillary renal tumour was 2.7x2.2 cm with an excised upper margin that was located 2 mm away.

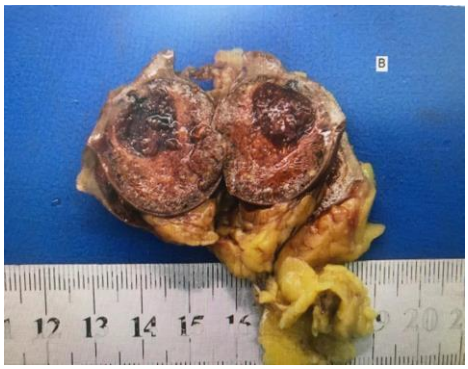

Fig 1

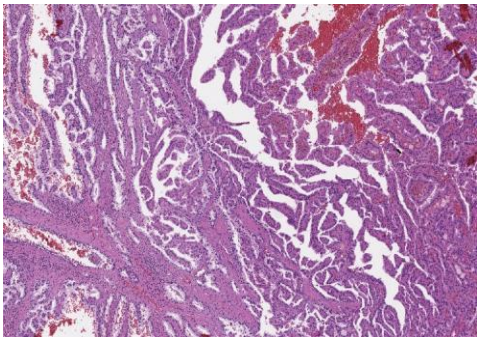

Fig 2

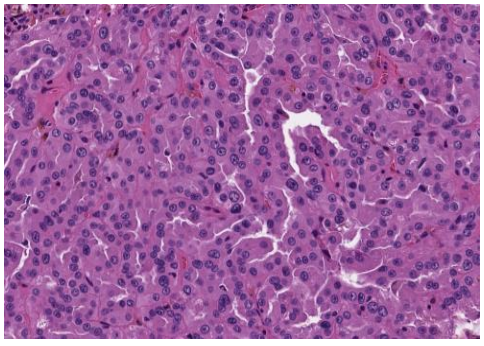

Fig 3

Discussion

Papillary renal cell carcinoma (RCC) is the common renal carcinoma only next to clear cell RCC and constitutes around 15% of all renal carcinomas [2]. The incidence of papillary RCC is highest between 60 and 70 year old individuals and found to be more common in males than females [3, 4]. There two subtypes of papillary RCC: type 1 tumours are composed of small cells with low grade nucleus and amphophilic scant cytoplasm arranged in linear pattern, and type 2 tumours are composed of large pleomorphic cells with abundant eosinophilic cytoplasm, stratified crowded nuclei and prominent nucleoli. Bad patient outcome is associated with type 2 papillary RCC [5]. Along with different cytological features, intracellular hemosiderin and foamy macrophages that are often seen in type 1 are unusual in type 2 papillary RCCs. Cytokeratin 7 immunohistochemical positivity is found in around 20% of type 2 papillary RCCs, in comparison with 80% in type 1 papillary RCCs [3]. Racemase is one more helpful marker that is found positive in papillary RCCs [6]. A variant of papillary RCC known as an oncocytic variant of papillary RCC belongs in the spectrum of type 2 papillary RCCs [7]. Type 2 papillary RCCs are generally of higher grade with nuclear grade being 3, and this is considered to account for their aggressive behaviour when compared to type 1 papillary RCCs, which are generally low grade RCCs.

A recent study was done involving a large database of papillary type 1 and type 2 RCCs, comparing their baseline clinical features, histopathological characteristics and patient survival/outcome. This is the largest analysis/study of papillary RCCs done and it revealed that patients with type 2 papillary RCC frequently presented with higher grade, advanced stage and large tumour sizes at the point of initial diagnosis. Moreover, type 2 papillary RCC patients were seen to have increased rates of mortality and lesser disease free life. The study renders real proof that confirms type 2 papillary RCC patients have the worst outcome when compared with type 1 papillary RCC patients [8].

Conclusion

Recognising papillary patterns essential for the diagnosis of papillary RCCs is not challenging in most scenarios. But grading and subtyping of papillary renal cell carcinoma is essential to predict patient prognosis.

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